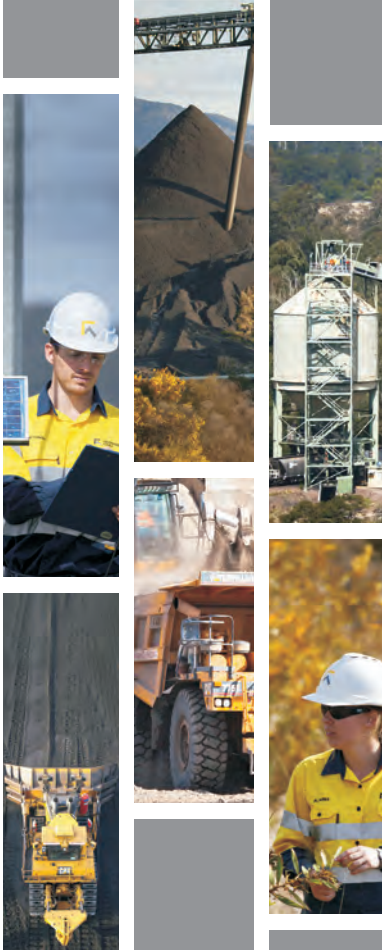


# Stratford Exploration Program Review of Environmental Factors



May 2014



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## EXECUTIVE SUMMARY

The Stratford Mining Complex (consisting of the Stratford Coal Mine and Bowens Road North Open Cut) is an open cut coal operation located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) in the Gloucester Basin. The Stratford Mining Complex operations are undertaken on Mining Lease (ML) 1360, ML 1447, ML 1521, ML 1528, ML 1538 and ML 1577. Stratford Coal Pty Ltd (SCPL) is the owner and operator of the Stratford Mining Complex. SCPL is a wholly owned subsidiary of Yancoal Australia Limited (Yancoal).

Authorisation (AUTH) 315 is located adjacent the Stratford Mining Complex and is held by Gloucester Coal Ltd<sup>1</sup> (GCL) and CIM Stratford Pty Ltd. SCPL manages exploration activities in AUTH 315 on behalf of GCL and CIM Stratford Pty Ltd.

SCPL is seeking approval to undertake Category 1, 2 and 3 exploration activities within ML 1360, ML 1528, ML 1577 and AUTH 315. The proposed exploration program (the Program) would include drilling approximately 74 drill holes and associated downhole geophysical surveys for the purposes of coal exploration.

The purpose of the Program is to allow for coal exploration within ML 1360, ML 1528, ML 1577 and AUTH 315.

SCPL would implement a site selection process for exploration drill holes and access tracks to minimise potential impacts on local landholders and the environment, based on the following process:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of previously cleared areas wherever possible to avoid the clearing of trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid any habitat features (where practicable).
- Avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land*.
- Compliance with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* and avoidance of known Aboriginal objects.
- Minimisation of impacts on agricultural production and assets (e.g. fences).
- Compliance with the non-standard hours of operation management level in the *Interim Construction Noise Guideline* at privately owned residences, except with agreement of the affected landholder(s).

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<sup>1</sup> Yancoal Australia Limited merged with Gloucester Coal Ltd (GCL) in 2012. SCPL is now a wholly owned subsidiary of Yancoal Australia Limited.

Impacts from the Program have been classified as low adverse<sup>2</sup> due to the following factors:

- the short-term and staged nature of the Program;
- the relatively small area of disturbance;
- minimisation of potential impacts on local landholders and the environment through a site selection process for drill hole sites and access tracks;
- use of low impact equipment and techniques;
- implementation of a range of mitigation measures; and
- the rehabilitation techniques to be implemented, along with ongoing monitoring to ensure success of the rehabilitation program.

The Program would not have a significant effect on the environment or threatened species, populations or ecological communities.

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<sup>2</sup> In accordance with the methodology to characterise impacts in *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012a).

## 1 THE PROPOSED ACTIVITY

### 1.1 BACKGROUND

The Stratford Mining Complex (consisting of the Stratford Coal Mine and Bowens Road North Open Cut) is an open cut coal operation located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) in the Gloucester Basin (Figure 1). The Stratford Mining Complex operations are undertaken on Mining Lease (ML) 1360, ML 1447, ML 1521, ML 1528, ML 1538 and ML 1577 (Figure 2). Stratford Coal Pty Ltd (SCPL) is the owner and operator of the Stratford Mining Complex. SCPL is a wholly owned subsidiary of Yancoal Australia Limited (Yancoal).

Authorisation (AUTH) 315 is located adjacent the Stratford Mining Complex (Figures 1 and 2) and is held by Gloucester Coal Ltd<sup>3</sup> (GCL) and CIM Stratford Pty Ltd. SCPL manages exploration activities in AUTH 315 on behalf of GCL and CIM Stratford Pty Ltd.

Recent exploration activities undertaken have included exploration drilling as described in *Exploration Drilling Program – Review of Environmental Factors Exploration Authorisation (EA) 315* (the 2010 REF) (GCL, 2010).

SCPL prepared the *Stratford Extension Project Environmental Impact Statement* (SCPL, 2012a) to support a Development Application for the Stratford Extension Project (SSD-4966) under the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). The general arrangement of the proposed Stratford Extension Project is shown on Figure 2. This Review of Environmental Factors (REF) refers to a number of the specialist assessments prepared for the *Stratford Extension Project Environmental Impact Statement* (SCPL, 2012a) where relevant.

### 1.2 SUMMARY OF THE ACTIVITY

SCPL is seeking approval to undertake Category 1, 2 and 3 exploration activities (drilling and downhole geophysical surveys) within ML 1360, ML 1528, ML 1577 and AUTH 315. This REF is intended to supersede the 2010 REF.

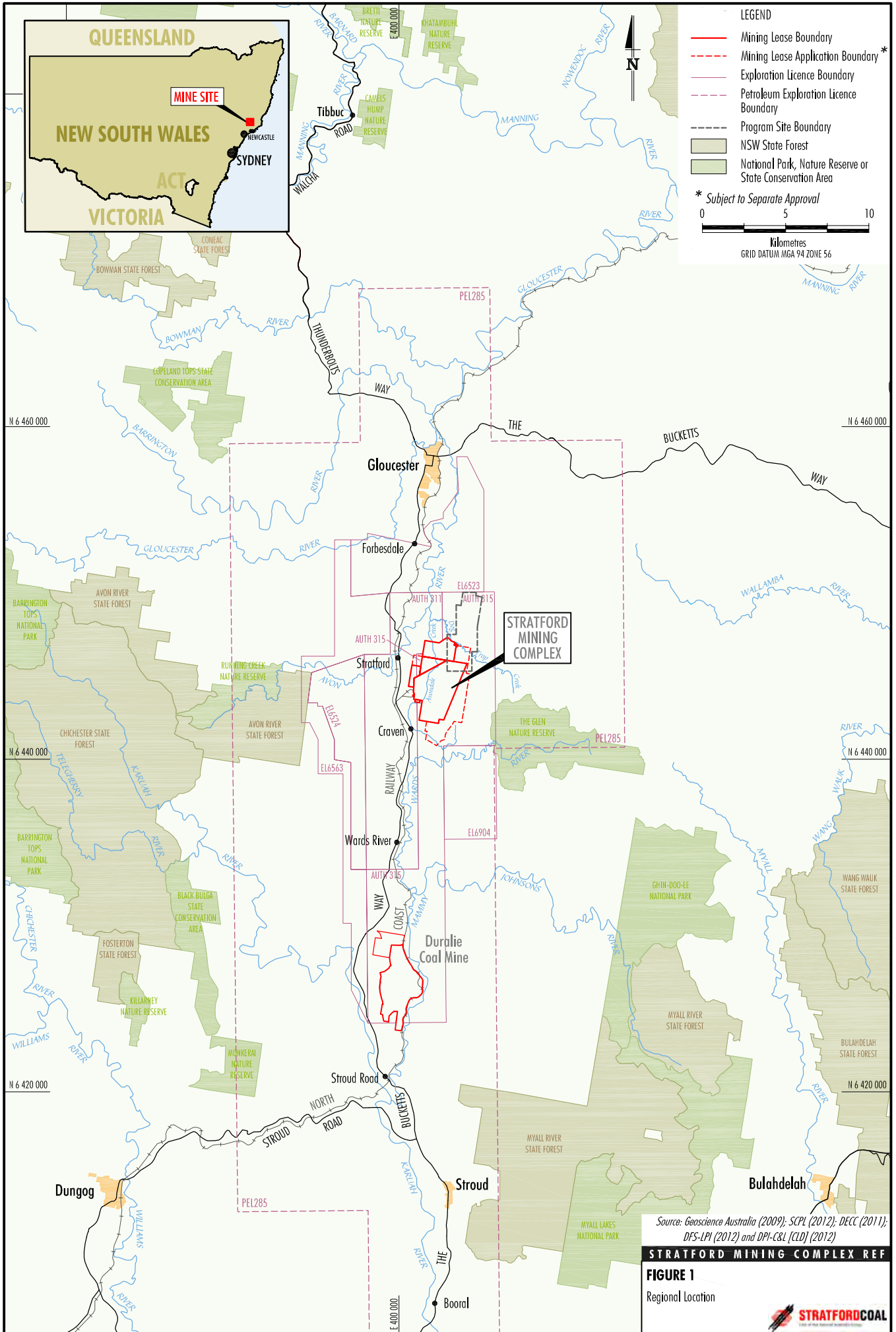
SCPL has submitted a surface disturbance notice and this REF for assessment under Part 5 of the EP&A Act by the Division of Resources and Energy (DRE) within the Department of Trade, Investment, Regional Infrastructure and Services (NSW Trade & Investment). This REF has been prepared in consideration of *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012a).

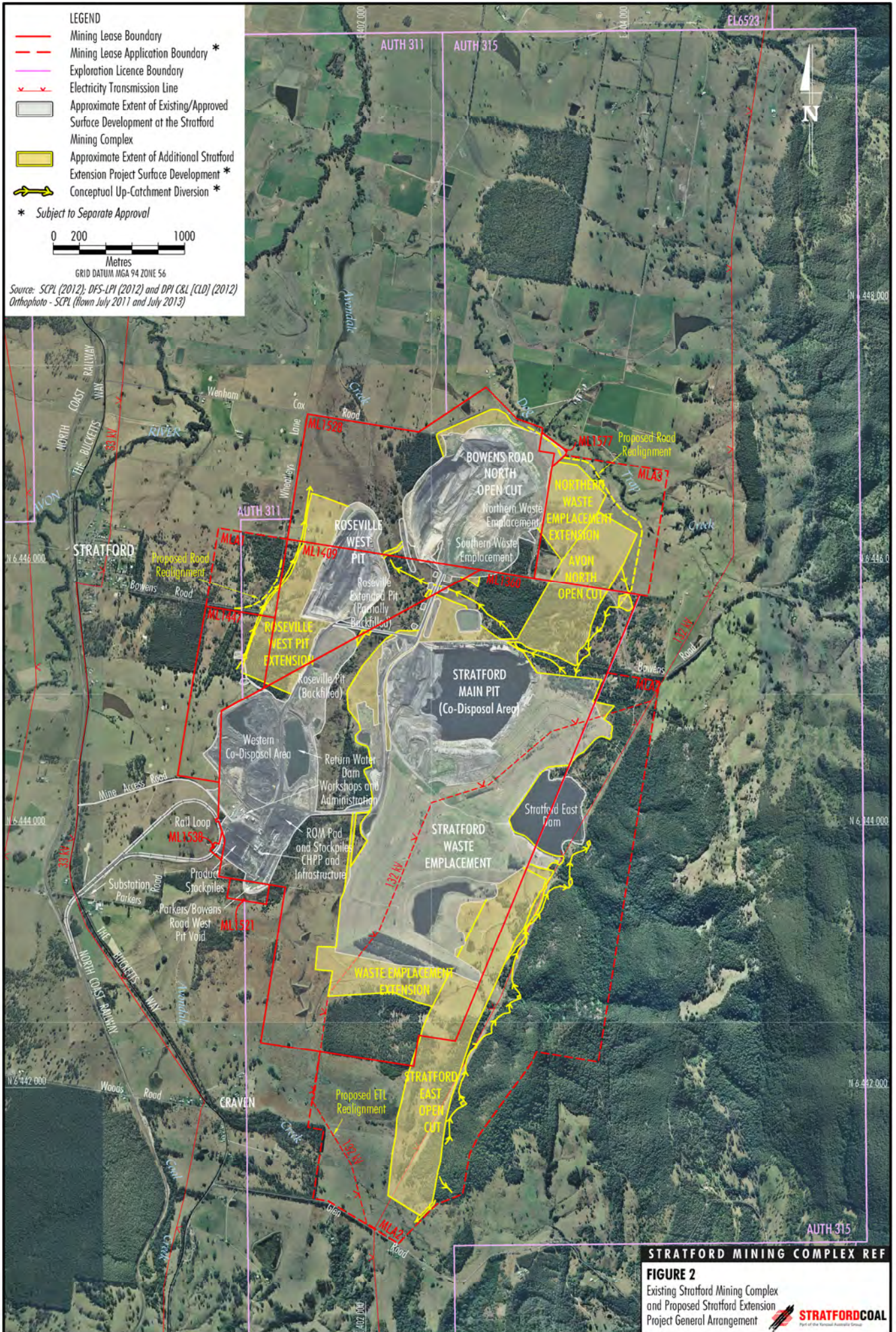
The proposed exploration program (the Program) would include drilling approximately 74 drill holes and associated downhole geophysical surveys for the purpose of coal exploration.

An overview of the Program is provided in Table 1 and indicative drill hole locations are shown on Figure 3.

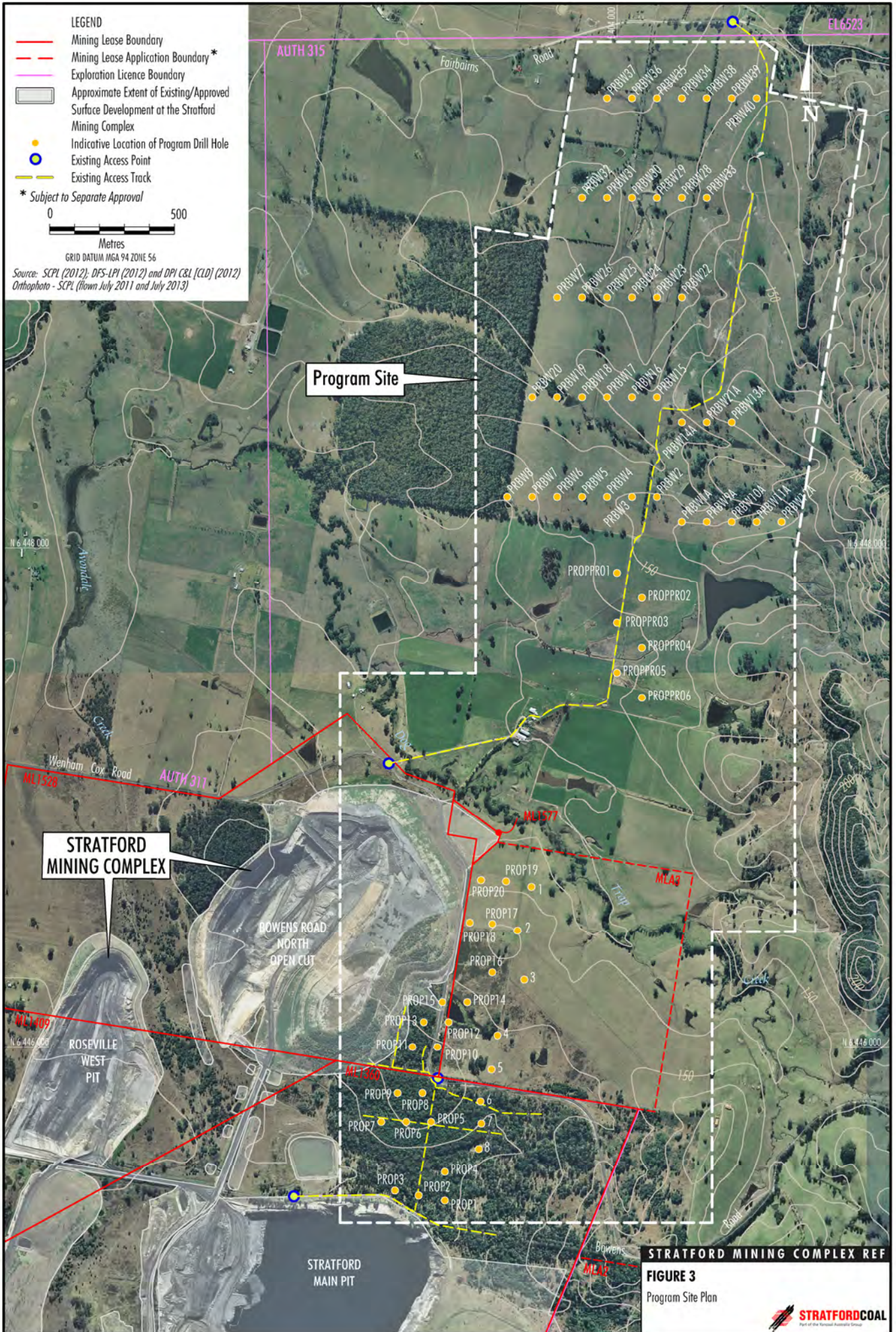
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<sup>3</sup> Yancoal Australia Limited merged with Gloucester Coal Ltd (GCL) in 2012. SCPL is now a wholly owned subsidiary of Yancoal Australia Limited.









**Table 1**  
**Summary of the Activity**

Title numbers	ML 1360, ML 1528, ML 1577 and AUTH 315.
Titleholders	Gloucester Coal Ltd and CIM Stratford Pty Ltd.
Operator	Stratford Coal Pty Ltd.
Activity type	Category 1, 2 and 3 exploration activities.
Activity scope	Drilling of approximately 74 exploration drill holes. Downhole geophysical surveys.
Activity location	Within ML 1360, ML 1528, ML 1577 and AUTH 315.
Activity duration	Approximately 2.5 years from commencement of Program activities.
Type of approval being sought	Approval is being sought for Category 1, 2 and 3 exploration activities.

### 1.3 LOCATION

The Program site is located approximately 100 km north of Newcastle, NSW, in the Gloucester Basin (Figures 1 and 3).

The Program site covers an area of approximately 690 hectares (ha) entirely within the Gloucester Local Government Area (LGA).

Gloucester is the major centre of the Gloucester Valley, located approximately 15 km north of the Program site. There is a well-developed road and rail transport network throughout the Gloucester Valley, with The Bucketts Way and North Coast Railway passing to the west of the Program site.

### 1.4 STAKEHOLDER CONSULTATION

Consultation for the Program has been undertaken in general accordance with the *Guideline for community consultation requirements for the exploration of coal and petroleum, including coal seam gas* (NSW Trade and Investment, 2012). The level of consultation undertaken during the preparation of this REF is considered to be consistent with the scale (Section 1.7) and potential impacts (Section 4) of the Program.

#### **Community Consultative Committee**

A Community Consultative Committee (CCC) is established and operates in accordance with the Stratford Mining Complex Development Consents (DA 23-98/99 and DA 39-02-01). The CCC meets quarterly and the meeting minutes are available publicly on the SCPL website. Members of the CCC were selected based on nominations from community representatives and other stakeholders and includes local residents, Gloucester Shire Council and SCPL representatives.

The Program was discussed at the CCC meeting on 8 May 2014. Queries raised about the Program during the CCC meeting included:

- Proposed method of sealing drill holes.
- Anticipated time period between completion and sealing of each drill hole.

SCPL has addressed these issues in this REF.

### **Website**

SCPL maintains a website within the Stratford Coal web domain ([www.stratfordcoal.com.au](http://www.stratfordcoal.com.au)) for the general public to keep up to date with the operations at the Stratford Mining Complex. The web domain is a significant source of information regarding current and future operations and exploration.

The website provides information on the environmental management and performance of the Stratford Mining Complex, including:

- environmental management plans;
- independent environmental audits;
- annual reviews;
- environmental monitoring results;
- SCM CCC meeting minutes; and
- complaints registers.

Information regarding the Program will also be provided on the website.

SCPL maintains a dedicated community hotline (1300 658 239) for residents to contact a SCPL representative with any questions or concerns they may have regarding SCPL operations at the Stratford Mining Complex and its associated exploration activities.

### **Landholders**

All land proposed within the Program site is owned by SCPL with the exception of an area in the north-western extent of the Program site which is owned by AGL Upstream Investments Pty Limited (AGL) (Figure 4). SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge this REF. SCPL will provide AGL with a copy of this REF.

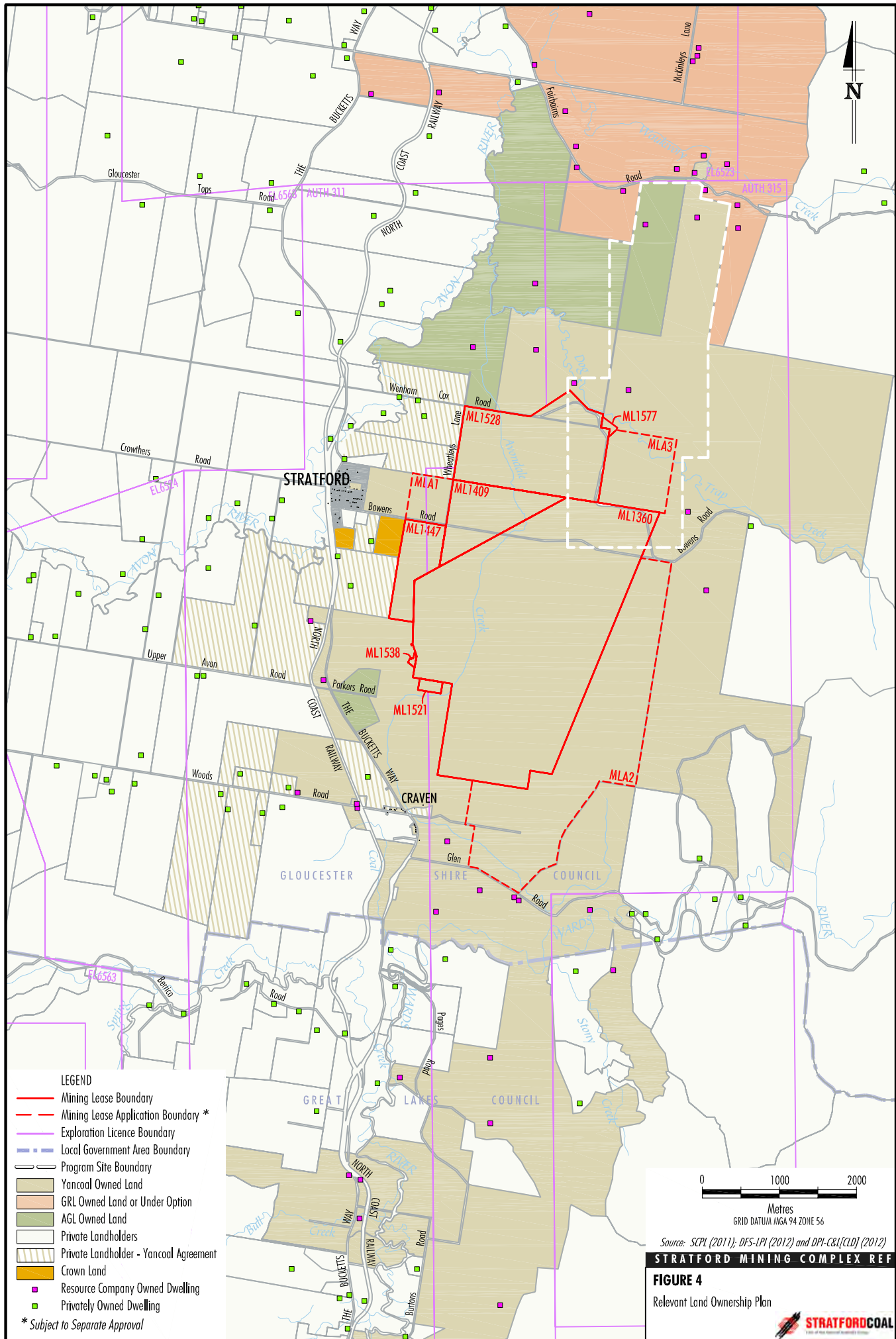
### ***Division of Resources and Energy (within the NSW Department of Trade and Investment, Regional Infrastructure and Services)***

SCPL consults with the DRE on a regular basis regarding exploration activities (including the Program). Issues discussed with the DRE during the preparation of this REF included:

- approval pathway;
- requirements of the *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012a);
- scope of activities included in the REF (Section 1.2); and
- site selection process for the final location of exploration drill holes and access tracks (Section 1.8).

### **Aboriginal Stakeholders**

SCPL would comply with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* (NSW Minerals Council, 2010) and avoid known Aboriginal objects (Section 1.8). Where required, consultation with the Aboriginal community would be conducted throughout the Program (Section 3.4).



**LEGEND**

- Mining Lease Boundary
- - - Mining Lease Application Boundary \*
- - - Exploration Licence Boundary
- - - Local Government Area Boundary
- Program Site Boundary
- Yancoal Owned Land
- GRL Owned Land or Under Option
- AGL Owned Land
- Private Landholders
- Private Landholder - Yancoal Agreement
- Crown Land
- Resource Company Owned Dwelling
- Privately Owned Dwelling

\* Subject to Separate Approval

0 1000 2000  
Metres

GRID DATUM MGA 94 ZONE 56

Source: SCPL (2011); DFS-LPI (2012) and DPI-C&L(CLD) (2012)

**STRATFORD MINING COMPLEX REF**

**FIGURE 4**

Relevant Land Ownership Plan



### ***Overlapping Tenement Holders***

ML 1360, ML 1528, ML 1577 and AUTH 315 overlap with Petroleum Exploration Licence (PEL) 285 held by AGL. SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge this REF. SCPL will provide AGL with a copy of this REF.

### ***Infrastructure Authorities***

Program activities would be located away from The Bucketts Way and North Coast Railway. Program activities would also be sited to avoid interactions with other existing infrastructure (e.g. buried cables and overhead lines), therefore no further consultation with infrastructure authorities is considered to be required.

### ***Community Complaints/Conflict Management***

SCPL contact information is available on the Stratford Coal website and provided during stakeholder consultation, enabling community members to contact the SCPL Community and Property Specialist regarding any questions or concerns they may have regarding the Program.

SCPL operates a protocol for the managing and reporting of complaints in accordance with its existing *Environmental Management Strategy* (SCPL, 2012b).

SCPL would ensure that all complaints are appropriately investigated, actioned and that information is fed back to the complainant.

## **1.5 JUSTIFICATION OF THE ACTIVITY**

The purpose of the Program is to allow for coal exploration within ML 1360, ML 1528, ML 1577 and AUTH 315.

Under the conditions of AUTH 315, SCPL is obliged to complete the work program nominated in the application for AUTH 315 (which includes exploration drilling and downhole geophysical surveys).

The Program can be justified using the following principles of ecologically sustainable development.

### ***The Precautionary Principle***

Exploration drilling is common practice in the coal industry. Whilst exploration activities can result in impacts on the local environment, all environmental risks would be identified through a site selection process before activities commence (Section 1.8). These risks would be analysed, avoided where required and controls put in place to mitigate any damage to the environment.

### ***Inter-generational Equity***

The intention of the Program is to conduct coal exploration and then rehabilitate the Program site to its condition prior to Program activities. This would allow for the environment to be maintained for the benefit of future generations.

### ***Conservation of Biological Diversity and Ecological Integrity***

The impacts on the biological and ecological elements of the area have been assessed before the Program commences (Section 4.3). Final drill hole and access track locations would be selected to avoid serious or irreversible damage to the environment (Section 1.8). The commissioning, operation and decommissioning of each drill hole site would be managed to protect the biological and ecological aspects of the area (Section 1.8).

### ***Improved Valuation, Pricing and Incentive Mechanisms***

All containment, avoidance and abatement of pollution (including waste, noise, air emissions) associated with the Program would be paid for by SCPL.

## **1.6 ANALYSIS OF ALTERNATIVES**

SCPL would implement a site selection process for drill holes and access tracks to minimise potential impacts on local landholders and the environment (Section 1.8).

There are no practical cost effective alternatives to the Program. Exploration drilling is required to collect data on geology and coal quality that cannot be obtained by non-ground disturbing surveys alone.

The proposed mitigation and rehabilitation measures are considered best practice and consistent with relevant policies and standards.

## **1.7 DESCRIPTION OF THE ACTIVITY**

### **1.7.1 Site Access**

Access to the Program site would be from the Stratford Mining Complex, Wenham Cox Road, Bowens Road and Fairbairns Lane (Figure 3).

The Program site predominately consists of cleared land and already contains access tracks (Figure 3). These existing access tracks would be used where possible. New access tracks would however be required where proposed drill holes cannot be accessed using existing access tracks.

The location of access tracks would be selected based on the access track selection process outlined in Section 1.8. If required, new access tracks would be approximately 3 to 4 metres (m) wide. Construction of access tracks would involve grading/side cutting of a suitable profile on slopes and limited importation of select gravels for stabilisation. New access tracks would be rehabilitated when no longer required.

The design, construction and maintenance of access tracks would be conducted in general accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (NSW Department of Environment and Climate Change [DECC], 2007a).

In addition, if the development of new access tracks requires a new crossing of an ephemeral stream within the Program site, SCPL would construct a bed level crossing in accordance with the *Controlled Activities on Waterfront Land: Guidelines for Watercourse Crossings on Waterfront Land* (NSW Office of Water [NOW], 2012b).

Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds (Section 1.8).

### **1.7.2 Drill Hole Locations**

The location of the drill holes would be selected based on the drill site selection process outlined in Section 1.8. Drill holes would be located in previously disturbed or grassland areas, wherever possible. However there would be occasions when clearance of trees cannot be avoided.

Where clearance of trees cannot be avoided, clearance would be limited (based on the advice of a suitably qualified person) to minimise any significant impacts on any threatened fauna species listed under the NSW *Threatened Species Conservation Act, 1995* (TSC Act) or the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

The proposed drill holes locations shown on Figure 3 are indicative only, with the final locations within the Program site to be determined through the drill site selection process (Section 1.8).

### **1.7.3 Drill Hole Site Establishment**

Commissioning of each drill hole site would involve the development of a site area up to approximately 250 square metres (m<sup>2</sup>) (10 m x 25 m).

Site preparation would involve the slashing of grass, with generally minor ground preparation potentially required to provide a stable and level drilling platform. In steeper areas, excavators, graders or dozers may be used in site preparation.

Any soil excavated to prepare the drill hole site would be stockpiled adjacent to the disturbance area for use in the rehabilitation of the area once drilling has ceased. Any disturbed topsoil would be stockpiled separately from the subsoil with erosion protection measures in place.

Appropriate erosion and sediment control measures would be implemented at each drill hole site (Section 1.8).

### **1.7.4 Drilling**

Drilling would be conducted in accordance with AUTH 315.

The drill rigs used would be typical of those used for coal exploration drilling in the Gloucester Basin. The drill rigs would include equipment to raise and lower rods, drive gear for rotary drilling, wireline equipment for recovery of core tubes and down hole devices such as magnets for recovery of broken drill bits.

The drill holes would be drilled utilising circulation fluid and water. During drilling some excess water may be produced. This water would be stored in above ground tanks. No petroleum based circulation fluids or additives would be used. Some petroleum based lubricants may be used. On completion of drilling operations, all drill cuttings and water would be removed to the Stratford Mining Complex.

Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.

### **1.7.5 On-site Employees**

The number of drill rigs operating within the Program site at any one time would vary but is expected to be no more than four. It is estimated that there would usually be approximately 12 contractors on-site at any one time.

### **1.7.6 Hours of Operation**

Based on estimated set-up and set down times, drilling rates, downhole geophysical surveys, sealing drill holes and rehabilitation, the average time required for each of the drill sites would be approximately 4 days.

Rehabilitation monitoring of the drill sites would continue for six months following complete decommissioning in order to ensure the successful rehabilitation of each site.

Hours of operation for the Program would be 7.00 am to 6.00 pm (except for emergencies), Monday to Saturday (subject to the Program noise levels complying with the non-standard hours of operation management level in the *Interim Construction Noise Guideline* [DECC, 2009] at privately owned residences, except with agreement of the affected landholder[s] – Section 1.8).

### **1.7.7 Ancillary Activities**

No new roads (apart from minor access tracks), power lines or pipelines would be required for the Program. Where required, SCPL would implement bushfire hazard reduction measures throughout the duration of the Program.

### **1.7.8 Decommissioning and Rehabilitation**

Decommissioning of each drill hole site would involve the complete removal of all equipment and fencing and the levelling of any pads. Levelling activities may require limited importation of select gravels in steeper areas.

The rehabilitation stage aims to return the Program site to its condition prior to the Program. Revegetation techniques such as brush matting, seeding and, if necessary, direct planting of seedling stock would be implemented as required. Erosion and sediment controls would remain in place at all sites until the risk of erosion has been reduced to negligible levels through on-site rehabilitation.

All drill holes would be sealed and capped in accordance with the *Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012b) and AUTH 315, except where they may need to be left temporarily open for other approved purposes (e.g. groundwater monitoring).

Rehabilitation monitoring would occur at each drill hole site for at least six months after complete decommissioning to ensure the rehabilitation program has been effective and there are no ongoing erosion and weed risks from the Program. Monitoring would initially involve monthly visual inspections (monitoring frequency may be reduced subject to progression of rehabilitation and/or reduced erosion risk). Additional rehabilitation measures would be implemented as required.



## 1.8 MITIGATION STRATEGY

The Program would include a number of measures to prevent, manage and mitigate the impact upon the surrounding environment. This incorporates procedural mitigation measures along with a comprehensive site selection process to ensure drill sites and access tracks are located within areas of lower potential impact.

### ***Drill Hole Site and Access Track Selection Process***

The final location of drill hole sites and access tracks within the Program site would be selected based on the following process:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of previously cleared areas wherever possible to avoid the clearing of trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features (where practicable).
- Avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012a).
- Compliance with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* (NSW Minerals Council, 2010) and avoidance of known Aboriginal objects (Sections 3.4 and 4.5).
- Minimisation of impacts on agricultural production and assets (e.g. fences).
- Compliance with the non-standard hours of operation management level in the *Interim Construction Noise Guideline* (DECC, 2009) at privately owned residences, except with agreement of the affected landholder(s) (described further below).

### ***Water Management***

The Program would be designed to ensure that impacts to surface and groundwater sources are minimised by:

- water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required;
- the implementation of erosion and sediment control strategies to minimise the contamination of surface water from the drill sites or access tracks, particularly in steeper areas;
- the use of above ground tanks to hold drill cuttings/water generated during drilling operations prior to appropriate disposal;
- avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012a);
- the design, construction and maintenance of access tracks conducted in general accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC, 2007a); and
- construction of a bed level crossing in accordance with the *Controlled Activities on Waterfront Land: Guidelines for Watercourse Crossings on Waterfront Land* (NOW, 2012b), should the development of access tracks require a new crossing of an ephemeral stream.

Upon completion of drilling and downhole geophysical logging, all drill holes would be completely filled with cement grout. The drill holes would be sealed and capped in a manner in accordance with the EDG01 Borehole Sealing Requirements on Land: Coal Exploration (DRE, 2012b) and AUTH 315.

### **Waste Management**

All waste products including packaging for equipment or waste generated by Program personnel would be appropriately stored or removed at the end of each shift.

The geological contractors and/or the drilling contractors would provide their own support facilities within the region. However due to the lack of facilities in the field, mobile toilets may be required. These would be located adjacent to the site area and removed at the end of drilling.

The drill cuttings and water generated during drilling operations would be stored in above ground tanks prior to appropriate disposal (Section 1.7.4).

### **Noise Management**

Noise management at the Program would be conducted in accordance with the *Interim Construction Noise Guideline* (DECC, 2009) as required by the conditions of AUTH 315.

Based on a conservative rating background level (RBL) of 30 A-weighted decibels (dBA), the management level specified in the *Interim Construction Noise Guideline* (DECC, 2009) for non-standard hours of operation would be 35 dBA equivalent continuous noise level ( $L_{Aeq(15\text{ min})}$ ).

Drill hole locations would be selected to comply with the non-standard hours of operation management level (i.e. 35  $L_{Aeq(15\text{ min})}$ ) at privately owned residences, except with agreement of the affected landholder(s). Additional noise mitigation (e.g. temporary noise barriers) may also be implemented to comply with the non-standard hours of operation management level. SCPL would also implement best practice noise mitigation for exploration drilling equipment.

As described in Section 1.7.6, standard hours of operation for the Program would be 7.00 am to 6.00 pm, Monday to Saturday (except for emergencies).

### **Other Mitigation Measures**

Other mitigation measures that would be put in place for the Program include:

- Vehicle movements would be restricted to defined tracks, where possible.
- Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds.
- Dust generation during the Program is expected to be relatively low. However, in the event of excessive dust levels on established roads or new access tracks, appropriate dust suppression measures (e.g. use of a water cart) would be deployed at the site.
- Rehabilitation monitoring would occur for at least six months after complete decommissioning to ensure the rehabilitation program has been effective and there are no ongoing erosion and weed risks from the Program activities (Section 1.7.1).
- SCPL's standard work procedures and induction processes would address compliance with SCPL's obligations under ML 1360, ML 1528, ML 1577 and AUTH 315 and this REF.

## **1.9 ACCESS ARRANGEMENTS**

All land proposed within the Program site is owned by SCPL with the exception of an area in the north-western extent of the Program site which is owned by AGL (Figure 4). SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge this REF. SCPL will provide AGL with a copy of this REF.

Access arrangements are being negotiated with AGL. SCPL would not undertake exploration activities on AGL land without a valid access arrangement with AGL in accordance with section 140 of the *Mining Act, 1992*.

## **1.10 OTHER APPROVAL REQUIREMENTS**

### ***State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007***

In accordance with clause 6 of the NSW *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, development for the purposes of mineral exploration is permissible without development consent.

### ***Mining Act, 1992***

Under the NSW *Mining Act, 1992*, exploration and prospecting activities within NSW are regulated by the conditions of the relevant tenements. All Program activities would occur within the boundaries of ML 1360, ML 1528, ML 1577 and AUTH 315 in accordance with the *Mining Act, 1992*.

### ***ML 1360, ML 1528, ML 1577 and AUTH 315 Conditions***

The Program would be undertaken in accordance with the conditions of ML 1360, ML 1528, ML 1577 and AUTH 315 (Appendix A).

Notification and reporting requirements under the conditions of AUTH 315 are outlined in Table 2.

### ***Environmental Planning and Assessment Act, 1979***

The Program is subject to approval and requires assessment by a determining authority under Part 5 of the EP&A Act. In the case of mineral exploration, DRE are the determining authority. The DRE must consider the likely environmental impact of the activity before giving approval. This REF has been prepared in accordance with Part 5 of the EP&A Act in order to comprehensively address the environmental impacts of the Program.

### ***Threatened Species Conservation Act, 1995***

Under Part 5 of the EP&A Act, the DRE must consider the effect of the activity on threatened species, populations and ecological communities and their habitats listed under the TSC Act. Assessments of Significance in accordance with section 5A of the EP&A Act is provided in Appendix B and summarised in Section 4.2. The Assessments of Significance concludes that the Program is unlikely to have a significant effect on species, populations and ecological communities and their habitats.

**Table 2**  
**Authorisation (AUTH) 315 Notification and Reporting Requirements**

<b>Condition No.</b>	<b>Notification/Reporting Requirement</b>	<b>Timing</b>
7	Community Consultation Annual Report	Annually within 28 days of the anniversary of AUTH 315 being granted.
26(c)	Provide details of an assessment of risk of blowouts to the DRE.	At least 7 days prior to the proposed commencement
27	Notification of the DRE of any blowout associated with prospecting operations	Immediately, and provide a written report within 24 hours
30	Notification of the DRE of any prospecting operation involving any drilling, blasting or other potentially hazardous operation.	At least 7 days prior to the proposed commencement
43	Environmental Management Report	Upon expiry, seeking to renew or cancel the exploration licence
45(a), (b)	Notification of the DRE of all incidents and breaches of the exploration licence or environmental protection legislation	Immediately after the incident or breaches of the exploration licence or environmental protection legislation
45(c), (d)	Environmental Incident and Complaints Report	Within 7 days of the incident, breach or complaint

#### **SEPP 44 – Koala Habitat Protection**

As mentioned in Section 1.10, SEPP 44 requires the council in certain LGAs (including Gloucester) to consider whether the land which is the subject of the Development Application is “potential koala habitat” or “core koala habitat”.

Clause 9 of SEPP 44 requires:

- (1) *Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land.*
- (2) *The council’s determination of the development application must not be inconsistent with the plan of management.*

An assessment of koala habitat for the purposes of SEPP 44 was conducted for the Stratford Extension Project and is summarised in Appendix B and in Section 4.2. The assessment concludes that areas within the Program site comprises “potential koala habitat”, but does not comprise “core koala habitat”.

#### **Water Management Act, 2000**

Under clause 18 of the NSW *Water Management (General) Regulation, 2011*, the Program is exempt from water licensing as it is anticipated that less than 3 megalitres of water would be required in any water year.

The Program is exempt from the requirement to obtain controlled activity approvals pursuant to clause 39 of the NSW *Water Management (General) Regulation, 2011*, as the activities would be carried out in accordance with AUTH 315 issued under the *Mining Act, 1992*.

#### **Environment Protection and Biodiversity Conservation Act, 1999**

The EPBC Act requires SCPL to consider the impact of the Program on matters of national environmental significance. Accordingly, the impact of the Program on matters of national environmental significance is assessed in Section 4.7.

The EPBC Act's Significant Impact Guidelines 1.1 *Matters of National Environmental Significance* (Department of the Environment, Water, Heritage and the Arts, 2009) states that:

**All exploratory drilling** (including new field, wildcat, and appraisal drilling, auger, rotary air blast (RAB), open hole percussion, reverse circulation (RC), diamond drilling and wide diameter drilling), including the construction of drill pads, would not be expected to have a significant impact on a matter of national environmental significance where the discharges, emissions and waste from the drilling are contained and managed in an environmentally sensitive manner

...

Mitigation measures that would be implemented to manage the Program in an environmentally sensitive manner are described in Section 1.8.

The Commonwealth Department of the Environment released the *Draft significant impact guidelines: Coal seam gas and large coal mining development – impacts on water resources* (Australian Government, 2013) in June 2013.

A coal mining development is likely to have a significant impact on a water resource if there is a real change or possibility that it will directly or indirectly result in (Australian Government, 2013):

- a substantial change to the hydrology of a water resource; or
- a substantial change in water quality of a water resource.

The impacts of the Program on water resources are assessed in Sections 4.1 and 4.7.

### ***Strategic Regional Land Use Policy***

The Program site is located within the area covered by the *Upper Hunter Strategic Regional Land Use Plan* (NSW Government, 2012a). No strategic agricultural land is mapped in the Program site.

The Strategic Regional Land Use Policy (NSW Government, 2012b) requires specific assessment of agricultural impacts at the exploration stage through the preparation of an Agricultural Impact Statement. An Agricultural Impact Statement is provided in Appendix C and includes an assessment of the potential agricultural impacts of the Program (including consideration of impacts on strategic agricultural land).

The Agricultural Impact Statement concluded that the Program would result in a low risk in accordance with the *Strategic Regional Land Use Policy: Guidelines for Agricultural Impact Statements at the Exploration Stage* (NSW Government, 2012c) (Appendix C).

## 2 THE SITE

The Program would include drilling approximately 74 drill holes within the Program site and associated downhole geophysical surveys for the purposes of coal exploration.

The indicative drill hole locations for the Program are shown on Figure 3. Table 3 provides the coordinates of the indicative drill hole locations. Final drill hole locations would be subject to the selection process described in Section 1.8.

**Table 3  
Indicative Drill Hole Locations**

Site ID	Easting (MGA 94)	Northing (MGA 94)
PRBW1A	404260	6448105
PRBW2	404160	6448205
PRBW3	404060	6448205
PRBW4	403960	6448205
PRBW5	403860	6448205
PRBW6	403760	6448205
PRBW7	403660	6448205
PRBW8	403560	6448205
PRBW9A	404360	6448105
PRBW10A	404460	6448105
PRBW11A	404560	6448105
PRBW12A	404660	6448105
PRBW13A	404460	6448505
PRBW14A	404260	6448505
PRBW15	404160	6448605
PRBW16	404060	6448605
PRBW17	403960	6448605
PRBW18	403860	6448605
PRBW19	403760	6448605
PRBW20	403660	6448605
PRBW21A	404360	6448505
PRBW22	404260	6449005
PRBW23	404160	6449005
PRBW24	404060	6449005
PRBW25	403960	6449005
PRBW26	403860	6449005
PRBW27	403760	6449005
PRBW28	404260	6449405
PRBW29	404160	6449405
PRBW30	404060	6449405
PRBW31	403960	6449405
PRBW32	403860	6449405
PRBW33	404360	6449405
PRBW34	404260	6449805
PRBW35	404160	6449805
PRBW36	404060	6449805
PRBW37	403960	6449805

**Table 3 (Continued)**  
**Indicative Drill Hole Locations**

Site ID	Easting (MGA 94)	Northing (MGA 94)
PRBW38	404360	6449805
PRBW39	404460	6449805
PRBW40	404560	6449805
1	403656	6446642
2	403600	6446467
3	403628	6446270
4	403521	6446046
5	403497	6445908
6	403453	6445781
7	403456	6445693
8	403445	6445591
PROP1	403310	6445385
PROP2	403205	6445405
PROP3	403110	6445425
PROP4	403310	6445500
PROP5	403255	6445700
PROP6	403155	6445700
PROP7	403055	6445700
PROP8	403220	6445815
PROP9	403120	6445815
PROP10	403280	6446000
PROP11	403180	6446000
PROP12	403325	6446100
PROP13	403225	6446100
PROP14	403400	6446180
PROP15	403300	6446180
PROP16	403500	6446300
PROP17	403500	6446495
PROP18	403410	6446500
PROP19	403555	6446665
PROP20	403455	6446670

ID = Identification.

MGA = Map Grid of Australia.

### **3 THE EXISTING ENVIRONMENT**

#### **3.1 GENERAL DESCRIPTION**

##### ***Climate and Weather***

Long-term local meteorological records for the Program site are available from the Stratford Mining Complex on-site meteorological station and from the Commonwealth Bureau of Meteorology (BoM). Meteorological data collected from these stations are summarised in Table 4 and discussed below.

The climate of the Program site is not considered to be a factor of significance for the Program.

##### ***Rainfall***

The long-term average annual rainfall recorded at the Gloucester Post Office (60015), located approximately 14 km north of the Stratford Mining Complex, is 983 millimetres (mm) based on records dating back to 1888 (Table 4).

Closer to the Program site, rainfall records at Craven (Longview [60042]) since 1961 and Gloucester (Hiawatha [60112]) since 1976 indicate the average annual rainfall since these stations were commissioned is 1,057 mm and 1,021 mm, respectively (Table 4).

The months with the highest monthly-average rainfalls at the Gloucester Post Office, Craven (Longview) and Gloucester (Hiawatha) meteorological stations are February and March (121.7 mm and 127.9 mm, 136.8 mm and 133.9 mm, and 131.7 and 124.1 mm, respectively) (Table 4).

For the period 1996 to 2011, the average annual rainfall recorded by the Stratford Mining Complex meteorological station is 924 mm, with maximum monthly rainfall typically occurring during the warmer months from November to March (Table 4).

##### ***Temperature***

The closest BoM meteorological stations to the Program site with recorded temperature data are located at Chichester Dam and at the Dungog Post Office.

Long-term, monthly-average daily maximum and minimum temperatures from Chichester Dam and Dungog Post Office meteorological stations show that temperatures are warmest from November to February and coolest in the winter months of June, July and August (Table 4).

Monthly-average daily maximum temperatures and daily minimum temperatures for the Dungog Post Office and Chichester Dam meteorological stations are provided in Table 4.

##### ***Evaporation***

Evaporation records are available from the Chichester Dam (61151), Taree Airport AWS (60141) and Paterson (Tocal) (61250) meteorological stations, which have recorded average annual evaporation of approximately 1,059 mm, 1,607 mm and 1,571 mm, respectively (Table 4). The highest monthly-average evaporation is in December (151.9 mm, 201.5 mm and 210.8 mm, respectively) and the lowest monthly-average evaporation is in June (33 mm, 66 mm and 63 mm, respectively) (Table 4).

Based on the available datasets, measured monthly-average evaporation exceeds the measured monthly-average rainfall for most of the year (Table 4).



**Table 4  
Meteorological Summary - Average Temperature, Rainfall and Evaporation**

Period of Record	Average Daily Temperature (°C) [Minimum-Maximum]		Average Monthly Rainfall (mm)				Average Monthly Evaporation (mm) <sup>1</sup>		
	Chichester Dam (61151)	Dungog Post Office (61017)	Gloucester Post Office (60015)	Craven (Longview) (60042)	Gloucester (Hiawatha) (60112)	Stratford Mining Complex AWS <sup>2</sup>	Chichester Dam (61151)	Taree Airport AWS (60141)	Paterson [Total] AWS (61250)
	1938 to 1956	1966 to 1975	1888 to 2011	1961 to 2011	1976 to 2011	1996 to 2011	1942 to 2011	1999 to 2011	1967 to 2011
January	13.7-30.1	15.7-34.0	114.8	125.3	113.3	99.6	139.5	201.5	192.2
February	13.8-29.8	15.5-31.1	121.7	136.8	131.7	111.1	110.2	155.4	149.7
March	13.1-26.2	13.1-29.3	127.9	133.9	124.1	107.9	93.0	148.8	130.2
April	2.8-23.3	7.6-27.4	77.3	85.2	83.8	71.1	69.0	105.0	99.0
May	0.8-21.0	6.1-23.6	68.6	88.3	81.4	72.1	46.5	83.7	74.4
June	4.4-17.4	2.6-19.8	68.4	79.2	60.4	79.2	33.0	66.0	63.0
July	4.4-15.9	0.3-20.2	51.4	40.3	39.9	51.0	40.3	74.4	74.4
August	4.9-20.5	3.7-20.8	46.6	44.3	36.1	36.6	58.9	99.2	105.4
September	6.8-21.8	5.9-25.2	51.2	47.4	44.5	42.8	87.0	138.0	132.0
October	7.8-23.9	7.5-28.0	69.2	79.3	68.5	70.6	108.5	158.1	161.2
November	12.3-28.7	10.8-31.4	83.9	91.8	102.4	106.1	123.0	162.0	174.0
December	14.4-30.7	11.2-31.3	104.4	98.5	101.7	78.7	151.9	201.5	210.8
<b>Annual Average</b>	<b>11.0-21.9</b>	<b>10.3-24.8</b>	<b>983 [985.4]</b>	<b>1,057 [1,050.3]</b>	<b>1,021 [987.8]</b>	<b>924 [926.8]</b>	<b>1,059 [1,060.8]</b>	<b>1,607 [1,593.6]</b>	<b>1,571 [1,566.3]</b>

Source: SCPL (2012a).

<sup>1</sup> As measured by Class A Evaporation Pan.

<sup>2</sup> Records missing for periods: 12 March 2001 to 31 December 2001; 10 February 2005 to 25 March 2005; 7 November 2005 to 30 November 2005; and 17 January 2008 to 13 February 2008.

AWS = Automatic Weather Station

[ ] Sum of average monthly records.

## **Topography**

The Program site is situated in the Gloucester Valley which is a linear valley extending approximately 40 km in length and 13 km in width (SCPL, 1998). The Bucketts (546 m Australian Height Datum [AHD]) and Mograni Ranges (480 m AHD) flank the western and eastern sides of Gloucester respectively. Other elevated topographic features include Cut Hill (359 m AHD) (some 7 km north-west of the Program site) and Banks Rocks (460 m AHD) (located some 3 km north-east of the Program site).

The topography of the area within and immediately surrounding the Program site is characterised by a north-south oriented linear ridgeline to the east, transitioning to undulating lowlands and valley floor floodplains towards the west.

The ridgeline to the east of the Program site rises to approximately 470 m AHD and is moderately to steeply sloping. The elevation of the valley floor within the Program site ranges from approximately 140 m AHD to approximately 115 m AHD.

## **Vegetation**

FloraSearch (2012) conducted flora surveys as part of the Stratford Extension Project covering the native vegetation in the Program site. Native communities and surrounding non-native map units were mapped by FloraSearch (2012) (Figure 5).

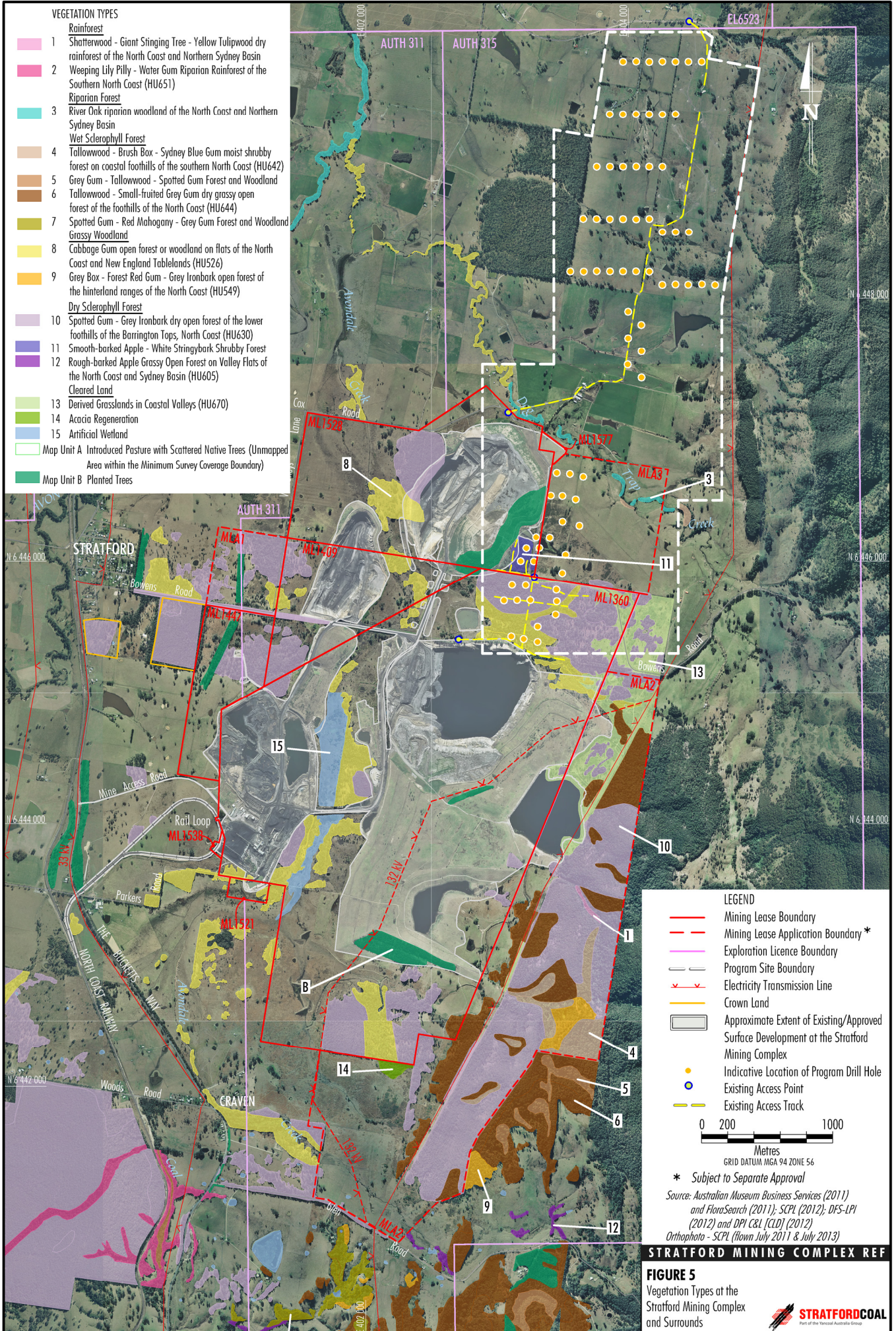
Map Unit A (Introduced Pasture with Scattered Native Trees) makes up the largest mapping unit within the Program site (Figure 5). Other vegetation types mapped in the Program site include:

- Vegetation Type 8: Cabbage Gum open forest or woodland on flats of the North Coast and New England Tablelands (HU526).
- Vegetation Type 10: Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast (HU630).
- Vegetation Type 11 - Smooth-barked Apple – White Stringybark Shrubby Forest.
- Map Unit B - Planted Trees (non-native).

The remnant vegetation in the south of the Program site was determined to vary from moderate to good condition (FloraSearch, 2012). This patch had evidence of historic clearance but retained large patches with continuous tree canopy (FloraSearch, 2012). The vegetation associated with Dog Trap Creek is in poor condition, with little to no remnant native vegetation present (FloraSearch, 2012). Cleared land is dominated by introduced pasture and weeds and is considered in poor condition (FloraSearch, 2012).

Map Unit A – Introduced Pasture with Scattered Native Trees is common throughout the Stratford Extension Project area (FloraSearch, 2012) and surrounds given the area has been historically intensively farmed. Map Unit B (Planted Trees) is located on rehabilitated landforms of the Stratford Coal Mine, a portion of which is located within the Program site (Figure 3).

Vegetation Type 10 - Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast (HU630) was commonly mapped for the Stratford Extension Project (Figure 3; FloraSearch, 2012). This community is present on undulating hills of the valley flora (FloraSearch, 2012).



Vegetation Type 8 – Cabbage Gum open forest or woodland on flats of the North Coast and New England Tablelands (HU526) is present on frequently waterlogged sites on drainage lines and lower slopes of the valley floor (FloraSearch, 2012; Figure 3).

Vegetation Type 11 – Smooth-barked Apple – White Stringybark Shrubby Forest is located in one outlying patch within the Program site (Figure 3). It is a western outlier of a coastal sands community (FloraSearch, 2012). There are no other known examples in the immediate region, however it is considered to potentially be representative of a species-poor outlier of the community *Smooth-barked Apple heathy open forest on sands of the North Coast* which is located east of the study area (FloraSearch, 2012). The species represented within this community are not unique within the region.

Indicative drill hole site locations vary from cleared land to native vegetation (forest) areas. These native vegetation areas mainly consist of dry sclerophyll forest and grassy woodland (FloraSearch, 2012).

### Soil Characteristics

Soil landscapes in the vicinity of Program site are mapped in the *Soil Landscapes of the Dungog 1:100 000 Sheet (Gresford, Dungog, Stroud, Gloucester)* (Henderson, 2000). Table 5 summarises the key characteristics and the dominant soil materials of each soil landscape within Program site (Figure 6).

**Table 5  
Soil Landscapes**

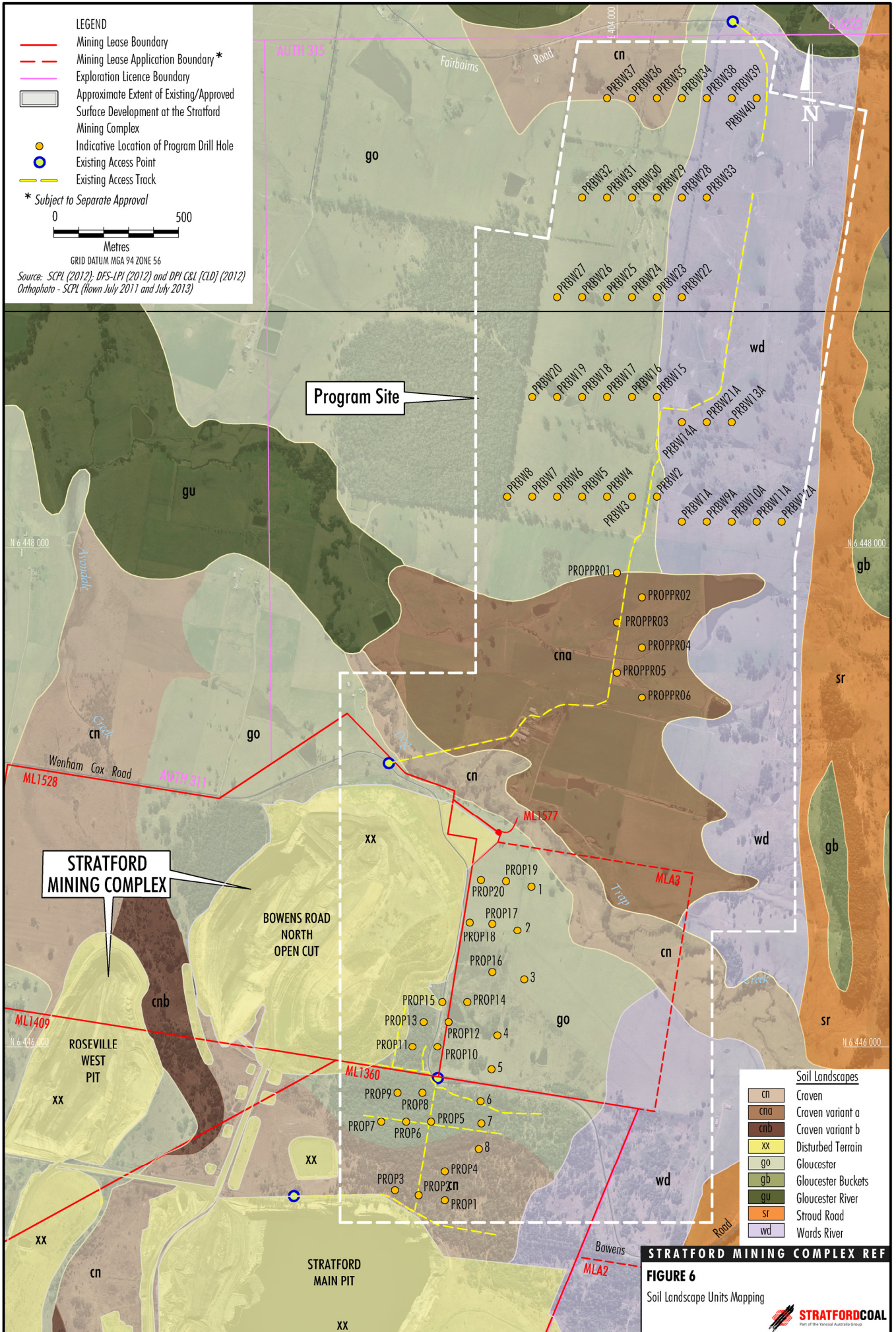
Soil Landscape	Characteristics
Gloucester	<ul style="list-style-type: none"> <li>• Undulating low hills on Permian sediments (sandstone, siltstone, shale, coal and conglomerate).</li> <li>• Brown Sodosols and Grey Kurosols on imperfectly to moderately well-drained sideslopes and crests; Shallow Tenosols on crests and steeper sideslopes.</li> <li>• Highly erodible sodic/dispersive soils, strongly acidic, seasonal waterlogging (lower slopes).</li> </ul>
Craven	<ul style="list-style-type: none"> <li>• Low wide drainage depressions on Quaternary alluvium.</li> <li>• Imperfectly drained Natric Yellow Kurosols.</li> <li>• Highly erodible sodic/dispersive soils, strongly acidic, seasonal waterlogging, dryland salinity.</li> </ul>
Craven Variant A	<ul style="list-style-type: none"> <li>• Low gradient alluvial fans.</li> <li>• Imperfectly drained Natric Yellow Kurosols.</li> <li>• Highly erodible sodic/dispersive soils, strongly acidic, seasonal waterlogging, dryland salinity.</li> </ul>
Wards River	<ul style="list-style-type: none"> <li>• Rolling low hills on sediments of the Gloucester Coal Measures (sandstone, conglomerate, siltstone, shale and coal).</li> <li>• Brown, Yellow and Grey Kurosols with some Tenosols.</li> <li>• Highly erodible, very strongly acidic, seasonal waterlogging (lower slopes), localised shallow and steep soils.</li> </ul>

Source: McKenzie Soil Management (2012).

Acid sulphate soils are not known to occur within Program site.

### Land Use

Land use in the vicinity of the Program site is dominated by agricultural production (primarily grazing for beef production), the Stratford Mining Complex and remnant vegetation generally located along ridgelines, along watercourses and in isolated patches within the cleared landscape.



A number of reserved areas are located in the general vicinity of the Program site including the Glen Nature Reserve (located approximately 2 km to the south-east), Barrington Tops National Park located to the west and south-west, and the Avon River State Forest located to the west (Figure 1).

Settlements located in the vicinity of the Program site include Stratford and Craven (Figure 1).

### **3.2 WATER SOURCES**

#### ***Surface Water***

The Program site is located in the Avon River catchment which is an upper catchment of the Manning River system. The Manning River system drains some 8,000 square kilometres and extends from the Great Dividing Range to the sea near Taree (Gilbert and Associates, 2012).

The Program site is located in the Avondale Creek, Dog Trap Creek and Waukivory Creek sub-catchments of the Avon River.

#### ***Groundwater***

Two groundwater systems are supported in the vicinity of the Program site (Heritage Computing, 2012):

- Fractured Rock Groundwater System – including shallow rock aquifer and the Gloucester Coal Measures and underlying Dewrang Group; and
- Alluvial Groundwater System – including alluvial (narrow channel) sediments associated with Dog Trap Creek, Avondale Creek and the Avon River.

Recharge to the groundwater systems occurs from rainfall and runoff infiltration, lateral groundwater flow and some leakage from surface water storages and streams (e.g. Dog Trap Creek). Although groundwater levels are sustained by rainfall infiltration, they are controlled by topography, geology and surface water levels in local drainages (Heritage Computing, 2012).

The direction of groundwater flow in the vicinity of the Program site is from the south-east to the north-west, and the main groundwater discharge zones are Dog Trap Creek, Avondale Creek and the Avon River (Heritage Computing, 2012).

#### ***Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources, 2009***

Under the NSW *Water Management Act, 2000*, the Program site is located within the *Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources, 2009* (the Water Sharing Plan).

Within the Water Sharing Plan, the Program site is located within the Avon River water source. At the commencement of the Water Sharing Plan there were 1,985 unit shares of unregulated river access licences and 20 unit shares of aquifer access licences in the Avon River Water Source.

The management controls that would be implemented to avoid, minimise or mitigate impacts to water sources are described in Section 1.8.

### 3.3 THREATENED SPECIES, POPULATIONS AND ECOLOGICAL COMMUNITIES

#### Flora

FloraSearch (2012) undertook database searches, including the Atlas of NSW Wildlife, Royal Botanic Gardens and Domain Trust, and Preliminary and Final Determinations of the NSW Scientific Committee for the Stratford Extension Project to identify threatened flora listed under the TSC Act potentially occurring within the Stratford Mining Complex and surrounds (FloraSearch, 2012).

Flora surveys were conducted across the Stratford Mining Complex and immediate surrounds, and collated results of historical flora surveys conducted at the Stratford Mining Complex since 1994 (FloraSearch, 2012). FloraSearch (2012) surveys included extensive survey sites throughout the Program site including along riparian vegetation of Dog Trap Creek and in the remnant vegetation in the south of the Program site.

No flora species listed under the TSC Act have been found within the Stratford Mining Complex and surrounds despite extensive surveys between 1994 and 2011 by multiple botanists (FloraSearch, 2012). Based on this, no threatened flora species listed under the TSC Act were considered relevant to the Program (Appendix B).

#### Fauna

A search of the Atlas of NSW Wildlife database, Preliminary and Final Determinations of the NSW Scientific Committee, Australian Museum database and Birds Australia database was conducted as part of the Stratford Extension Project to identify threatened fauna listed under the TSC Act potentially occurring within the Stratford Mining Complex and surrounds (AMBS, 2012).

AMBS (2012) identified threatened fauna species listed under the TSC Act that have the potential to occur at the Stratford Mining Complex and surrounds (Table 6). Each of these threatened fauna species were assessed for the Program under the *Threatened Species Assessment Guidelines – Assessment of Significance* (DECC, 2007b) (Appendix B; Table 6).

**Table 6**  
**Threatened Species Considered for Assessment**

Common Name	Scientific Name	TSC Act Status <sup>1</sup>
<b>Birds</b>		
Little Eagle	<i>Hieraaetus morphnoides</i>	V
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	V
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V
Little Lorikeet	<i>Glossopsitta pusilla</i>	V
Swift Parrot	<i>Lathamus discolor</i>	E
Sooty Owl	<i>Tyto tenebricosa</i>	V
Masked Owl	<i>Tyto novaehollandiae</i>	V
Powerful Owl	<i>Ninox strenua</i>	V
Barking Owl	<i>Ninox connivens</i>	V
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V
Speckled Warbler	<i>Chthonicola sagittata</i>	V
Regent Honeyeater	<i>Anthochaera Phrygia</i>	CE
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	V
Flame Robin	<i>Petroica phoenicea</i>	V
Scarlet Robin	<i>Petroica boodang</i>	V
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V
Diamond Firetail	<i>Stagonopleura guttata</i>	V

**Table 6 (Continued)**  
**Threatened Species Considered for Assessment**

Common Name	Scientific Name	TSC Act Status <sup>1</sup>
<b>Mammals</b>		
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V
Common Planigale	<i>Planigale maculate</i>	V
Koala	<i>Phascolarctos cinereus</i>	V
Squirrel Glider	<i>Petaurus norfolcensis</i>	V
Long-nosed Potoroo	<i>Potorous tridactylus</i>	V
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V
Eastern Freetail-bat	<i>Mormopterus norfolkensis</i>	V
Little Bentwing-bat	<i>Miniopterus australis</i>	V
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V
Southern Myotis	<i>Myotis macropus</i>	V
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V
Eastern Cave Bat	<i>Vespadelus troughtoni</i>	V

<sup>1</sup> Conservation status current as of 2 May 2014.

V = Vulnerable; E = Endangered; CE = Critically Endangered.

### **Populations**

No threatened flora populations listed under the TSC Act are considered likely to occur in the Program site (Appendix B).

### **Ecological Communities**

No threatened ecological communities listed under the TSC Act are considered to have the potential to occur within the Program site and, as such, were not assessed (Appendix B).

### **Critical Habitat**

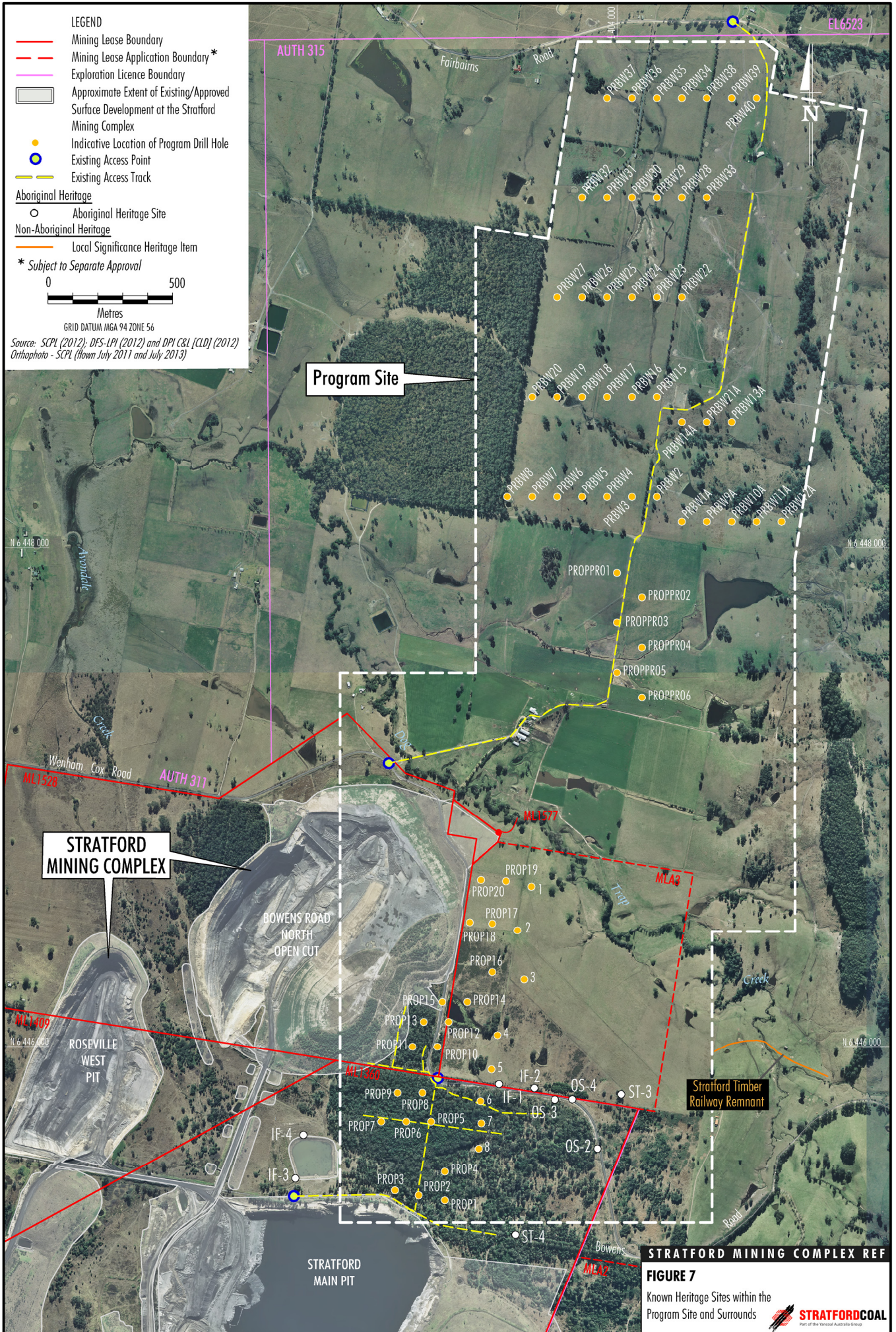
There is no registered critical habitat listed in the schedules of the TSC Act within the Program site (Appendix B).

## **3.4 ABORIGINAL CULTURAL HERITAGE**

A search of NSW Office of Environment and Heritage's Aboriginal Heritage Information Management Systems (AHIMS) was performed to identify any known Aboriginal sites or places within or near the Program site. The AHIMS search indicated that six Aboriginal artefact sites have been recorded within the Program site (Figure 7). The results of the AHIMS database search are provided in Appendix D.

The Aboriginal artefact sites from the AHIMS database search were identified during surveys conducted for the *Stratford Extension Project Aboriginal Cultural Heritage Assessment: Gloucester Shire Local Government Area* (Kayandel Archaeological Services, 2012) which was prepared in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010a) and the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW, 2010b).





**LEGEND**

- Mining Lease Boundary
- Mining Lease Application Boundary\*
- Exploration Licence Boundary
- Approximate Extent of Existing/Approved Surface Development at the Stratford Mining Complex
- Indicative Location of Program Drill Hole
- Existing Access Point
- Existing Access Track

**Aboriginal Heritage**

- Aboriginal Heritage Site

**Non-Aboriginal Heritage**

- Local Significance Heritage Item

\* Subject to Separate Approval

0 500  
Metres

GRID DATUM MGA 94 ZONE 56

Source: SCPL (2012): DFS-LPI (2012) and DPI C&L (CLD) (2012)  
Orthophoto - SCPL ( flown July 2011 and July 2013)

**Program Site**

**STRATFORD MINING COMPLEX**

BOWENS ROAD NORTH OPEN CUT

ROSEVILLE WEST PIT

STRATFORD MAIN PIT

Stratford Timber Railway Remnant

**STRATFORD MINING COMPLEX REF**

**FIGURE 7**  
Known Heritage Sites within the Program Site and Surrounds



There are no registered native title claims or indigenous land use agreements existing on the Program site.

Under section 87(4) of the NSW *National Parks and Wildlife Act, 1974* (NPW Act), it is a defence to carry out an act if it is classified as low impact. Clause 80B of the NSW *National Parks and Wildlife Regulation, 2009* (NPW Regulation) identifies defences for carrying out certain low impact activities as classified under section 87(4) of the NPW Act as follows:

- (1) *It is a defence to a prosecution for an offence under section 86 (2) of the Act, if the defendant establishes that the act or omission concerned:*
- (a) *was maintenance work of the following kind on land that has been disturbed:*
- (i) *maintenance of existing roads, fire and other trails and tracks,*
- ...
- (f) *was mining exploration work of the following kind on land that has been disturbed:*
- (i) *costeering,*
- (ii) *bulk sampling,*
- (iii) *drilling, or*
- (g) *was work of the following kind:*
- (i) *geological mapping,*
- (ii) *surface geophysical surveys (including gravity surveys, radiometric surveys, magnetic surveys and electrical surveys), but not including seismic surveys,*
- (iii) *sub-surface geophysical surveys that involve downhole logging,*
- (iv) *sampling and coring using hand-held equipment, except where carried out as part of an archaeological investigation, or*
- ...
- (i) *was work of the following kind on land that has been disturbed:*
- ...
- (ii) *the construction and maintenance of groundwater monitoring bores, or*
- ...

All drill hole sites located on land that has been disturbed are classified as low impact acts under the NPW Regulation. Program activities not classified as a 'low impact activity' under the NPW Regulation would undergo a due diligence assessment in accordance with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* (NSW Minerals Council, 2010).

Program activities that are not categorised as 'low impact' would be located so the activity is not:

- located within 200 m of waters<sup>4</sup>;
- located on a ridge top or ridgeline;
- located within a sand dune system;
- located within 200 m below or above a cliff face; or
- within 20 m of or in a cave, rock shelter, or a cave mouth.

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<sup>4</sup> Waters means the whole or any part of: any river, stream, lake, lagoon, swamp, wetlands, natural watercourse, tidal waters (including the sea).

If any Program activities are to be conducted on undisturbed land in these areas, a pre-clearance assessment by an Aboriginal representative or archaeologist would be conducted. Where the presence of Aboriginal items or places are identified, the Program activities would be relocated. In the event that the site cannot be relocated, SCPL would apply for an Aboriginal Heritage Impact Permit with the Office of Environment and Heritage under the NPW Act.

### **3.5 NON-ABORIGINAL HERITAGE**

A search of the Gloucester LEP, the NSW Heritage Register and National Heritage List was conducted to identify areas of historic or cultural value within or surrounding Program site. A Non-Aboriginal Heritage Assessment for the Stratford Extension Project was undertaken by Dr Michael Pearson of Heritage Management Consultants (2012) was also reviewed.

#### ***Historic Cultural Heritage***

One item of historic cultural heritage significance was identified within the vicinity of the Program site. The Glen, Craven Logging Tramline is listed as an item of local significance in Schedule 5 of the Gloucester LEP.

No items of historic cultural heritage significance listed on the NSW Heritage Register and National Heritage List were identified in the vicinity of the Program site.

Heritage Management Consultants (2012) identified the following items of local heritage significance during a site survey:

- Stratford Timber Railway (cutting and routes 1 and 2) (part of the Glen, Craven Logging Tramline listed in the Gloucester LEP) (Figure 7);
- Glen Timber Railway (part of the Glen, Craven Logging Tramline listed in the Gloucester LEP);
- Stratford Cemetery; and
- Craven Village.

All of these heritage items are located outside of the Program site (Figure 7). Accordingly, the Program would have no impact on these heritage items.

#### ***Natural Heritage***

There are no items of natural heritage on the National Heritage List located within or near the Program site.

## 4 IMPACT ASSESSMENT

### 4.1 PHYSICAL AND CHEMICAL IMPACTS

#### ***Soil Quality and Land Stability***

Each drill hole site would be limited to a relatively small area up to approximately 250 m<sup>2</sup>. The Program would have negligible impact on the soil quality or land stability. The area is predominantly pre-disturbed agricultural land (Figure 3).

Drill hole site preparation would involve the slashing of grass, with generally minor ground preparation potentially required to provide a stable and level drilling platform. In steeper areas, excavators, graders or dozers may be used in site preparation.

Any soil excavated would be stockpiled adjacent to the disturbance area for use in the rehabilitation of the area once drilling has ceased. Any disturbed topsoil would be stockpiled separately from the subsoil with erosion protection measures in place.

Any chemicals used on-site would be stored in a bunded area to soak up spills and mitigate the risk of soil contamination. A spill kit would be located on each of the drill rigs to contain any potential spills. Spills that occur would be localised and temporary, with any contaminated soil to be removed for disposal at an appropriately licensed facility.

The potential impact of exploration activities on agricultural resources and production are assessed in detail in the Agricultural Impact Statement (Appendix C).

#### ***Surface and Groundwater***

The Program would have negligible impacts upon watercourses or groundwater within the vicinity of Program site. The Program would be designed to ensure that impacts to surface and groundwater sources are minimised through:

- water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required;
- the implementation of erosion and sediment control strategies to minimise the contamination of surface water from the drill sites or access tracks, particularly in steeper areas;
- the use of above ground tanks to hold drill cuttings and water generated during drilling operations prior to appropriate disposal;
- avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012a);
- the design, construction and maintenance of access tracks would be conducted in general accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC, 2007a); and
- the construction of a bed level crossing in accordance with the *Guidelines for Watercourse Crossings on Waterfront Land* (NOW, 2012b), should the development of access tracks require a new crossing of an ephemeral stream.

### ***Flood and Tidal Regimes***

The Program would not change flood regimes within the vicinity of the Program site. Drill rigs and associated equipment would not block watercourses in the event of a flood. Some access tracks would potentially be affected by flooding, Program activities would be relocated to sites on higher ground in order to enable the progression of the Program.

There are no tidal regimes within the vicinity of Program site.

### ***Coastal Processes and Coastal Hazards***

The Program site is located within the Gloucester Valley, inland NSW, and as such the Program would not affect coastal processes or coastal hazards.

### ***Hazardous Substances and Chemicals***

No chemicals would be generated during drilling operations. Any hazardous substances or chemicals used would be contained such that there would be no build up of residues in the environment.

The downhole geophysical logging tools would contain radioactive substances. Logging would be carried out by an operator holding a valid licence to use radiation apparatus and radioactive substances.

### ***Waste Generation***

The drill cuttings and water generated during drilling operations would be stored in above ground tanks prior to appropriate disposal (Section 1.7.4).

General domestic waste products and packaging generated during exploration would be collected and appropriately stored or removed from the Program site at the end of each shift.

### ***Emissions***

#### ***Greenhouse Gas Emissions***

Greenhouse gas emissions would be generated by vehicles and equipment used during the Program.

In accordance with the *National Greenhouse Accounts Factors* (Commonwealth Department of Climate Change and Energy Efficiency [DCCEE], 2012), direct greenhouse emissions are referred to as Scope 1 emissions, and indirect emissions are referred to as Scopes 2 and 3 emissions.

The primary source of greenhouse gas emissions would be Scope 1 diesel consumption from vehicles used in the Program. The total overall diesel use for the Program would be small and therefore the associated greenhouse gas emission would also be small.

Ancillary exploration activities and equipment would generate minimal additional greenhouse gas emissions. Scope 1 fugitive emissions of methane from the coal seam during exploration drilling would also contribute to the overall greenhouse gas emissions resulting from the Program.

Mitigation measures would involve the use of vehicles and equipment that is fit for use and well serviced. Additional mitigation measures are not considered necessary given the small amount of generated emissions.

### *Dust Generation*

Relatively low dust levels would be generated by vehicle movements on unsealed access tracks. Initial drilling activities (i.e. at the surface) may also generate some dust, however, this is expected to be minor and would be temporary in nature. Both engine exhaust and dust generation would be localised and present a short-term impact to the surrounding air quality. In the event of excessive dust generation, appropriate dust suppression measures (e.g. use of a water cart) would be implemented at the Program site.

Permanent mitigation measures that would be put in place to reduce and manage dust and exhaust emissions generated on-site include (Section 1.8):

- enforcement of speed limits on all access tracks to reduce the dust generated; and
- regular servicing of vehicles and drilling equipment to ensure optimal operating conditions are maintained.

### *Noise and Vibration*

Noise and vibration would be generated by exploration drilling and other vehicle movements. The potential noise and vibration impacts of exploration drilling are described further below.

Noise management at the Program would be conducted in accordance with the *Interim Construction Noise Guideline* (DECC, 2009) as required by the conditions of AUTH 315.

Based on a conservative RBL of 30 dBA, the management level specified in the *Interim Construction Noise Guideline* (DECC, 2009) for non-standard hours of operation would be 35 dBA  $L_{Aeq(15min)}$ . An assessment of existing drilling rigs was completed by Vipac Engineers and Scientists (2009) concluded that the drill rigs could operate unattenuated at distances as close as 700 m from residences and achieve, under neutral weather conditions, a noise level of 35 dBA  $L_{Aeq(15min)}$ .

As the nearest privately owned residence is located approximately 2 km from the Program site (Figure 4), the Program is not expected to result in exceedances of the *Interim Construction Noise Guideline* (DECC, 2009) non-standard hours of operation management level at privately owned residences.

Given the above, the Program activities would be 7.00 am to 6.00 pm (except for emergencies), Monday to Saturday (Section 1.7.6).

## **4.2 BIOLOGICAL IMPACTS**

### ***Vegetation Clearance or Modification***

SCPL would implement a site selection process for exploration drill holes and access tracks to minimise potential impacts on local landholders and the environment. The Program would avoid vegetation clearance or modification where possible and select previously cleared areas wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid any habitat features (where practicable).

Drill hole sites require the clearance of a relatively small area up to approximately 250 m<sup>2</sup> (10 m × 25 m). Construction of access tracks would be required as part of the Program and are assumed to have a maximum width of 4 m. The total area of disturbance would be approximately 3 ha, including 2.0 ha of cleared land and 1.5 ha of native vegetation (Appendix B).

As described in Section 3.1, FloraSearch (2012) did not survey the entire Program site, however did map the areas of native vegetation that would be disturbed. AMBS (2012) mapped a similar extent for fauna habitat.

The locations of the Program activities would be selected so that the majority of works are undertaken within already cleared pasture land (Figure 5). The Program would result in the disturbance of approximately 2.0 ha of cleared land and 1.5 ha of native vegetation comprised of the following vegetation and habitat types (FloraSearch, 2012; AMBS, 2012; Figure 5):

#### *Vegetation Types*

- Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast (HU630).
- Cabbage Gum open forest or woodland on flats of the North Coast and New England Tablelands (HU526).
- Smooth-barked Apple – White Stringybark Shrubby Forest.
- Introduced Pasture with Scattered Naive Trees (non-native).
- Planted Trees (non-native).

#### *Fauna Habitat Types*

- Dry Sclerophyll Forest.
- Dry Sclerophyll Forest – Young Regrowth.
- Grassy Woodland.
- Plantings (non-native).
- Cleared Land (non-native).

#### **Significance of Impacts**

Assessments of significance have been undertaken for all threatened fauna species listed under the TSC Act considered potential occurrences in the Program site (Appendix B).

In consideration of the proposed impacts, avoidance and mitigation measures and rehabilitation commitments, the Program would not have a significant impact on any threatened fauna species, flora species, flora population, ecological community or their habitats (Appendix B).

#### **Key Threatening Processes**

Clearing of native vegetation, loss of hollow-bearing trees, removal of dead wood and dead trees, predation by the European Red Fox and Feral and high frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition are listed as a key threatening process under Schedule 3 of the TSC Act.

The development of drill hole sites and associated access tracks would involve the clearing of up to 1.5 ha of native vegetation, excluding native pasture with and without scattered trees (Appendix B). Upon completion of drilling, drill hole sites would be rehabilitated to its condition prior to the Program to minimise the impact of native vegetation clearance.

In addition, where clearance of trees cannot be avoided, clearance would be limited to avoid any habitat features (where practicable). SCPL would implement bushfire hazard reduction measures to minimise additional bushfire risk.

There are no other key threatening processes relevant to the exploration activities.

### ***Potential to Endanger, Displace or Disturb Fauna***

The exploration activities are unlikely to significantly endanger, displace or disturb fauna (Appendix B). Slashing and vegetation clearance would have minimal impacts on fauna as the affected areas are relatively small and surrounded by similar vegetation.

Drill hole sites and access tracks would not create a barrier for fauna movement as they would be relatively dispersed, narrow and require minimal clearance. Speed limits would be enforced and caution taken on access tracks to avoid collisions with fauna. Rehabilitation would aim to return the sites to its condition prior to exploration activities and would utilise flora species suitable to the area.

### ***Ecological Communities***

No threatened ecological communities listed under the TSC Act are considered to have the potential to occur within the Program site and, as such, were not assessed (Appendix B).

### ***Threat to Biological Diversity***

The Program would not put any species at risk of extinction, degrade the environment or introduce exotic species into the area (Appendix B). This is due to the small scale of the Program (3 ha total) and the proposed avoidance, management and rehabilitation measures. Therefore, the activity would not threaten the biological diversity or ecological integrity of ecological communities within the Program.

### ***Pest Management***

The Program would not introduce noxious weeds, vermin, feral species or genetically modified organisms into the Program site. Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds (Section 1.8). SCPL would seek to avoid attracting animals in the Program site by appropriately storing or removing all waste products including packaging for equipment or waste generated by Program personnel from each site at the end of each shift.

## **4.3 COMMUNITY IMPACTS**

### ***Community Services and Infrastructure***

The Program would not significantly impact community services or infrastructure due to the relatively small workforce required. The required workforce would usually be approximately 12 contractors on-site at any one time.

There would be a minor increase in traffic on local roads associated with the Program.

Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.

Waste generated during the Program would be appropriately stored or removed from the Program site and appropriately disposed of at a licensed facility. The Program would not increase the demand for waste collection and management services within the local area.



### ***Economic Factors***

The required workforce is estimated to generally be approximately 12 contractors on-site at any one time (Section 1.7.3). This relatively small workforce presents minimal flow on economic benefits to the local community. In this way, the Program would not present any significant additional pressures on local temporary accommodation requirements.

SCPL continues to pay community infrastructure contributions to the GSC in accordance with the Development Consents (DA 23-98/99 and DA 39-02-01).

SCPL continues to support the local community through sponsorships of community organisations and direct community contribution payments to the GSC. SCPL plays an active role in local communities through financial contributions to regional events and facilities.

### ***Community Safety***

The Program would not impact the safety of the community. Wherever practicable, drill hole sites would be temporarily fenced to prevent unauthorised access and to exclude stock. Appropriate signage would be implemented as required.

### ***Bushfire Risk***

SCPL would implement bushfire hazard reduction measures to minimise additional bushfire risk from the Program. These would include:

- regular servicing of drilling equipment to reduce the risk of sparks;
- slashing of grass within the fenced area of drill hole sites;
- diesel fuel used on-site would be appropriately handled and stored;
- fire fighting equipment would be carried on all exploration vehicles; and
- no hot work would be undertaken on days of extreme or catastrophic fire danger.

### ***Visual or Scenic Landscape***

The Program would have minimal, temporary impacts upon the visual or scenic landscape of the local area. Where the visibility of drill hole sites is considered to be an issue by landholders, fencing material that would screen the drill hole site from view would be considered by SCPL. Drilling would not occur at night (except for emergencies) and therefore significant night lighting would not be required for the Program.

Upon completion of the Program, the Program site would be fully rehabilitated and no longer present a visual impact.

## **4.4 NATURAL RESOURCE IMPACTS**

The Program would not result in the degradation of an area reserved for conservation purposes.

No land within the Program site is reserved under the NPW Act. Under the Gloucester LEP, the Program site is located on land zoned as RU1 Primary Production and does not contain any land zoned as Environmental Management or Environmental Protection.

The Program would not affect the use of natural resources as the activities would cause only minor and temporary disturbance. Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required. Water requirements would be limited, with minimal impact upon the overall water quality or quantity of the area's water supply.

The Program would not involve the significant use, wastage, destruction or depletion of natural resources such as water, fuels, timber or extractive materials.

The potential impact of the Program on agricultural resources and production are assessed in detail in the Agricultural Impact Statement (Appendix C).

#### **4.5 ABORIGINAL CULTURAL HERITAGE IMPACTS**

The Program would disturb the ground surface. As outlined in Section 3.4, an AHIMS search was performed for the Program site, with the results presented in Appendix D. The AHIMS search indicated that six Aboriginal artefact sites have been recorded within the Program site (Figure 7). There are no recorded Aboriginal places or culturally modified trees within the Program site.

Program activities not classified as a 'low impact activity' under the NPW Regulation would undergo a due diligence assessment in accordance with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* (NSW Minerals Council, 2010) (Section 3.4).

Harm to objects or disturbance of landscape features would be avoided through the implementation of the pre-clearance assessment and Aboriginal due diligence assessment as outlined in Sections 1.8 and 3.4.

There are no areas subject to native title claims or indigenous land use agreements within the Program site.

#### **4.6 NON-ABORIGINAL HERITAGE IMPACTS**

##### ***Historic Cultural Heritage Impacts***

No heritage items are located outside of the Program site (Section 3.4). Accordingly, the Program would have no impact on these heritage items.

##### ***Natural Heritage Impacts***

There are no items of natural heritage on the National Heritage List located within or near the Program site.

#### **4.7 IMPACTS ON MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE**

The EPBC Act requires SCPL to consider the impact of the Program on matters of national environmental significance.

Matters of national environmental significance within the vicinity of Program site include threatened species and migratory species listed under the EPBC Act and water resources, in relation to coal seam gas development and large coal mining development.

The following matters of national environmental significance are not located within or near the Program site:

- Ramsar wetlands of international importance;
- Commonwealth marine areas;
- World Heritage properties;
- World Heritage places; and
- Great Barrier Reef Marine Park.

The Program does not constitute a nuclear action.

There are eight threatened fauna species listed under the EPBC Act that may occur within the Program site, including (AMBS, 2012):

- Swift Parrot (*Lathamus discolor*);
- Regent Honeyeater (*Anthochaera phrygia*);
- Spotted tailed Quoll (*Dasyurus maculatus*);
- Koala (*Phascolarctos cinereus*);
- Long-nosed Potoroo (*Potorous tridactylus*);
- Grey-headed Flying-fox (*Pteropus poliocephalus*);
- Large-eared Pied Bat (*Chalinolobus dwyeri*); and
- New Holland Mouse (*Pseudomys novaehollandiae*).

No EPBC Act listed threatened flora species have been recorded throughout Program site.

There are 14 migratory species listed under the EPBC Act that potentially occur within Program site, namely the:

- Fork-tailed Swift (*Apus pacificus*);
- Rainbow Bee-eater (*Merops ornatus*);
- White-throated Needletail (*Hirundapus caudacutus*);
- Great Egret (*Ardea alba*);
- Cattle Egret (*Ardea ibis*);
- Satin Flycatcher (*Myiagra cyanoleuca*);
- Rufous Fantail (*Rhipidura rufifrons*);
- Black-faced Monarch (*Monarcha melanopsis*);
- Spectacled Monarch (*Monarcha trivirgatus*);
- Double-banded Plover (*Charadrius bicinctus*);
- Latham's Snipe (*Gallinago hardwickii*);
- White-bellied Sea-eagle (*Haliaeetus leucogaster*);
- Australian Painted Snipe (*Rostratula australis*); and
- Clamorous Reed-warbler (*Acrocephalus stentoreus*).

The EPBC's Significant Impact Guidelines 1.1 *Matters of National Environmental Significance* (Department of the Environment, Water, Heritage and the Arts, 2009) states that:

*All exploratory drilling (including new field, wildcat, and appraisal drilling, auger, rotary air blast (RAB), open hole percussion, reverse circulation (RC), diamond drilling and wide diameter drilling), including the construction of drill pads, would not be expected to have a significant impact on a matter of national environmental significance where the discharges, emissions and waste from the drilling are contained and managed in an environmentally sensitive manner*

...

Mitigation measures that would be implemented to manage the Program in an environmentally sensitive manner are outlined in Section 1.8.

Threatened fauna and migratory species are not likely to be directly impacted by the Program due to the highly mobile nature of the species and the relatively small disturbance area associated with the Program.

No threatened ecological community listed under the EPBC Act have been recorded within the Program site, or nearby during surveys for the Stratford Extension Project (FloraSearch, 2012).

Surface water and groundwater resources within and surrounding the Program site are described in Section 3.2.

The *Draft significant impact guidelines: Coal seam gas and large coal mine developments – impacts on water resources* (Australian Government, 2013) states that:

*Whether or not an action is likely to have a significant impact is independent of the size of the water resource, and depends upon the sensitivity, value, and quality of the water resource which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.*

The Program would be designed to ensure that impacts to surface and groundwater sources are minimised. Mitigation measures that would be implemented throughout the Program to minimise potential impacts to surface and groundwater sources are outlined in Sections 1.8 and 4.1.

Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.

Consequently, the Program would be unlikely to impact the groundwater and/or surface water characteristics or processes through changes in the quantity of the water resources within the Program site.

The drill holes would be sealed and capped in a manner in accordance with the *EDG01 Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012b) and AUTH 315.

The staged nature of the Program, along with the application of well-understood conventional techniques indicate that the risk of creating connections between aquifers or contaminating groundwater, or impacts associated with wastewater is low for each drill site and for all exploration sites combined. Surface water resources within the Program site would be avoided by the Program along with any flood affected areas (Section 4.1). In this way, the Program is unlikely to have a significant impact on the surface water resources within the area.

The Program is unlikely to result in a substantial change to the:

- groundwater and/or surface water characteristics or processes of the water resources within or near the Program site; and/or
- groundwater or surface water quality within or near the Program site.

Impacts on matters of national environmental significance would be minimal as the Program is relatively short-term (Section 1.7.4) and any site infrastructure would be temporary, with the Program site rehabilitated upon completion of drilling.

There would be no indirect or off-site impacts on matters of national environmental significance resulting from the Program.

Under the EPBC Act's Significant Impact Guidelines 1.1 *Matters of National Environmental Significance* (Department of the Environment, Water, Heritage and the Arts, 2009), a referral to the Commonwealth Government for approval of the Program is not required as the Program is not considered to have a significant impact on matters of national environmental significance.

#### **4.8 CUMULATIVE IMPACTS**

Activities that would contribute to cumulative impacts in the region include neighbouring coal mining, coal seam gas extraction and exploration activities and agriculture.

The contribution of the Program to cumulative impacts within the region would be negligible due to the:

- staged nature of the Program;
- short-term duration of disturbance at each drill hole site;
- rehabilitation of drill hole sites to their condition prior to exploration activities;
- localised and temporary noise and air quality impacts would have a negligible contribution to cumulative noise levels in the region; and
- implementation of measures to prevent, manage and mitigate the impact on the surrounding environment.

## 5 IMPACT SUMMARY

The Program would have no long-term effects on the agricultural, biodiversity or heritage values of the land within the Program site (Table 7). The relatively small workforce required for the Program presents minimal flow on economic benefits to the local community. SCPL would continue its contributions to the local community through sponsorships and donations.

SCPL would implement a site selection process for drill holes and access tracks to minimise potential impacts on local landholders and the environment (Section 1.8).

A summary of the impacts of the Program is provided within Table 7. All impacts have been classified as either negligible or low in accordance with the methodology to characterise impacts in *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012a).

**Table 7  
Summary of Impacts**

Aspect	Description	Classification of Impacts
Soil (Section 4.1)	<ul style="list-style-type: none"> <li>Low risk of erosion with the implementation of erosion and sediment control measures and rehabilitation.</li> <li>Low risk of diesel fuel spills.</li> </ul>	Low
Land Use (Section 4.1)	<ul style="list-style-type: none"> <li>Short-term duration of the Program and rehabilitation of exploration sites to their exiting condition.</li> <li>Agricultural Impact Statement prepared for the Program (Appendix C).</li> </ul>	Low <sup>1</sup>
Water Resources (Section 4.1)	<ul style="list-style-type: none"> <li>Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.</li> <li>Exploration drilling would not occur within the 'Vegetated Riparian Zone' defined by the Guidelines for Riparian Corridors on Waterfront Land (NOW, 2012a).</li> <li>The design, construction and maintenance of access tracks would be conducted in general accordance with <i>Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads</i> (DECC, 2007a).</li> <li>The construction of a bed level crossing in accordance with the <i>Guidelines for Watercourse Crossings on Waterfront Land</i> (NOW, 2012b), should the development of new access tracks require a new crossing of an ephemeral stream.</li> <li>Dill rig and other equipment would not block watercourses in the event of a flood.</li> </ul>	Negligible
Greenhouse Gas Emissions (Section 4.1)	<ul style="list-style-type: none"> <li>Greenhouse gas emissions from the Program would be negligible.</li> <li>Mitigation measures would involve the use of vehicles and equipment that is fit for use and well serviced.</li> </ul>	Negligible
Dust Generation (Section 4.1)	<ul style="list-style-type: none"> <li>Relatively low dust levels would be generated by vehicle movements on unsealed access tracks and initial drilling activities.</li> <li>Dust generation would be localised and present a short-term impact to the surrounding air quality.</li> </ul>	Negligible
Noise and Vibration (Section 4.1)	<ul style="list-style-type: none"> <li>SCPL would manage noise levels to achieve compliance with the non-standard hours of operation management level in the <i>Interim Construction Noise Guideline</i> (DECC, 2009) at privately owned residences, except with agreement of the affected landholder(s).</li> </ul>	Low

**Table 7 (Continued)  
Summary of Impacts**

Aspect	Description	Classification of Impacts
Threatened Species, Populations and Ecological Communities (Section 4.2)	<ul style="list-style-type: none"> <li>• The Program would not significantly impact the threatened fauna that potentially occur within the Program site.</li> <li>• No threatened flora species have been recorded, or are predicted to occur, within the Program site.</li> <li>• No threatened ecological communities have been recorded, or are predicted to occur, within the Program site.</li> <li>• Wherever possible, the Program would be situated previously cleared areas wherever possible to avoid the clearing of trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid any habitat features (where practicable).</li> </ul>	Low
Community (Section 4.3)	<ul style="list-style-type: none"> <li>• The Program workforce required would not significantly impact community services or infrastructure.</li> <li>• SCPL would implement bushfire hazard reduction measures to minimise additional bushfire risk from exploration activities.</li> <li>• The Program would have minimal, temporary impacts upon the visual or scenic landscape of the local area.</li> <li>• SCPL would continue its contributions to the local community through sponsorships and donations.</li> </ul>	Positive
Natural Resources (Section 4.4)	<ul style="list-style-type: none"> <li>• The Program would not result in the degradation of an area reserved for conservation purposes.</li> <li>• The Program would not involve the significant use, wastage, destruction or depletion of natural resources such as water, fuels, timber or extractive materials.</li> </ul>	Negligible
Aboriginal Cultural Heritage (Section 4.5)	<ul style="list-style-type: none"> <li>• SCPL would comply with the <i>NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects</i> (NSW Minerals Council, 2010) and avoid known Aboriginal objects.</li> <li>• There are no areas subject to native title claims or indigenous land use agreements within the Program site.</li> </ul>	Low
Non-Aboriginal Heritage and Natural Heritage (Section 4.6)	<ul style="list-style-type: none"> <li>• There are no non-Aboriginal cultural heritage sites within the Program site.</li> <li>• There are no items of natural heritage on the National Heritage List.</li> </ul>	Negligible
Matters of National Environmental Significance (Section 4.7)	<ul style="list-style-type: none"> <li>• The Program is not considered to have a significant impact on matters of national environmental significance.</li> </ul>	Low

<sup>1</sup> The Agricultural Impact Statement concluded that the Program would result in a cumulative low risk in accordance with the *Guidelines for Agricultural Impact Statements at the Exploration Stage* (NSW Government, 2012c) (Appendix C).

## 6 CONCLUSION

SCPL is proposing to conduct a staged exploration program involving drilling activities along with downhole geophysical surveys within ML 1360, ML 1528, ML 1577 and AUTH 315. This REF has been prepared in accordance with the *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012a) for the consideration of potential environmental and community impacts and to propose appropriate management and mitigation measures.

Impacts from the Program have been classified as low adverse<sup>5</sup> due to the following factors:

- the short-term and staged nature of the Program;
- the relatively small area of disturbance;
- minimisation of potential impacts on local landholders and the environment through a site selection process for drill hole sites and access tracks;
- use of low impact equipment and techniques;
- implementation of a range of mitigation measures; and
- the rehabilitation techniques to be implemented, along with ongoing monitoring to ensure success of the rehabilitation program.

The Program would not have a significant effect on the environment or threatened species, populations or ecological communities. There is no registered critical habitat within the Program site.

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<sup>5</sup> In accordance with the methodology to characterise impacts in *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012a).



## 7 STATEMENT OF COMMITMENTS

**Table 8**  
**Statement of Commitments**

<b>Item</b>	<b>Commitment</b>
Activity type	<ul style="list-style-type: none"> <li>Category 1, 2 and 3 exploration activities.</li> </ul>
Activity location	<ul style="list-style-type: none"> <li>Within ML 1360, ML 1528, ML 1577 and AUTH 315.</li> </ul>
Activity scope (including any ancillary activities)	<ul style="list-style-type: none"> <li>Drilling of approximately 74 exploration drill holes.</li> <li>Downhole geophysical surveys.</li> </ul>
Hours of operation	<ul style="list-style-type: none"> <li>Standard hours of operation will be 7.00 am to 6.00 pm (except for emergencies), Monday to Saturday.</li> </ul>
Proposed completion date	<ul style="list-style-type: none"> <li>Approximately 2.5 years from commencement of Program activities.</li> </ul>
Maximum area of disturbance	<ul style="list-style-type: none"> <li>Drill site – up to approximately 250 m<sup>2</sup> (10 m x 25 m).</li> <li>Approximately 1.5 ha of vegetated area.</li> <li>Disturbed areas would be progressively rehabilitated.</li> </ul>
Rehabilitation commitments and timeframes	<ul style="list-style-type: none"> <li>The rehabilitation program will aim to return the Program sites to its existing condition.</li> <li>Rehabilitation will commence as soon as practicable upon completion of the exploration activity.</li> <li>Rehabilitation monitoring will occur at each exploration site for at least six months after complete decommissioning to ensure the rehabilitation program has been effective and there are no ongoing erosion risks from the Program.</li> </ul>
Site selection process	<p>The final location of exploration drill holes and access tracks will be selected based on the following process:</p> <ul style="list-style-type: none"> <li>Compliance with the requirements of any relevant access arrangements with private landholders.</li> <li>Selection of previously cleared areas wherever possible to avoid the clearing of trees. Where clearance of trees cannot be avoided, clearance will be limited to avoid habitat features (where practicable).</li> <li>Avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the <i>Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land</i> (NOW, 2012a).</li> <li>Compliance with the <i>NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects</i> (NSW Minerals Council, 2010) and avoidance of known Aboriginal objects.</li> <li>Minimisation of impacts on agricultural production and assets (e.g. fences).</li> <li>Compliance with the non-standard hours of operation management level in the <i>Interim Construction Noise Guideline</i> (DECC, 2009) at privately owned residences, except with agreement of the affected landholder(s).</li> </ul>
Erosion and sediment controls	<ul style="list-style-type: none"> <li>Soil disturbance will be minimised as far as practicable.</li> <li>Erosion and sediment controls will be implemented and remain in place at all sites until the risk of erosion has been reduced to negligible levels through on-site rehabilitation or until such time as the landholder is satisfied with the integrity of the site.</li> </ul>

**Table 8 (Continued)**  
**Statement of Commitments**

Item	Commitment
Protection of water sources	<ul style="list-style-type: none"> <li>• All drill holes will be fully sealed and capped in accordance with the <i>Environmental Management Guideline EDG01 Borehole Sealing Requirements on Land: Coal Exploration</i> (DRE, 2012b) and AUTH 315.</li> <li>• The design, construction and maintenance of access tracks will be conducted in general accordance with <i>Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads</i> (DECC, 2007a).</li> <li>• The construction of a bed level crossing in accordance with the <i>Guidelines for Watercourse Crossings on Waterfront Land</i> (NOW, 2012b), should the development of new access tracks require a new crossing of an ephemeral stream.</li> <li>• Erosion and sediment control strategies will be implemented to minimise the contamination of surface water from the drill sites or access tracks.</li> <li>• Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.</li> <li>• Above ground tanks will be used to hold drill cuttings and water generated during drilling operations for off-site disposal.</li> </ul>
Chemical use	<ul style="list-style-type: none"> <li>• Any chemicals used on-site will be stored in a bunded area to soak up spills and mitigate the risk of soil contamination.</li> <li>• A spill kit will be located on each of the drill rigs to contain any potential spills.</li> </ul>
Waste	<ul style="list-style-type: none"> <li>• Above ground tanks will be used to hold drill cuttings and water generated during drilling operations for off-site disposal.</li> <li>• General domestic waste products and packaging generated during the Program will be collected and stored appropriately or removed from the Program site at the end of each shift.</li> </ul>
Community consultation	<ul style="list-style-type: none"> <li>• As part of the stakeholder engagement programme, SCPL will maintain ongoing dialogue with the local community through a variety of mechanisms, including the provision of information to the CCC and on the SCPL website.</li> <li>• SCPL will consult AGL during the site selection, drilling and rehabilitation process for drill holes in accordance with the requirements of the landholder access arrangements.</li> </ul>
Complaint management	<ul style="list-style-type: none"> <li>• SCPL will provide contact information during stakeholder consultation and on the SCPL website to enable community members to contact SCPL representative regarding any questions or concerns they may have regarding the Program.</li> <li>• SCPL will respond to any issues raised by community members during consultation.</li> </ul>
Incident management	<ul style="list-style-type: none"> <li>• SCPL will respond to any site incidents in accordance with the processes outlined in the safety management plan.</li> </ul>
Monitoring	<ul style="list-style-type: none"> <li>• Site inspection checklists will be performed prior to the commencement of any Program activities.</li> <li>• Toolbox talks will be conducted to promote safety during the exploration activities.</li> </ul>
Continuous improvement	<ul style="list-style-type: none"> <li>• SCPL will implement improvements to its exploration operations as required.</li> <li>• SCPL will review systems every six months.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>• SCPL will submit assessments and notifications prior to drilling in accordance with the conditions of ML 1360, ML 1528, ML 1577 and AUTH 315.</li> <li>• Reporting will be undertaken in compliance with the conditions of ML 1360, ML 1528, ML 1577 and AUTH 315.</li> </ul>

## 8 REFERENCES

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- Department of Environment and Climate Change (2007a) *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads.*
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- Division of Resources and Energy (2012b) *EDG01 Borehole Sealing Requirements on Land: Coal Exploration.*
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- New South Wales Government (2012a) *Upper Hunter Strategic Regional Land Use Plan*.
- New South Wales Government (2012b) *Strategic Regional Land Use Policy*.
- New South Wales Government (2012c) *Strategic Regional Land Use Policy: Guideline for Agricultural Impact Statements at the Exploration Stage*.
- New South Wales Minerals Council (2010) *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects*.
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- New South Wales Trade and Investment (2012) *Guideline for community consultation requirements for the exploration of coal and petroleum, including coal seam gas*.
- Stratford Coal Pty Ltd (1998) *Proposed Modifications to the Stratford Coal Mine Statement of Environmental Effects*.
- Stratford Coal Pty Ltd (2012a) *Stratford Extension Project Environmental Impact Statement*.
- Stratford Coal Pty Ltd (2012b) *Environmental Management Strategy*.
- Stratford Coal Pty Ltd (2012c) *Stratford Coal Mine Groundwater Management Plan*.
- Vipac Engineers and Scientists (2009) *Exploration Drilling Noise Assessment*.

APPENDIX A  
TENEMENTS

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MINING LEASE

MINING ACT 1992

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NO. 1360 (ACT 1992)

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DATED 21<sup>st</sup> DECEMBER 1994  
A.D. 19

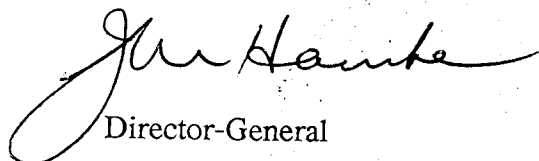
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THE MINISTER FOR MINES OF  
THE STATE OF NEW SOUTH WALES  
TO

CIM RESOURCES LTD  
EXCEL MINING PTY LTD  
ICA COAL PTY LTD

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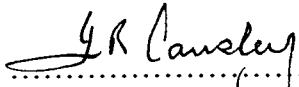
RECORDED in the Department of Mineral Resources at  
Sydney, this 22<sup>nd</sup>  
day of DECEMBER A.D. 1994, at the hour of 2  
'clock in the AFTERnoon.

  
Director-General

MA  
+ (K)

IN WITNESS WHEREOF the parties hereto have executed this Deed the day and year first abovewritten.

SIGNED SEALED AND DELIVERED )  
BY THE HONOURABLE )  
IAN RAYMOND CAUSLEY MP  
as such Minister as aforesaid )

  
.....  
Minister

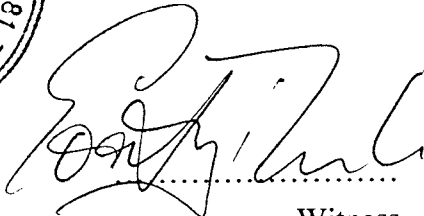
in the presence of )

  
.....  
Witness

SIGNED SEALED AND DELIVERED )  
by the said )  
MICHAEL JOHN PALMER  
CIM RESOURCES PTY LTD )




In the presence of A.G. RUIE  
4 KATHLEEN ST COTTESLOE WA 6011.

  
.....  
Witness

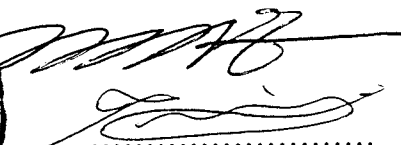
EXCEL MINING PTY LTD  
ANTHONY JAMES HAGGARTY  
In the presence of  
CHRISTOPHER JULIAN RAYMOND ELLIS  
7 MALTON ST  
THE GAP  
QUEENSLAND



  
.....  
Witness

ICA COAL PTY LTD  
KOUICHI KAWAGUCHI  
In the presence of T. Miyai  
5 Collingwood St Bronte 2024 NSW



  
.....  
Witness



*J.A. 2/11*

MINING ACT 1992

MINING LEASE

THIS DEED made the <sup>21<sup>st</sup></sup> day of DECEMBER one thousand nine hundred and NINETY FOUR in pursuance of the provisions of the Mining Act 1992 (hereinafter called "the Act") BETWEEN THE HONOURABLE IAN RAYMOND CAUSLEY, MP Minister for Mines of the State of New South Wales (hereinafter called "the Minister" which expression shall where the context admits or requires include the successors in office of the Minister and the person acting as such Minister for the time being) AND CIM RESOURCES LTD (ACN 008 881 712), EXCEL MINING PTY LTD (ACN 057 982 233, AND ICA COAL PTY LTD (ACN 066 784 558), C/- CIM RESOURCES LTD, LEVEL 17 WESTPAC PLAZA, 60 MARGARET STREET, SYDNEY NSW 2000, (which with its successors and transferees is hereinafter called "the lease holder").

*AM  
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MP  
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WHEREAS

- (a) in conformity with the Act application was made for a mining lease over the lands hereinafter described; and
- (b) all conditions and things required to be done and performed before granting a mining lease under the Act have been done and performed NOW THIS DEED WITNESSETH that in consideration of the observance and performance of the covenants contained in this Deed and the payment of royalty by the lease holder, the Minister in pursuance of the provisions of the Act DOES HEREBY demise and lease to the lease holder ALL THAT piece or parcel of land containing by admeasurement, 754.7 hectares and more particularly described and delineated in the plan attached for the purpose of prospecting and mining for coal.

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JA*

TO HOLD the said land together with any appurtenances thereon subject to:

- (a) such rights and interests as may be lawfully subsisting therein or which may be reserved by the Act at the date of this Deed; and
- (b) such conditions, provisos and stipulations as are contained in this Deed UNTO the lease holder from and including the date of this Deed for the period of **twenty-one (21) years** for the purpose as stated and for no other purpose.

*MP  
JA  
MP  
JA*

1. THAT in this lease except insofar as the context otherwise indicates or requires:
  - (a) any reference to an Act includes that Act and any Act amending or in substitution for the same; "Director-General" means the person for the time being holding office or acting as Director-General, Department of Mineral Resources, Sydney; the word "mine" has the meaning assigned to it by the Act; words importing the singular number shall include the plural, the masculine gender the feminine or neuter gender and vice versa; and
  - (b) any covenant on the part of two or more persons shall be deemed to bind them jointly and severally.
2. THAT the lease holder shall during the said term pay to the Minister in Sydney in respect of all such minerals as stated, recovered from the land hereby demised, royalty at the rate or rates prescribed by the Act and the Regulations thereunder at the time the minerals are recovered, or at the rate or rates fixed by the Minister from time to time during the term of this demise in exercise of the power in that behalf conferred upon him by the Act.

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3. THAT the lease holder shall at all times during the term of this lease keep and preserve the said mine from all avoidable injury or damage and also the levels, drifts, shafts, watercourses, roadways, works, erections and fixtures therein and thereon in good repair and condition and in such state and condition shall on the expiration or sooner determination of the said term or any renewal thereof deliver possession of the land and the premises hereby demised to the Minister or other persons authorised to receive possession thereof.
4. THAT the conditions and provisions set forth in the Schedule of Conditions herein and numbered: **1 - 49 inclusive**, - are embodied and incorporated within this Deed as conditions and provisions of the lease hereby granted AND that the lease holder shall observe fulfil and perform the same.

PROVIDED always and it is hereby declared as follows:

- (a) THAT this lease is granted subject to amendment as provided under Section 79 of the Act.
- (b) THAT if the lease holder at any time during the term of this demise -
- (i) fails to fulfil or contravenes the covenants and conditions herein contained;  
or
  - (ii) fails to comply with any provision of the Act or the Regulations with which the lease holder is required to comply; or
  - (iii) fails to comply with the requirements of any agreement or assessment in relation to the payment of compensation,
- this lease may be cancelled by the Minister by instrument in writing and the cancellation shall have effect from and including the date on which notice of the cancellation is served on the lease holder or on such later date as is specified in the notice; and any liability incurred by the lease holder before the cancellation took effect shall not be affected.
- (c) THAT no implied covenant for title or for quiet enjoyment shall be contained herein.
- (d) THAT all the conditions and provisions contained in the Mining Act 1992 and the Regulations thereunder, the Mines Inspection Act 1901 and the Coal Mines Regulation Act 1982 or any other law hereafter to be passed or prescribed shall be incorporated within this Deed as conditions and provisions of the lease granted. The lease holder hereby covenants to observe, fulfil and perform the same.
- (e) THAT such of the provisions and conditions declared and contained in this Deed as requiring anything to be done or not to be done by the lease holder, shall be read and construed as covenants by the leaseholder with the Minister which are to be observed and performed.
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## SCHEDULE OF CONDITIONS

### METHODS OF OPERATION

1. [1]

The lease holder shall extract as large a percentage of the coal in the subject area as is possible consistent with the provisions of the Coal Mines Regulation Act 1982 and the Regulations thereunder and shall comply with any direction given or which may be given in this regard by the Minister.

2. [2]

(a) The lease holder shall not commence or carry out any underground mining operations within the subject area unless with the consent of the Minister first had and obtained and subject to such conditions, as the Minister may impose.

(b) Where the lease holder intends to carry out underground mining operations within the subject area the lease holder shall furnish to the Minister a plan showing the proposed workings in the section of land to be so mined together with such other details as the Minister may require.

3. [3]

(a) The lease holder shall not carry out open cut or surface mining operations, or the removal of overburden or highwall mining, within the subject area or within the lands overlying the subject area unless with consent of the Minister and subject to such conditions as the Minister may impose.

(b) Where the lease holder intends to carry out open cut workings, surface mining operations or the removal of overburden or highwall mining within the subject area or within the lands overlying the subject area the lease holder shall apply for approval to carry out such operations in accordance with Instructions for Open Cut Application or Instructions for Highwall Mining Applications provided by the Director-General.

### DISPOSAL OF COAL

4. [5]

Where any coal mined from within the subject area is not immediately saleable, the lease holder shall, unless otherwise approved by the Minister, store, for future disposal by the lease holder, any such coal in such a manner and location as the Minister may approve and subject to such conditions as the Minister may impose.

### DUMPS AND COAL PREPARATION PLANT

5. [18]

The lease holder shall comply with any direction, given or which may be given by the Inspector regarding the stabilisation and revegetation of any dumps of coal, minerals, mine residues, tailings or overburden situated on the subject area.

6. [19]

The lease holder shall comply with any direction given or which may be given by the Minister regarding the spraying of coal dumps on the subject area.

7. [20]

The lease holder shall advise the Minister prior to the erection or operation of any coal preparation plant or any other plant for the purpose of the beneficiation of coal on the subject area. Such plant is to be as generally described and located in the project environmental impact statement.

Handwritten initials and a circled '20' are present in the bottom left corner of the page.

**DAMS AND ESCAPE OF WATER**

8. [21]

Settling dams or other dams constructed or to be constructed on the subject area shall be constructed, maintained and sealed to the satisfaction of the Inspector.

9. [22]

The lease holder shall provide and maintain efficient means to prevent contaminated waters discharging or escaping from the subject area onto surrounding areas .

**DUST AND CONVEYOR SYSTEMS**

10. [23]

The lease holder shall take such precautions as are necessary to abate any dust nuisance.

11. [24]

The lease holder shall carry out regular inspections of above-ground conveyor systems and shall promptly remove any spillages.

**MANAGEMENT AND REHABILITATION OF LANDS (GENERAL)**

12. [27]

The lease holder shall not interfere in any way with any fences on or adjacent to the subject area unless with the prior written approval of the owner thereof or the Minister and subject to such conditions as the Minister may stipulate.

13. [28]

The lease holder shall observe any instruction given or which may be given by the Minister with a view to minimising or preventing public inconvenience or damage to public or private property.

14. [29]

Subject to any specific condition of this authority providing for rehabilitation of any particular part of the subject area affected by mining or activities associated therewith, the lease holder shall;

- (a) shape and revegetate to the satisfaction of the Minister, any part of the subject area that may, in the opinion of the Minister have been damaged or deleteriously affected by mining operations and ensure such areas are permanently stabilised, and,
- (b) reinstate and make safe, including sealing and/or fencing, any excavation within the subject area.

15. [30]

If required to do so by the Minister and within such time as may be stipulated by the Minister the lease holder shall carry out to the satisfaction of the Minister surveys of structures, buildings and pipelines on adjacent landholdings to determine the effect of operations on any such structures, buildings and pipelines.

16. [31]

- (a) The lease holder shall each year once operations have commenced, submit for the Minister's approval an "Annual Environmental Management Report" relating to the operations of the lease holder on the subject area.

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- (b) The date by which the Report must be submitted will be determined by the Minister after consulting with the lease holder.
- (c) The Report shall comprise:
  - (i) a plan showing short, medium and long term mining plans;
  - (ii) a rehabilitation report (in respect of open cut operations) and/or a surface environmental management report (in respect of underground operations);
  - (iii) a review of performance in terms of Environment Protection Authority and Department of Water Resources licence and approval conditions (related to the Clean Air Act 1961, the Clean Waters Act 1970, the Noise Control Act 1975, the Environmentally Hazardous Chemical Act 1985, the Pollution Control Act 1970 and the Water Act 1912) applicable to the subject area;
  - (iv) a review of performance in terms of Development Consent conditions for the subject area;
  - (v) a listing of any variations obtained to approvals applicable to the subject area during the previous year.
- (d) The Minister may, by notice in writing, direct the lease holder to undertake any operations or remedial actions in such manner and within such period as may be specified in that notice so as to ensure that operations on the subject area conform to the requirements of relevant statutory approvals or licences.
- (e) The lease holder shall conduct operations on the subject area in accordance with an "open cut application" approved by the Minister and any conditions contained in the Minister's approval of that application. Where the lease holder is of the opinion that the approved operations should be amended the lease holder shall submit an amendment for the Minister's approval.

17. [32]

If so directed by the Minister the lease holder shall rehabilitate to the satisfaction of the Minister and within such time as may be allowed by the Minister any lands within the subject area which may have been disturbed by the lease holder.

18. [33]

Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.

19. [34]

If so directed by the Minister the lease holder shall rehabilitate to the satisfaction of the Minister and within such time as may be allowed by the Minister any lands within the subject area which may have been disturbed by mining or prospecting operations whether such operations were or were not carried out by the lease holder.

20. [35]

The lease holder shall maintain the subject area in a clean and tidy condition at all times.

21. [36]

The lease holder shall take all precautions against causing outbreak of fire on the subject area.

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22. [37]

(a) Ground Vibration

The lease holder shall ensure that the ground vibration peak particle velocity generated by any blasting within the subject area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be.

(b) Blast Overpressure

The lease holder shall ensure that the blast overpressure noise level generated by any blasting within the subject area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be.

## (c) Blasting will not be carried out outside the hours of 9 am and 5 pm except with the prior notification and approval of the Inspector.

23. [38]

Where the lease holder intends to conduct operations in or adjacent to any river, stream, creek, tributary, lake, dam or reservoir the subject of a proclamation under the Fisheries and Oyster Farms Act, 1935, relating to or prohibiting the taking of species of fish, the lease holder shall, not less than seven (7) days before commencement of such operations give notice in writing to the District Inspector of Fisheries setting out details of such operations and the river, stream, creek, tributary, lake, dam or reservoir that shall or may be affected thereby.

24. [39]

The lease holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area or any undue interference to fish or their environment and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area, or any undue interference to fish or their environment.

**TREES (PLANTING AND PROTECTION OF) FLORA AND FAUNA AND ARBOREAL SCREENS**

25. [42]

The lease holder shall carry out operations in such a manner as to interfere as little as possible with flora and fauna and shall not cut or damage any tree, shrub or other vegetative cover except such as may directly obstruct or prevent the carrying out of the operations.

26. [43]

The lease holder shall plant such grasses, trees or shrubs or such other vegetation as may be required by the Minister and care for same during the currency of this authority or any renewal thereof, to the satisfaction of the Minister.

27. [44]

Notwithstanding the provisions of Condition No 56(i) the lease holder shall not fell trees, strip bark or cut timber on any land within the subject area except with the approval of the owner/occupier and subject to the payment to the owner of the trees, bark or timber of compensation as agreed or as assessed by the Warden.

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28. [45]

The lease holder shall maintain an arboreal screen to the satisfaction of the Minister within such parts of the subject area as may be specified by the Minister and shall plant such trees or shrubs as may be required by the Minister to preserve the arboreal screen in a condition satisfactory to the Minister.

29. [46]

The lease holder shall cover with top dressing material, to the Minister's satisfaction, such parts of the subject area as may be stipulated by the Minister and shall plant and maintain, to the Minister's satisfaction, such grasses, trees or shrubs or such other vegetation as may be required by the Minister.

30. [47]

Notwithstanding the provisions of Condition No 25, [42] the lease holder shall not destroy or injure any tree, sapling, shrub or scrub on any protected land, as defined by the Soil Conservation Act, 1938, as amended, except in accordance with an authority issued by the Commissioner, Soil Conservation Board, under Section 21D of that Act.

### SOIL EROSION

31. [48]

The lease holder shall conduct operations in such a manner as not to cause or aggravate soil erosion and the lease holder shall observe and perform any instructions given or which may be given by the Minister with a view to minimising or preventing soil erosion.

32. [49]

The lease holder shall ensure that any topsoil or other material suitable for topdressing purposes which may be disturbed during operations shall be removed separately for replacement as far as may be practicable and the lease holder shall plant or sow such grasses, shrubs or trees in the replaced surface material as may be considered necessary by the Minister to control or prevent soil erosion.

33. [50]

In the event of any excavations being made the lease holder shall ensure that such are refilled and the topsoil previously removed is replaced and levelled. All such refilling and levelling shall be done to the satisfaction of the Minister.

34. [51]

The lease holder shall ensure that the run off from any disturbed area including the overflow from any depression or ponded area is discharged in such a manner that it will not cause erosion.

### ROADS

35. [52]

The lease holder shall pay to the Gloucester Shire, Council, Department of Conservation and Land Management or the Chief Executive, Roads and Traffic Authority the cost incurred by such Council or Department or Chief Executive of making good any damage caused by operations carried on by or under the authority of the lease holder to any road adjoining or traversing the surface or the excepted surface, as the case may be of the subject area.

PROVIDED HOWEVER that the amount to be paid by the lease holder as aforesaid shall be reduced by such sum of money if any as may be paid to the said Council the Department of Conservation and Land Management or the Chief Executive, Roads and Traffic Authority as the case may be from the Mine Subsidence Compensation Fund constituted under the Mine Subsidence Compensation Act, 1961, in settlement of a claim for compensation for the same damage.

36. [53]

In the event of operations being conducted on the surface of any road, track or firetrail traversing the subject area or in the event of such operations causing damage to or interference with any such road, track or firetrail the lease holder, at his own expense, shall if directed to do so by the Minister provide to the satisfaction of the Minister an alternate road, track or firetrail in a position as required by the Minister and shall allow free and uninterrupted access along such alternate road, track or firetrail and, if required to do so by the Minister, the lease holder shall upon completion of operations rehabilitate the surface of the original road, track or firetrail to a condition satisfactory to the Minister.

### CATCHMENT AREAS

37. [54]

- (a) Operations shall be carried out in such a way as not to cause any pollution of the Avon River Catchment Area.
- (b) If the lease holder is using or about to use any process which in the opinion of the Minister is likely to cause contamination of the waters of the said Catchment Area the lease holder shall refrain from using or cease using as the case may require such process within twenty-four (24) hours of the receipt by the lease holder of a notice in writing under the hand of the Minister requiring the lease holder to do so.
- (c) The lease holder shall comply with any regulations now in force or hereafter to be in force for the protection from pollution of the said Catchment Area.

### TRIG. STATIONS AND SURVEY MARKS

38. [58]

- (a) The marks in connection with any trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area shall not be interfered with and the unrestricted right of access to such station by authorised persons and also the right to clear sight lines to surrounding stations is reserved at all times.
- (b) The lease holder shall take all necessary precautions to preserve the trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) and the cairn, mast and vanes which might be erected upon the subject area.
- (c) No buildings or other structures shall be erected which would make observations to and from surrounding trigonometrical stations difficult to effect.
- (d) In the event of operations interfering with or damaging any trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area, or if required to do so by the Minister, the lease holder shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to the satisfaction of, and in a position required by, the Department of Conservation and Land Management, the Land Information Centre, Bathurst and the Minister and, if required to do so by the Minister, and subject to such conditions as the Minister may impose, the lease holder, upon completion of operations shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to its original position.

TRANSMISSION LINES, COMMUNICATION LINES AND PIPELINES

39. [62]

The lease holder shall as far as is practicable so conduct operations as not to interfere with or impair the stability or efficiency of any transmission line, communication line or pipeline traversing the surface or the excepted surface of the subject area and shall comply with any direction given or which may be given by the Minister in this regard.

ABORIGINAL PLACE OR RELIC

40. [64]

The lease holder shall not knowingly destroy, deface or damage any aboriginal place or relic within the subject area except in accordance with an authority issued under the National Parks and Wildlife Act, 1974, and shall take every precaution in drilling, excavating or disturbing the land against any such destruction, defacement or damage.

LABOUR/EXPENDITURE

41. [65]

The lease holder shall during each year of the term of the authority:-

- (a) ensure that at least 31 workers are efficiently employed on the subject area or
- (b) expend on operations carried out in the course of prospecting or mining the subject area, an amount of not less than \$542,500.00 (Five hundred and forty-two thousand, five hundred dollars.)

The Minister may, at any time after a period of two (2) years from the date on which this authority has effect or from the date on which the renewal of this authority has effect, increase or decrease the amount of expenditure or labour required.

ADDITIONAL INFORMATION

42. [66]

The lease holder shall if directed by the Minister and within such time as the Minister may stipulate furnish to the Minister:-

- (a) information regarding the ownership of the land within the subject area;
- (b) information regarding the ownership of the coal within the subject area prior to 1st January, 1982;
- (c) an indemnity in a form approved by the Minister indemnifying the Crown and the Minister against any wrong payment effected as a result of incorrect information furnished;
- (d) information regarding the financial viability of the lease holder and operations within and associated with the subject area; and
- (e) information regarding shareholdings in the lease holder.



SERVICE OF NOTICES

43. [67]

Within a period of three months from the date of this authority or a period of three months from the date of service of the notice of renewal, or within such further time as the Director-General may allow the lease holder shall serve on each owner and occupier of the private land and on each occupier of the Crown land held under a pastoral lease within the subject area a notice in writing indicating that this authority has been granted or renewed and whether the authority includes the surface. The notice shall be accompanied by an adequate plan and description of the subject area.

If there are ten or more owners or occupiers affected the lease holder may serve the notice by publication in a newspaper circulating in the region where the subject area is situated. The notice shall indicate that this authority has been granted or renewed, state whether the authority includes the surface and shall contain an adequate plan and description of the subject area.

INSPECTORS

44. [68]

- (a) Where the Inspector is of the opinion that any condition of this authority relating to operations within the subject area, or any provision of the Mining Act, 1992, relating to operations within the subject area, are not being complied with by the lease holder, the Inspector may serve on the lease holder a notice stating that and give particulars of the reason why, and may in such notice direct the lease holder:-
- (i) to cease operations within the subject area in contravention of that condition or Act; and
  - (ii) to carry out within the specified time works necessary to rectify or remedy the situation.
- (b) The lease holder shall comply with the directions contained in any notice served pursuant to sub-paragraph (a) of this condition. The Director-General may confirm, vary or revoke any such direction.
- (c) A notice referred to in this condition may be served on the Colliery Manager.

INDEMNITIES

45. [69]

The lease holder shall indemnify and keep indemnified the Crown from and against all actions suits and claims and demands of whatsoever nature and all costs charges and expenses which may be brought against the lease holder or which the lease holder may incur in respect of any accident or injury to any person or property which may arise out of the construction maintenance or working of any workings now existing or to be made by the lease holder within the boundaries of the subject area or in connection with any of the operations notwithstanding that all other conditions of this authority shall in all respects have been observed by the lease holder or that any such accident or injury shall arise from any act or thing which the lease holder may be licensed or compelled to do hereunder.

46. [70]

The lease holder shall save harmless the Crown from payment of compensation and from and against all claims, actions, suits or demands whatsoever in the event of any damage resulting from mining operations under or near the subject area.

MP  
JA  
10

PROSPECTING (GENERAL)

47. [71]

- (a) Where the lease holder desires to commence prospecting operations in the subject area the lease holder shall notify the Director-General in writing and shall comply with such additional conditions as the Minister may impose including any condition requiring the lodgement of an additional bond or other form of security for rehabilitation of the area affected by such operations.
- (b) Where the lease holder notifies the Director-General pursuant to sub-paragraph (a) of this condition the lease holder shall furnish with that notification details of the type of prospecting methods that would be adopted and the extent and location of the area that would be affected by them.

SECURITY DEPOSIT

48. [72]

- MP  
JA  
AA
- (a) The lease holder shall, within two (2) months of being requested by the Director-General, lodge with the Minister the sum of \$10,000 (Ten thousand Dollars) in accordance with Instructions for Manner of Lodgement of Security Deposits as security for the fulfillment of the obligations of the lease holder under this authority. In the event that the lease holder fails to fulfil any of its obligations under this authority the said sum may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purposes of this clause a lease holder shall be deemed to have failed to fulfil its obligations under this authority, if it fails to comply with any condition or provision of this authority, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision of this authority or of any provision of the Act or regulations made thereunder.
- (b) The Minister may at any time after the commencement of this authority or any renewal thereof, vary the amount of security required in accordance with this condition.
- (c) Where the amount of security has been increased pursuant to clause (b) hereof the lease holder shall, within two (2) months of being requested by the Minister, lodge a security for the amount of security required, in which case the Minister shall refund or release to the lease holder the security previously lodged.

ROYALTY AT ADDITIONAL RATE

49. [75]

The lease holder shall during the term of this authority pay to the Minister royalty at the additional rate as prescribed by the Regulations for coal recovered by open cut mining methods from the area.

MP  
JA  
AA

Please Note:

The numbers shown in [ ] are the equivalent Condition Numbers as set out in the SCHEDULE OF CONDITIONS OF AUTHORITY - 1992 (COAL) MINING LEASES.

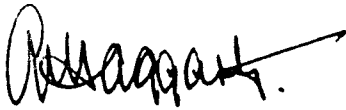
This and the preceding nine (9) pages is the Schedule of Conditions annexed to the Mining Lease No. under the Mining Act, 1992, granted to CIM RESOURCES LTD, EXCEL MINING PTY LTD AND ICA COAL PTY LTD and dated the 21<sup>st</sup> day of December 1994



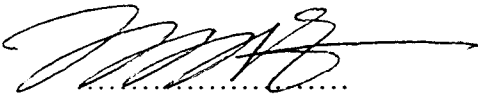
.....  
Lease Holder



.....  
Minister for Mines

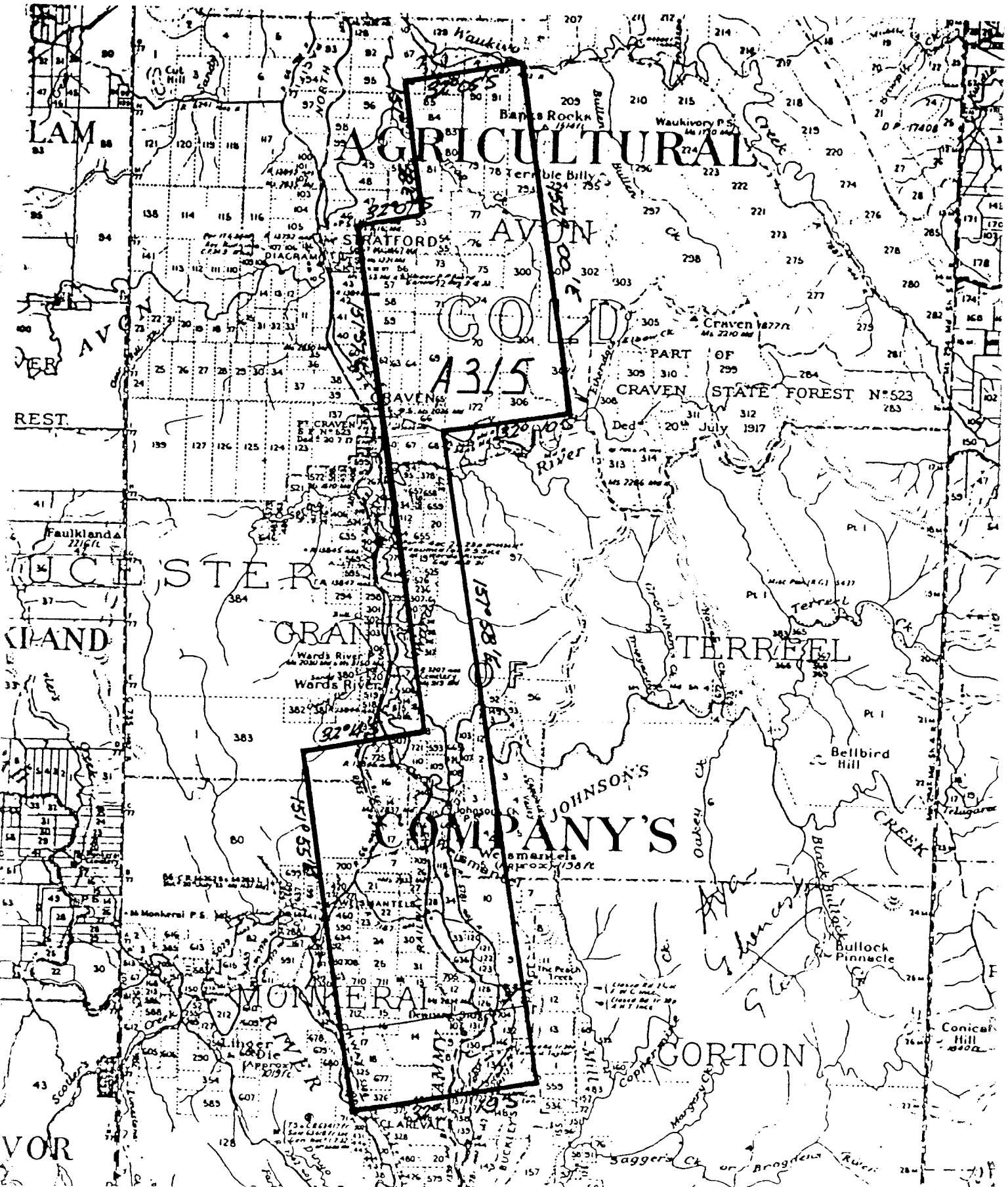


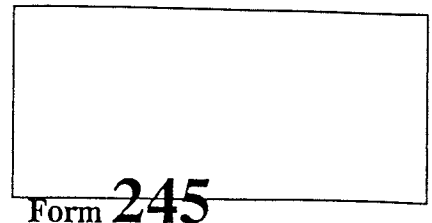
.....  
Lease Holder



.....  
Lease Holder







Form **245**

CENTENARY INTERNATIONAL MINING LTD  
4TH FLOOR, SOUTH SHORE CENTRE  
85 THE ESPLANADE  
SOUTH PERTH WA 6151

remove this top section if desired before framing

# Certificate of Registration on Change of Name



AUSTRALIAN  
SECURITIES  
COMMISSION

Corporations Law Sub-section 171 (12)

This is to certify that

**CENTENARY INTERNATIONAL MINING LTD**

Australian Company Number 008 881 712

did on the eighth day of September 1994 change its name to

**CIM RESOURCES LTD**

Australian Company Number 008 881 712

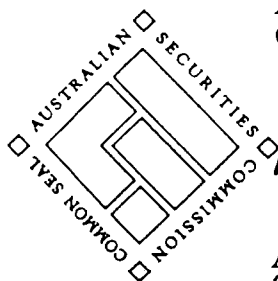
The company is a public company.

The company is limited by shares.

The company is taken to be registered as a company  
under the Corporations Law of Western Australia.

*I certify that this is a true  
copy of the Certificate of  
Registration on Change of  
Name*

Given under the seal of the  
Australian Securities Commission  
on this eighth day of September, 1994.



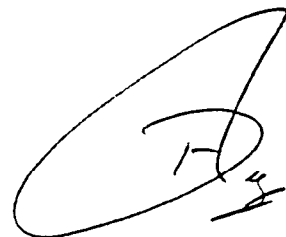
*Alan Cameron*

Alan Cameron  
Chairman

*Anthony Tuck*  
A.G. RULÉ  
DIRECTOR  
3/2/95.

## ENDORSEMENT SCHEDULE

Pursuant to the provisions of Section 121(1)(a) of the Mining Act 1992, the Minister for Mines did, on the 12th July 1994 ~~1993~~, approve of the transfer of Authorisation No 315 from BMI Mining Pty Ltd to Centenary International Mining ~~Pty~~ Ltd and Excel Mining Pty Ltd and recorded by me in the Department of Mineral Resources in Singleton, the 15<sup>th</sup> day of July 1994.



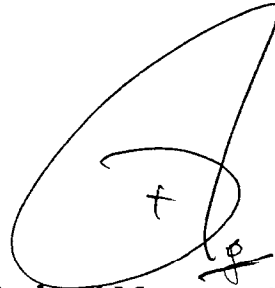
Mining Registrar (Coal)

## ENDORSEMENT SCHEDULE

Pursuant to the provisions of Section 161 (1) (4) of the Mining Act, 1992, the documents as listed in the SCHEDULE OF DOCUMENTS, hereunder, have been registered in the Department of Mineral Resources insofar as they effect:-

1. Mining Lease No. 1360 (Act, 1992)
  2. Authorisation No 311 (Act, 1973)
- and
3. Authorisation No. 315 (Act, 1973).

(C95-2025)



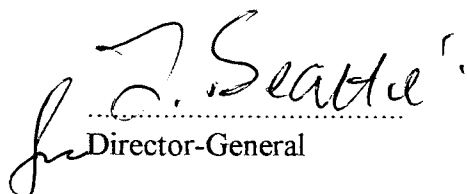
**D. Agnew**  
**(Regional Manager - Northern Region)**  
**Coal & Petroleum Administration Branch**

## SCHEDULE OF DOCUMENTS

1. Document entitled "CIM RESOURCES LIMITED - (Issuer) - and - ABN AMRO AUSTRALIA LIMITED - (Security Trustee) - ALLEN ALLEN & HEMSLEY ALLENS ARTHUR ROBINSON GROUP - DEBENTURE TRUST DEED - Allen Allen & Hemsley - Sydney - Ref: PJC 1072623 RCT - Doc No: ryc6dgybkA" dated 22 December 1994.
- and
2. Document entitled "EXCEL MINING PTY LIMITED - (Mortgagor) - and - ABN AMRO AUSTRALIA LIMITED - (Security Trustee) - ALLEN ALLEN & HEMSLEY ALLENS ARTHUR ROBINSON GROUP - MORTGAGE AND CHARGE - Over Assets in NSW, ACT & NT at relevant time - Allen Allen & Hemsley - Sydney - Ref: PJC 1072623 RSCT - Doc No: ryc6dhcmmB" dated 22 December 1994.

**ENDORSEMENT SCHEDULE**

Transfer of Authorisation No. 315 (Act, 1973) to Excel Stratford Pty Limited (ACN 070 387 914) and CIM Resources Ltd (ACN 008 881 712) approved by the Minister on 3rd April, 1996 and registered in the Department of Mineral Resources on 13 April, 1996.

  
.....  
Director-General



# DEPARTMENT OF MINERAL RESOURCES

NEW SOUTH WALES GOVERNMENT

L 1 / 1 CIVIC AVENUE SINGLETON NSW 2331  
PO BOX 51 DX7071 FACSIMILE: (065) 721 20

Mr R Tiley  
Allen Allen & Hemsley - Solicitors  
G P O Box 50  
SYDNEY NSW 2000

our ref:- C95-2025  
your ref:- PJC 1072623 RCT  
contact:- A. van Keulen

7 February 1995

Dear Mr Tiley,

**REGISTRATION OF INTERESTS IN  
MINING LEASE NO. 1360 (ACT, 1992),  
AUTHORISATIONS NO'S 311 & 315 (ACT, 1973)  
CIM RESOURCES LIMITED, EXCEL MINING PTY LIMITED  
AND ABN AMRO AUSTRALIA LIMITED**

Originals  
removed &  
sent to  
DMR  
20.03.96  
Morrison

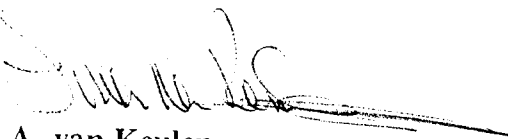
I refer to your letter dated 19 January 1995 in which you enclosed two (2) applications for the registration of the Debenture Trust Deed and Mortgage and Charge between ABN Australia Limited, CIM Resources Limited and Excel Mining Pty Limited insofar as they effect Mining Lease No. 1360 (Act, 1992) and Authorisations No's 311 and 315 (Act, 1973).

I advise that, pursuant to Section 161 (1) (4) of the Mining Act, 1992, the two (2) documents have now been registered against the said authorities.

Endorsement Schedules relating to the registrations have been attached to the original, current, authority documents and are returned herewith as requested.

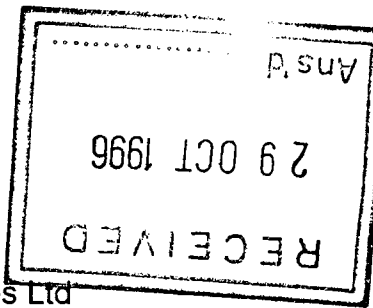
Please note that when either, or both, such Deeds cease to have effect (i.e, cancelled, withdrawn, etc..) for any reason, this office must be notified of same.

Yours Sincerely,



A. van Keulen  
Coal & Petroleum Administration Branch  
Singleton Regional Office

*/u/vankeula/word/stratford/regintlet.doc*



NSW DEPARTMENT OF MINERAL RESOURCES  
Minerals and Energy House, 29-57 Christie Street  
(P.O. Box 536), St Leonards, NSW 2065, Australia  
Phone (02) 9901 8888 · Fax (02) 9901 8777  
DX 3324 St Leonards

CIM Resources Ltd  
Level 32, Westpac Plaza  
60 Margaret Street  
Sydney NSW 2000

C96/0135 &  
C952025

Attention: Mr Jeremy Shervington

Dear Sir,

**Stratford Colliery  
DEED OF RELEASE**

Reference is made to your letter with attachments of 10 October 1996. In accordance with Section 161 of the Mining Act 1992 Deed of Release dated 1 October 1996 between ABN AMRO Australia Limited and CIM Resources Limited, Excel Stratford Pty Limited & ors has been registered in the Department against Mining Lease No. 1360 (Act 1992) and Authorisation Nos. 311 & 315 (Act 1973).

The original deeds in respect of the three authorities are enclosed herewith and have been endorsed as to the registrations.

Yours faithfully

*T.A. Beattie* 23/10/96

T.A. Beattie  
for Director General



PM122/Oct'91

**RETURN RECEIPT**

Receipt is acknowledged of the Certified Mail item,  
the number of which appears on the face of this card

-----  
Signature of Addressee or Agent

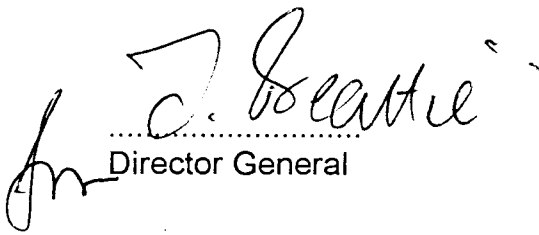
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Signature of Delivery Officer

\_\_\_\_\_  
Date delivered  
/ /

**ENDORSEMENT SCHEDULE**  
**C95/2025 & C96/0135**

Deed of Release dated 1 October 1996 between ABN AMRO Australia Limited (ACN 000 862 797) and CIM Resources Limited (ACN 008 881 712), Excel Stratford Pty Limited (ACN 070 387 914) & ors registered in the Department of Mineral Resources against the following:-

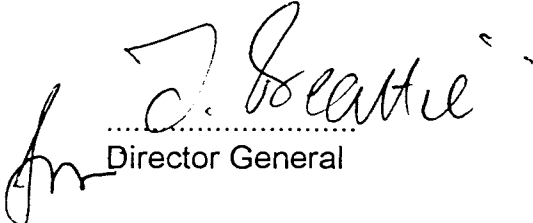
Mining Lease No.1360 (Act 1992)  
Authorisation No.311 (Act 1973)  
Authorisation No.315 (Act 1973)

  
.....  
Director General

**ENDORSEMENT SCHEDULE**  
**C95/2025 & C96/0135**

Deed of Release dated 1 October 1996 between ABN AMRO Australia Limited (ACN 000 862 797) and CIM Resources Limited (ACN 008 881 712), Excel Stratford Pty Limited (ACN 070 387 914) & ors registered in the Department of Mineral Resources against the following:-

Mining Lease No.1360 (Act 1992)  
Authorisation No.311 (Act 1973)  
Authorisation No.315 (Act 1973)

  
.....  
Director General

- (d) The licence holder shall provide efficient means so as to control the overflow of drill mud within Lake Macquarie.
- (e) The licence holder shall notify the Inspector of the proposed abandonment of any drillhole within Lake Macquarie and shall comply with any direction given or which may be given by the Inspector in connection with the abandonment.
- (f) The licence holder shall notify the Inspector fourteen (14) days prior to the fill-in of any boreholes within Lake Macquarie.
- (g) The licence holder shall fill in all boreholes from the total depth to the bed of Lake Macquarie with approved cement mixes, in such a manner as no excess is deposited on the lake bed which may interfere with boating or marine activities.
- (h) The licence holder shall not deposit cement in sections of more than two hundred (200) metres of vertical depth in any borehole within Lake Macquarie at any one time before setting and weight testing has been satisfactorily completed unless with the approval of the Inspector.

**EXCLUDED AREAS**

55 The area granted pursuant to this licence is exclusive of all lands:-

- (a) validly held under any claim or authority under the Mining Act, 1992 and still so held or the subject of a valid application for any such authority made prior to ..... a.m./p.m. on the ..... day of .....19..
- (b) in or upon which bona fide mining operations were being carried on by or with the concurrence of the owner prior to the ..... day of ..... 19...

**MINISTERS RIGHT TO VARY**

56 The Minister reserves the right to vary this licence or renewal of licence, at any time for any reason deemed good and sufficient.

**ROYALTY**

57 In the event that the licence holder shall win coal from the subject area during box cutting, underground bulk sampling operations or surface bulk sampling operations the licence holder shall pay to the Minister a royalty at such rate as is, at the time the minerals are recovered, prescribed for the purposes of Section 283 of the Mining Act, 1992, in respect of an exploration licence, and the royalty shall be payable in accordance with the provisions of the Mining Act, 1992, and the Regulations thereunder.

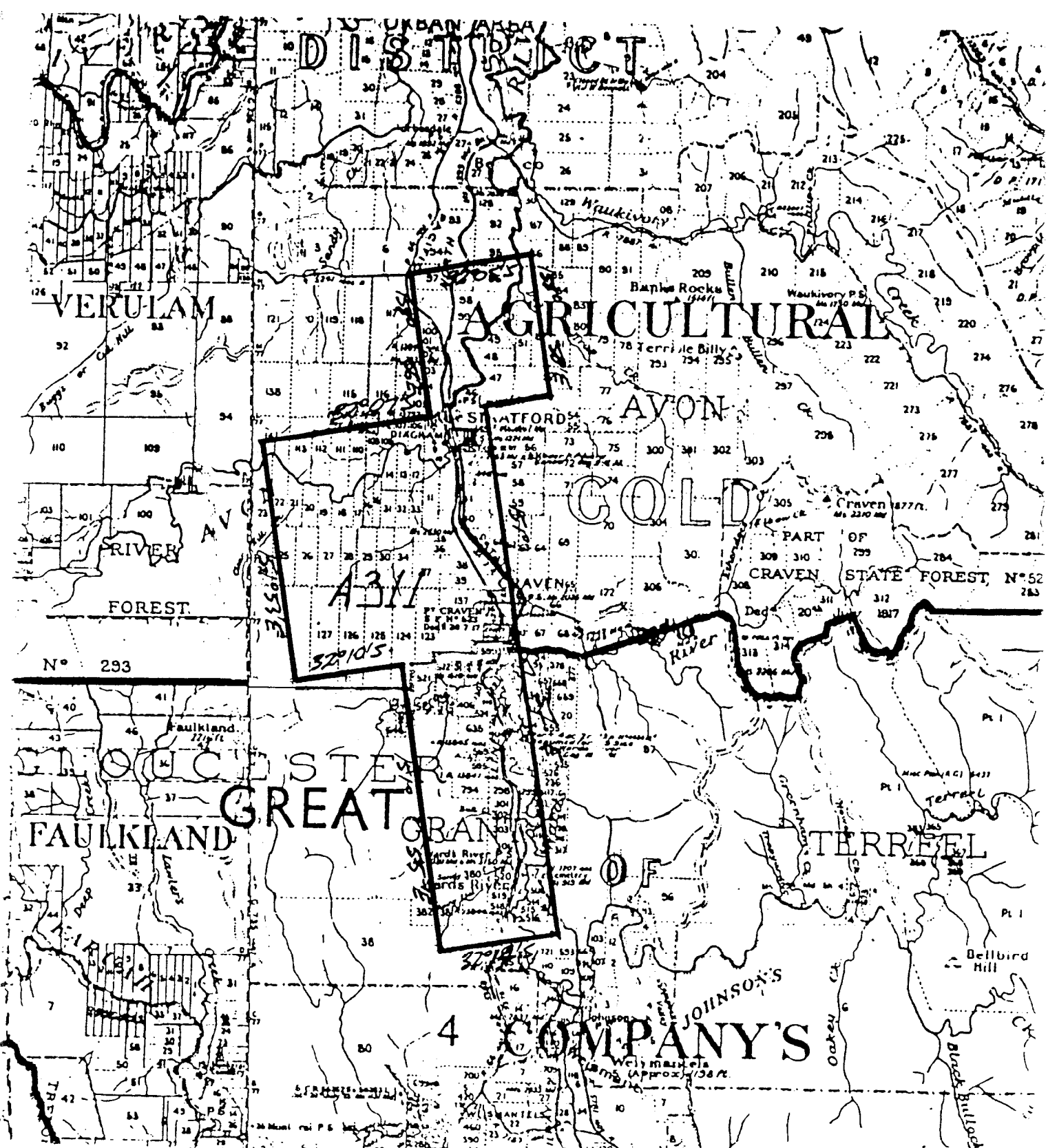
AUTHORISATION NO. 311

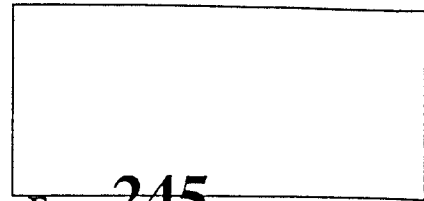
COUNTY: GLOUCESTER

PARISHES: AVON AND GRANT

SCALE 1:125,000

AREA ABOUT 6,000 ha





Form **245**

CENTENARY INTERNATIONAL MINING LTD  
4TH FLOOR, SOUTH SHORE CENTRE  
85 THE ESPLANADE  
SOUTH PERTH WA 6151

remove this top section if desired before framing

# Certificate of Registration on Change of Name



AUSTRALIAN  
SECURITIES  
COMMISSION

Corporations Law Sub-section 171 (12)

This is to certify that

**CENTENARY INTERNATIONAL MINING LTD**

Australian Company Number 008 881 712

did on the eighth day of September 1994 change its name to

**CIM RESOURCES LTD**

Australian Company Number 008 881 712

The company is a public company.

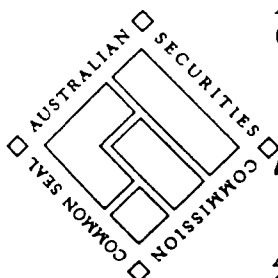
The company is limited by shares.

The company is taken to be registered as a company  
under the Corporations Law of Western Australia.

*I certify that this is a true  
copy of the Certificate of  
Registration on Change of  
Name*

Given under the seal of the  
Australian Securities Commission  
on this eighth day of September, 1994.

*[Signature]*  
A.G. RUIE  
DIRECTOR  
3/2/95.

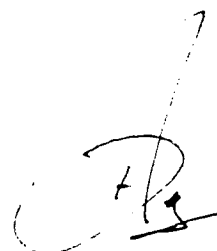


*[Signature]*

Alan Cameron  
Chairman

## ENDORSEMENT SCHEDULE

Pursuant to the provisions of Section 121(1)(a) of the Mining Act 1992, the Minister for Mines did, on the 12th July 1994 ~~1993~~, approve of the transfer of Authorisation No 311 from BMI Mining Pty Ltd to Centenary International Mining ~~Pty~~ Ltd and Excel Mining Pty Ltd and recorded by me in the Department of Mineral Resources in Singleton, the 15<sup>th</sup> day of *July* 1994.



Mining Registrar



## ENDORSEMENT SCHEDULE

Pursuant to the provisions of Section 161 (1) (4) of the Mining Act, 1992, the documents as listed in the SCHEDULE OF DOCUMENTS, hereunder, have been registered in the Department of Mineral Resources insofar as they effect:-

1. Mining Lease No. 1360 (Act, 1992)
  2. Authorisation No 311 (Act, 1973)
- and
3. Authorisation No. 315 (Act, 1973).

(C95-2025)

A handwritten signature in black ink, consisting of a large, sweeping loop that encloses a smaller, more intricate scribble. The signature is positioned above the printed name and title.

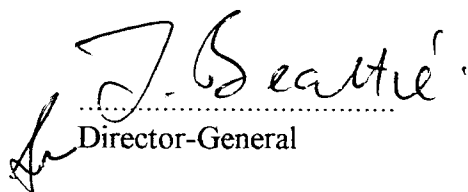
**D. Agnew**  
**(Regional Manager - Northern Region)**  
**Coal & Petroleum Administration Branch**

## SCHEDULE OF DOCUMENTS

1. Document entitled "CIM RESOURCES LIMITED - (Issuer) - and - ABN AMRO AUSTRALIA LIMITED - (Security Trustee) - ALLEN ALLEN & HEMSLEY ALLENS ARTHUR ROBINSON GROUP - DEBENTURE TRUST DEED - Allen Allen & Hemsley - Sydney - Ref: PJC 1072623 RCT - Doc No: ryc6dgybka" dated 22 December 1994.
- and
2. Document entitled "EXCEL MINING PTY LIMITED - (Mortgagor) - and - ABN AMRO AUSTRALIA LIMITED - (Security Trustee) - ALLEN ALLEN & HEMSLEY ALLENS ARTHUR ROBINSON GROUP - MORTGAGE AND CHARGE - Over Assets in NSW, ACT & NT at relevant time - Allen Allen & Hemsley - Sydney - Ref: PJC 1072623 RSCT - Doc No: ryc6dhcmmB" dated 22 December 1994.

## ENDORSEMENT SCHEDULE

Transfer of Authorisation No. 311 (Act, 1973) to Excel Stratford Pty Limited (ACN 070 387 914) and CIM Resources Ltd (ACN 008 881 712) approved by the Minister on 3rd April, 1996 and registered in the Department of Mineral Resources on 13 April, 1996.

  
.....  
Director-General

# Department of Mineral Resources

NEW SOUTH WALES GOVERNMENT  
COALMINING INSPECTORATE  
AND ENGINEERING BRANCH

L.1. JOINT COAL BOARD BUILDING  
1 CIVIC AVENUE  
SINGLETON NSW 2330  
PO BOX 51  
SINGLETON NSW 2330  
TELEPHONE (065) 721 899  
FACSIMILE (65) 721 201

Mr M.D. Newell  
Manager-Group Properties  
BMI Mining Pty Ltd  
GPO Box 1571  
SYDNEY NSW 2001

Our ref: Mrs J. Agnew  
Telephone: (065) 724 200  
File Ref: M82-3866 & M81-3187

Dear Mr Newell,

## AUTHORISATION NO. 315

I refer to your renewal application for Authorisation No 315 lodged with our Department on the 11 August 1993. The authorisation has been renewed for a further term until 17 September 1996.

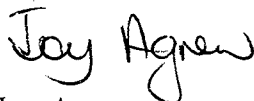
The authorisation is now subject to the attached Conditions of Authority 1992. I particularly draw your attention to Clause 15 (2) which introduces an annual review of work conducted and proposed in terms of the conceptual programs outlined in the "Stratford Feasibility Study" dated 13 August 1993.

Your attention is invited to the provisions of Division 2 of Part 8 of the Mining Act, 1992, which provides amongst other things, that the holder of an authorisation may not carry out prospecting operations on any private land or any land held under a pastoral lease otherwise than in accordance with the provisions of Section 263 of the Act the occupier of any Crown land and the owner and any occupier of any private land are entitled to compensation for any compensable loss suffered, or likely to be suffered, by them as a result of the exercise of rights conferred by the licence or by an access arrangement in respect of the licence. You should give specific attention to the requirements of the Act in this regard.

In regard to Condition No 53 (a), the security in the amount of \$10,000.00 currently held in respect of this authorisation has been transferred to cover the requirements of this condition contained in the renewal.

The Senior Inspector of Coal Mines has advised that, in accordance with Condition No 6, all drilling in the authorisation exceeding a depth of 500 metres is to be carried out using devices and equipment to control natural gas blow-outs.

Yours sincerely,



Joy Agnew  
for Director-General

26/11/93

MINING ACT 1992

INSTRUMENT OF RENEWAL OF AUTHORISATION LICENCE NO.315

HELD BY:

BMI MINING PTY LIMITED

I, Ian Raymond Causley, Minister for Mines for the State of New South Wales HEREBY RENEW THE AUTHORISATION subject to the terms and conditions set out below:-

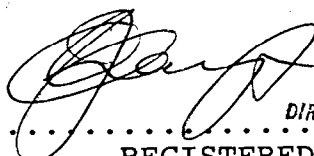
1. The Authorisation is renewed for a further term until 17 September, 1996.
2. The conditions of the Authorisation are amended by deleting all the conditions contained in the Authorisation prior to this renewal and by including the attached Conditions of Authority - 1992 (Coal) Exploration Licences numbered:  
1-34 (Inclusive), 38, 40-49 (Inclusive), 53, 56 and 57
3. The Authorisation is renewed over the land described hereunder and shown on the Exploration Area attached hereto.

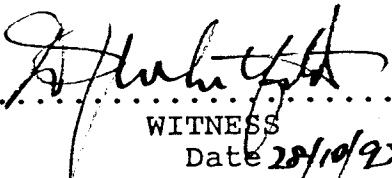
Parishes: Avon, Grant, Gorton and Monkerai

Counties: Gloucester

Area: About 9,200 HA.

I/We, BMI Mining Pty Limited hereby accept the renewal of this Authorisation and agree to be bound by the conditions specified.

  
.....  
DIRECTOR  
REGISTERED HOLDER  
Date 28/10/93

  
.....  
WITNESS  
Date 28/10/93

Renewed this 16th day of November 1993

  
.....  
MINISTER FOR MINES



CONDITIONS OF AUTHORITY - 1992  
(COAL)  
EXPLORATION LICENCES

EXPLORATION ACTIVITIES

1. Prospecting operations shall be restricted to Drilling, Geological and Geophysical Surveying and Testing. However the Minister may, subject to such conditions as considered necessary, authorise the carrying out of additional prospecting operations.
2. Unless otherwise authorised by the Minister the licence holder shall immediately commence and continuously proceed to carry out such surveys and other operations specified in Condition No 1.
3. The licence holder shall carry out all surveys and operations on the subject area in accordance with such methods as are customarily used in good mining practice and in accordance with the provisions of the Mining Act 1992 and the Coal Mines Regulation Act 1982.

DRILLING

4. The licence holder shall not drill nor permit to be drilled on the subject area any hole in excess of two hundred (200) millimetres in diameter unless with the consent of the Senior Inspector of Coal Mines.
5. The licence holder shall upon completion of any drillhole completely fill the hole with cement grout during drill rod withdrawal and plug each drillhole in such a manner that preserves the integrity of any aquifers and does not constitute a danger to persons or stock.
6. Where required by the Chief Inspector of Coal Mines the licence holder shall ensure that drilling operations at sites specified by the Chief Inspector of Coal Mines shall be carried out using drilling rigs fitted with a control device and equipment to the satisfaction of the Chief Inspector of Coal Mines as prevention against natural gas blow-out.
7. The licence holder shall comply with any direction given or which may be given by the Director-General regarding the dumping, depositing or removal of any material extracted during the sinking of any drillhole on the subject area.
8. During operations each drill site shall be maintained in such a manner so as not to constitute a danger to persons or stock.
9. A reference mark is to be placed at the location of each drillhole for relocation purposes.
10. The licence holder shall, if using non-core drilling methods, retain representative cuttings of every three (3) metres of formation drilled or change of formation and such samples must be at least 100 grams in weight, dried, bagged and securely labelled with depth limits.

- 11 The licence holder shall if using diamond drilling methods where solid core is recovered retain all cores in single layer boxes each row separated by rigid vertical spacers and drilling depths shall be clearly and permanently indicated inside and outside of each box.
- 12 The licence holder shall not dispose of any core without first obtaining the approval of the Chief Coal Geologist. Should the Chief Coal Geologist require the core to be kept for archival purposes, the licence holder shall deliver the required core to the Department's Core Library in boxes suitable for storage.
- 13 Should the licence holder wish to temporarily maintain a drillhole in an open condition for monitoring purposes the licence holder shall inform the Director-General.

#### BOXCUTTING, UNDERGROUND BULK SAMPLING OR SURFACE BULK SAMPLING

- 14 (a) Notwithstanding the provisions of Condition No 1 the licence holder shall not commence box cutting, underground bulk sampling operations or surface bulk sampling operations except with the written consent of the Minister and subject to such conditions as the Minister may impose including any conditions requiring the lodgement of a bond or other security for rehabilitation of the area the subject of or affected by such operations.
- (b) Where the licence holder desires to commence box cutting, underground bulk sampling operations or surface bulk sampling operations the licence holder shall furnish to the Inspector information in accordance with Instructions for Box Cutting Operations, Instructions for Underground Bulk Sampling Operations or Instructions for Surface Bulk Sampling Operations.
- (c) If required by the Inspector and within such time as may be stipulated by the Inspector the licence holder shall erect and maintain to the satisfaction of the Inspector a fence around the area subject of or affected by operations.
- (d) When required by the Minister and within such time as may be stipulated by the Minister the licence holder shall rehabilitate each and every section of the area the subject of or affected by the operations to the satisfaction of the Minister and in accordance with such conditions as may be imposed by the Minister.
- (e) The Minister may vary or revoke such consent.

#### REPORTING

- 15 (1) Within fourteen (14) days after the expiration of six (6) months from the date of this licence and within fourteen (14) days after the expiration of each six (6) months thereafter the licence holder shall lodge with the Minister a summary report to the satisfaction of the Minister containing particulars of:-
  - (a) exploration activities and expenditure thereon, and
  - (b) the proposed exploration to be conducted during the following six months.

22 (1) **Licence to Use Reports**

- (a) In respect of reports prepared and to be prepared by or on behalf of the licence holder, and submitted to the Director-General pursuant to conditions numbered 15, 16, 17 and 18 of this licence, the licence holder hereby grants to the Minister, by way of a non-exclusive licence, the right in copyright therein, to publish, print, adapt and reproduce the work in any form and for the full duration of copyright, subject to a period of confidentiality as outlined in sub-clause (2).
- (b) The non-exclusive licence to do acts comprised in the copyright granted hereunder will operate as a consent to disclosure for the purposes of section 365 of the Mining Act 1992.

(2) **Confidentiality**

- (a) All exploration reports submitted in accordance with the conditions of this licence will be kept confidential while the licence is in force, except in cases where:
- (i) The licence holder has agreed that specified reports may be made non-confidential.
- (ii) Reports deal with exploration conducted exclusively on areas that have ceased to be part of the licence.
- (b) Confidentiality of reports will be continued beyond the termination of a licence in cases where an application for a flow-on title was lodged during the currency of the exploration licence. The confidentiality will last until that flow-on title or any subsequent flow-on title, has terminated.
- (c) Continuation of the period of confidentiality outlined in sub-clauses (a) and (b) is subject to the licence holder submitting a report that covers all exploration conducted on the areas of the licence not covered by the flow-on title. Such reports will be made public.
- (d) The Director General may extend the period of confidentiality in respect of reports beyond the time(s) stipulated in sub-clauses (a) and (b) hereof.

(3) **Terms of the non-exclusive licence**

The terms of the non-exclusive copyright licence granted under sub-clause (1)(a) are:

- (a) The Minister may sub-licence others to publish, print, adapt and reproduce but not on-licence reports.
- (b) The Minister and any sub-licensee will acknowledge the licence holder's and any identifiable consultant's ownership of copyright in reports in any reproduction of reports, including storage of reports onto an electronic database.
- (c) The licence holder does not warrant ownership of all copyright works in any report and, the licence holder will identify those parts of the report for which the licence holder does not own copyright.

- (d) There is no royalty payable by the Minister for the licence.
- (e) If the licence holder has reasonable grounds to believe that the Minister has exercised his rights under the non-exclusive copyright licence in a manner which adversely affects the prospecting operations of the licence holder, that licence is revocable on the giving of a period of not less than three months notice.

#### ENVIRONMENT AND REHABILITATION

- 23 The licence holder shall maintain the subject area in a clean and tidy condition at all times.
- 24 If so directed by the Minister the licence holder shall stabilise and rehabilitate to the satisfaction of the Minister and within such time as may be allowed by the Minister any lands within the subject area which may have been disturbed by the licence holder.
- 25 Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this licence or any renewal thereof, the licence holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.
- 26 If so directed by the Minister and at any time or times as may be stipulated by the Minister the licence holder shall lodge for the Minister's approval a management plan comprising such details as the Minister may specify including detailed proposals for rehabilitation of the subject area and erosion and pollution control. The Minister may at any time amend any such plan and the licence holder shall conduct operations in accordance with any such management plan as may be approved or amended by the Minister.
- 27 The licence holder shall carry out operations in such a manner as to interfere as little as possible with flora and fauna and shall not cut or damage any tree, shrub or other vegetative cover except such as may directly obstruct or prevent the carrying out of the operations.
- 28 The licence holder shall take all precautions against causing outbreak of fire on the subject area.
- 29 The licence holder shall conduct operations in such a manner as not to cause or aggravate soil erosion and the licence holder shall observe and perform any instructions given or which may be given by the Minister with a view to minimising or preventing soil erosion.
- 30 In the event of any excavations being made the licence holder shall remove and place separately all topsoil and shall ensure that when such excavations are refilled, the topsoil previously removed is replaced and levelled. All such refilling and levelling shall be done to the satisfaction of the Minister.
- 31 Notwithstanding the provisions of Condition No 26, the licence holder shall not destroy or injure any tree, sapling, shrub or scrub on any protected land, as defined by the Soil Conservation Act, 1938, as amended, except in accordance with an authority issued by the Commissioner, Soil Conservation Board, under Section 21D of that Act.



32. Where the licence holder proposes to carry out any prospecting activity requiring disturbance of ground cover using earthmoving machinery, including construction of access tracks, the licence holder shall refer such proposal to the Department of Conservation and Land Management for comment, regarding erosion and sediment control, prior to carrying out such activity.
33. Where the licence holder intends to conduct operations in or adjacent to any river, stream, creek, tributary, lake, dam or reservoir the subject of a proclamation under the Fisheries and Oyster Farms Act, 1935, relating to or prohibiting the taking of species of fish, the licence holder shall, not less than seven (7) days before commencement of such operations give notice in writing to the District Inspector of Fisheries setting out details of such operations and the river, stream, creek, tributary, lake, dam or reservoir that shall or may be affected thereby.
34. The licence holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area or any undue interference to fish or their environment and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area, or any undue interference to fish or their environment.
35. (a) Operations shall be carried out in such a way as not to cause any pollution of the.....  
Catchment Area.
- (b) If the licence holder is using or about to use any process which in the opinion of the Minister is likely to cause contamination of the waters of the said Catchment Area the licence holder shall refrain from using or cease using as the case may require such process within twenty-four (24) hours of the receipt by the licence holder of a notice in writing under the hand of the Minister requiring the licence holder to do so.
- (c) The licence holder shall comply with any regulations now in force or hereafter to be in force for the protection from pollution of the said Catchment Area.
36. (a) The licence holder shall carry out operations in such a way as to conform strictly to all provisions of the Water Board Act, 1987, as amended, and the regulations thereunder applying to the prevention of pollution of the..... (Water Catchment) Special Area or the preservation of the purity of the water supply provided thereby or derived therefrom or for the protection of the property of the Water Board on the Special Area and also to all requirements of the said Board from time to time under the said Act or any of the regulations for the time being in force.

- (b) If the licence holder shall at any time be using or about to use any process which in the opinion of the Water Board is likely to pollute the Special Area or the water supply or to endanger any property of the said Board on the Special Area the licence holder upon service of a notice in writing under the hand of the Minister to do so shall (i) discontinue the use of such process within twenty-four (24) hours or (ii) thereafter refrain from adopting such process at any time, as the case may require.
- (c) The licence holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent the contamination, pollution, erosion or siltation of any stream or watercourse or catchment area and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution or siltation of any stream watercourse or catchment area.
- (d) The licence holder hereby covenants with Us Our Heirs and Successors and as a separate covenant the licence holder hereby covenants with the Water Board and its Successors that the licence holder shall at all times hereafter save harmless and keep Us and the said Board and Our Heirs and Successors and the Successors of the said Board indemnified from payment of compensation and from and against all actions proceedings claims and demands in respect of any injury loss or damage arising out of or in any way connected with any interference with or deprivation or loss of access to the land and premises of this licence which may occur by reason of any works or operations undertaken or carried out by the said Board or arising out of or in any way connected with any discontinuance or alteration of any process consequent upon the service of a notice in pursuance of the provisions of Condition 35(b) or arising out of or in any way connected with the operation of any regulations relating to a Special Area in force at the date hereof or made by the said Board at any time hereafter and the licence holder hereby agrees that for the purpose of this condition the said Board shall be deemed to be a party to this licence.

37 The licence holder shall:-

- (a) Make such provisions for sanitation as may be directed by the Water Board and shall at all times observe and perform any requirements of the said Board respecting sanitation.
- (b) not establish any camps or habitations within any areas under the control of the Water Board unless with the consent of the Water Board.
- (c) Not sink any drillhole within the stored waters on the subject area nor within... metres of the top water level thereof unless with the consent of the Water Board.
- (d) Not sink any drillhole within any watercourse on the..... (Water Catchment) Special Area nor within.... metres thereof unless with the consent of the Water Board.
- (e) Not interfere with or impede the use of Water Board tracks or endanger their stability in any way by reason of the operations.

- (f) Not construct any road to the sites of any drillholes unless with the consent of the Water Board to the proposed route and type of road construction.
- (g) Not interfere in any way with any fences on or adjacent to the ..... (Water Catchment) Special Area unless with the consent in writing of the owner thereof or the Water Board.
- (h) Give three days notice to the Water Board's Resident Engineer, Pipe Head, Guildford of its intention to commence drilling operations.
- (i) Not cut or remove any timber except such as directly obstructs or prevents the carrying on of operations and the licence holder shall obtain the consent in writing of the Water Board before making use of the timber so cut for other than in connection with operations.
- (j) Complete work in relation to rehabilitation within the ..... (Water Catchment) Special Area before termination of the licence to the satisfaction of the Water Board.

**EXEMPTED AREAS AND PUBLIC RESERVES**

- 38 (a) The licence holder shall not commence any activities within any "exempted area" as defined by Section 4 of the Mining Act, 1992, except with the written consent of the Minister and subject to such conditions as the Minister may impose.
- (b) Where the licence holder desires to commence any activities within any "exempted area" the licence holder shall furnish to the Director-General, three copies of a topographic map, scale 1:25,000 showing the location of any proposed drill holes together with details of proposed drilling, geological and geophysical activities.
- 39 The licence holder shall permit the free and uninterrupted passage of stock through that part or those parts, as the case may be, of the subject area covered by ..... Reserve No ..... and shall conduct operations as not to cause any danger to persons and travelling stock.
- 40 The licence holder shall as far as may be practicable so conduct operations as not to interfere in any way with the public use and enjoyment of any Reserve

**PRIVATE PROPERTY**

- 41 The licence holder shall observe any instruction given or which may be given by the Minister with a view to minimising or preventing public inconvenience or damage to public or private property.

- 42 The licence holder shall not interfere in any way with any fences on or adjacent to the subject area unless with the prior written approval of the owner thereof or the Minister and subject to such conditions as the Minister may stipulate.
- 43 Any gates within the subject area or any other gates used by the licence holder shall be closed or left open in accordance with the requirements of the owner or occupier.
- 44 The licence holder shall permit the free and uninterrupted passage of stock through the subject area and shall conduct operations in such a manner as not to cause any danger to travelling stock.
- 45 The licence holder shall not interfere with or prevent the access of stock to any watering places or approaches thereto without the consent of the owner and occupier or of the Minister.
- 46 The licence holder shall not interfere with any well, water pump, dam or pipeline without the consent of the owner and occupier.

#### ROADS

- 47 In the event of operations being conducted on the surface of any road, track or firetrail traversing the subject area or in the event of such operations causing damage to or interference with any such road, track or firetrail the licence holder, at his own expense, shall if directed to do so by the Minister provide to the satisfaction of the Minister an alternate road, track or firetrail in a position as required by the Minister and shall allow free and uninterrupted access along such alternate road, track or firetrail and, if required to do so by the Minister, the licence holder shall upon completion of operations rehabilitate the surface of the original road, track or firetrail to a condition satisfactory to the Minister.

#### TRANSMISSION LINES, COMMUNICATION LINES AND CABLES

- 48 The licence holder shall as far as is practicable so conduct operations as not to interfere with or impair the stability or efficiency of any transmission line, communication line or pipeline traversing the surface or the excepted surface of the subject area and shall comply with any direction given or which may be given by the Minister in this regard.

#### SURVEY REFERENCE MARKS

- 49 (a) The marks in connection with any trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area shall not be interfered with and the unrestricted right of access to such station by authorised persons and also the right to clear sight lines to surrounding stations is reserved at all times.
- (b) The licence holder shall take all necessary precautions to preserve the trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) and the cairn, mast and vanes which might be erected upon the subject area.

- (c) No buildings or other structures shall be erected which would make observations to and from surrounding trigonometrical stations difficult to effect.
- (d) In the event of operations interfering with or damaging any trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area, or if required to do so by the Minister, the licence holder shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to the satisfaction of, and in a position required by, the Department of Conservation and Land Management, the Land Information Centre, Bathurst and the Minister and, if required to do so by the Minister, and subject to such conditions as he may impose, the licence holder, upon completion of operations shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to its original position.

**ABORIGINAL PLACE OR RELIC**

50 The licence holder shall not knowingly destroy, deface or damage any aboriginal place or relic within the subject area except in accordance with an authority issued under the National Parks and Wildlife Act, 1974, and shall take every precaution in drilling, excavating or disturbing the land against any such destruction, defacement or damage.

**INSPECTORS**

- 51 (a) Where the Inspector is of the opinion that any condition of this licence relating to operations within the subject area, or any provision of the Mining Act, 1992, relating to operations within the subject area, are not being complied with by the licence holder the Inspector may serve on the licence holder a notice stating that and give particulars of the reason why, and may in such notice direct the licence holder:-
- (i) to cease operations within the subject area in contravention of that condition or Act; and
  - (ii) to carry out within the specified time works necessary to rectify or remedy the situation.
- (b) The licence holder shall comply with the directions contained in any notice served pursuant to sub-paragraph (a) of this condition. The Director-General may confirm, vary or revoke any such direction.
- (c) A notice referred to in this condition may be served on the Colliery Manager.

## INDEMNITY

- 52 The licence holder shall indemnify and keep indemnified the Crown from and against all actions suits and claims, and demands of whatsoever nature and all costs charges and expenses which may be brought against the licence holder or which the licence holder may incur in respect of any accident or injury to any person or property which may arise out of the construction maintenance or working of any workings now existing or to be made by the licence holder within the boundaries of the subject area or in connection with any of the operations notwithstanding that all other conditions of this licence shall in all respects have been observed by the licence holder or that any such accident or injury shall arise from any act or thing which the licence holder may be licensed or compelled to do hereunder.

## SECURITY DEPOSIT

- 53(a) The licence holder shall, within two (2) months of being requested by the Director-General, lodge with the Minister the sum of \$10,000 (Ten Thousand Dollars) in accordance with Instructions for Manner of Lodgement of Security Deposits as security for the fulfilment of the obligations of the licence holder under this licence. In the event that the licence holder fails to fulfil any of its obligations under this licence the said sum may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purposes of this clause a licence holder shall be deemed to have failed to fulfil its obligations under this licence, if it fails to comply with any condition or provision of this licence, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision of this licence or of any provision of the Act or regulations made thereunder.
- (b) The Minister may at any time after the commencement of this licence or any renewal thereof, vary the amount of security required in accordance with this condition.
- (c) Where the amount of security has been increased pursuant to clause (b) hereof the licence holder shall, within two (2) months of being requested by the Minister, lodge a security for the amount of security required, in which case the Minister shall refund or release to the licence holder the security previously lodged.

## DRILLING UNDER LAKES

- 54 (a) The licence holder shall ensure that operations on the subject area do not affect or impair the stability of the coaxial cable traversing the subject area.
- (b) With the exception of any holes drilled on the bed of Lake Macquarie a reference mark is to be placed in the vicinity of each drillhole with a side traverse of the drillhole for relocation purposes.
- (c) Where a significant deviation in the direction of any borehole within Lake Macquarie is detected the licence holder shall carry out down-hole directional surveys in any such borehole to the satisfaction of the Inspector.

NEW SOUTH WALES GOVERNMENT  
COAL MINING INSPECTORATE AND  
ENGINEERING BRANCH (065) 721 899  
COAL AND PETROLEUM  
GEOLOGY BRANCH (065) 724 200  
COAL AND PETROLEUM  
ADMINISTRATION BRANCH (065) 724 200

Mr M.D. Newell  
Manager, Group Properties  
BMI Mining Pty Ltd  
GPO Box 1571  
SYDNEY NSW 2001

Dear Sir,

AUTHORISATION NO: 311

I refer to the Instrument of Renewal document in relation to be above mentioned Authorisation sent to you on 26 November 1993.

I regret to advise that a typing error appears on the Instrument. The area of the authorisation should read **about 6,800 ha**, not the 6,000 ha as printed. All other documentation regarding this authorisation refers to the correct area, i.e. 6,800 ha. It would therefore be appropriate to attach this letter to the original Instrument of Renewal.

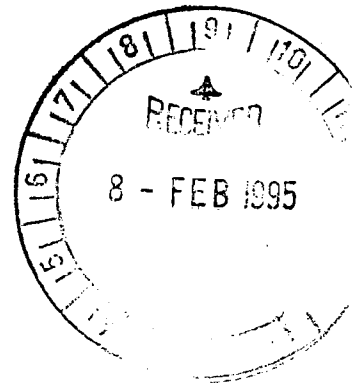
I apologise for this oversight.

Yours faithfully,

*Joy Agnew*

Joy Agnew (Mrs)  
for Director-General

4/2/94



# Department of Mineral Resources

NEW SOUTH WALES GOVERNMENT  
COALMINING INSPECTORATE  
AND ENGINEERING BRANCH

L.1. JOINT COAL BOARD BUILDING  
1 CIVIC AVENUE  
SINGLETON NSW 2330  
PO BOX 51  
SINGLETON NSW 2330  
TELEPHONE (065) 721 899  
FACSIMILE (65) 721 201

Mr M.D. Newell  
Manager-Group Properties  
BMI Mining Pty Ltd  
GPO Box 1571  
SYDNEY NSW 2001

Our ref: Mrs J. Agnew  
Telephone: (065) 724 200  
File Ref: M82-3866 & M81-3187

Dear Mr Newell,

## AUTHORISATION NO. 311

I refer to your renewal application for Authorisation No 311 lodged with our Department on the 11 August 1993. The authorisation has been renewed for a further term until 17 September 1996.

The authorisation is now subject to the attached Conditions of Authority 1992. I particularly draw your attention to Clause 15 (2) which introduces an annual review of work conducted and proposed in terms of the conceptual programs outlined in the "Stratford Feasibility Study" dated 13 August 1993.

Your attention is invited to the provisions of Division 2 of Part 8 of the Mining Act, 1992, which provides amongst other things, that the holder of an authorisation may not carry out prospecting operations on any private land or any land held under a pastoral lease otherwise than in accordance with the provisions of Section 263 of the Act the occupier of any Crown land and the owner and any occupier of any private land are entitled to compensation for any compensable loss suffered, or likely to be suffered, by them as a result of the exercise of rights conferred by the licence or by an access arrangement in respect of the licence. You should give specific attention to the requirements of the Act in this regard.

In regard to Condition No 53 (a), the security in the amount of \$10,000.00 currently held in respect of this authorisation has been transferred to cover the requirements of this condition contained in the renewal.

The Senior Inspector of Coal Mines has advised that, in accordance with Condition No 6, all drilling in the authorisation exceeding a depth of 500 metres is to be carried out using devices and equipment to control natural gas blow-outs.

Yours sincerely,



Joy Agnew  
for Director-General

26/11/93



MINING ACT 1992

INSTRUMENT OF RENEWAL OF AUTHORISATION NO.311

HELD BY:

BMI MINING PTY LIMITED

I, Ian Raymond Causley, Minister for Mines for the State of New South Wales HEREBY RENEW THE AUTHORISATION subject to the terms and conditions set out below:-


1. The Authorisation is renewed for a further term until 17 September, 1996.
2. The conditions of the Authorisation are amended by deleting all the conditions contained in the Authorisation prior to this renewal and by including the attached **Conditions of Authority - 1992 (Coal) Exploration Licences** numbered:  
1-34 (Inclusive), 38, 40-49 (Inclusive), 53, 56 and 57
3. The Authorisation is renewed over the land described hereunder and shown on the Exploration Area attached hereto.

Parishes: Avon and Grant

Counties: Gloucester


Area: About 6,000 HA.

I/We, BMI Mining Pty Limited hereby accept the renewal of this Authorisation and agree to be bound by the conditions specified.

.....  
  
DIRECTOR  
REGISTERED HOLDER  
Date 23/10/93

.....  
  
WITNESS  
Date 28/10/93

Renewed this 16th day of November 1993

.....  
  
MINISTER FOR MINES

ch

CONDITIONS OF AUTHORITY - 1992  
(COAL)  
EXPLORATION LICENCES

EXPLORATION ACTIVITIES

- 1 Prospecting operations shall be restricted to Drilling, Geological and Geophysical Surveying and Testing. However the Minister may, subject to such conditions as considered necessary, authorise the carrying out of additional prospecting operations.
- 2 Unless otherwise authorised by the Minister the licence holder shall immediately commence and continuously proceed to carry out such surveys and other operations specified in Condition No 1.
- 3 The licence holder shall carry out all surveys and operations on the subject area in accordance with such methods as are customarily used in good mining practice and in accordance with the provisions of the Mining Act 1992 and the Coal Mines Regulation Act 1982.

DRILLING

- 4 The licence holder shall not drill nor permit to be drilled on the subject area any hole in excess of two hundred (200) millimetres in diameter unless with the consent of the Senior Inspector of Coal Mines.
- 5 The licence holder shall upon completion of any drillhole completely fill the hole with cement grout during drill rod withdrawal and plug each drillhole in such a manner that preserves the integrity of any aquifers and does not constitute a danger to persons or stock.
- 6 Where required by the Chief Inspector of Coal Mines the licence holder shall ensure that drilling operations at sites specified by the Chief Inspector of Coal Mines shall be carried out using drilling rigs fitted with a control device and equipment to the satisfaction of the Chief Inspector of Coal Mines as prevention against natural gas blow-out.
- 7 The licence holder shall comply with any direction given or which may be given by the Director-General regarding the dumping, depositing or removal of any material extracted during the sinking of any drillhole on the subject area.
- 8 During operations each drill site shall be maintained in such a manner so as not to constitute a danger to persons or stock.
- 9 A reference mark is to be placed at the location of each drillhole for relocation purposes.
- 10 The licence holder shall, if using non-core drilling methods, retain representative cuttings of every three (3) metres of formation drilled or change of formation and such samples must be at least 100 grams in weight, dried, bagged and securely labelled with depth limits.

- 11 The licence holder shall if using diamond drilling methods where solid core is recovered retain all cores in single layer boxes each row separated by rigid vertical spacers and drilling depths shall be clearly and permanently indicated inside and outside of each box.
- 12 The licence holder shall not dispose of any core without first obtaining the approval of the Chief Coal Geologist. Should the Chief Coal Geologist require the core to be kept for archival purposes, the licence holder shall deliver the required core to the Department's Core Library in boxes suitable for storage.
- 13 Should the licence holder wish to temporarily maintain a drillhole in an open condition for monitoring purposes the licence holder shall inform the Director-General.

**BOXCUTTING, UNDERGROUND BULK SAMPLING OR SURFACE BULK SAMPLING**

- 14 (a) Notwithstanding the provisions of Condition No 1 the licence holder shall not commence box cutting, underground bulk sampling operations or surface bulk sampling operations except with the written consent of the Minister and subject to such conditions as the Minister may impose including any conditions requiring the lodgement of a bond or other security for rehabilitation of the area the subject of or affected by such operations.
- (b) Where the licence holder desires to commence box cutting, underground bulk sampling operations or surface bulk sampling operations the licence holder shall furnish to the Inspector information in accordance with Instructions for Box Cutting Operations, Instructions for Underground Bulk Sampling Operations or Instructions for Surface Bulk Sampling Operations.
- (c) If required by the Inspector and within such time as may be stipulated by the Inspector the licence holder shall erect and maintain to the satisfaction of the Inspector a fence around the area subject of or affected by operations.
- (d) When required by the Minister and within such time as may be stipulated by the Minister the licence holder shall rehabilitate each and every section of the area the subject of or affected by the operations to the satisfaction of the Minister and in accordance with such conditions as may be imposed by the Minister.
- (e) The Minister may vary or revoke such consent.

**REPORTING**

- 15 (1) Within fourteen (14) days after the expiration of six (6) months from the date of this licence and within fourteen (14) days after the expiration of each six (6) months thereafter the licence holder shall lodge with the Minister a summary report to the satisfaction of the Minister containing particulars of:-
  - (a) exploration activities and expenditure thereon, and
  - (b) the proposed exploration to be conducted during the following six months.

- (2) These reports will be reviewed by Director-Coal within one month of each anniversary of this licence. If the exploration and related studies completed in the previous twelve months, and forecast for the following six months, are not consistent with the work program outlined in 'Stratford Feasibility Study' dated 13 August 1993 then this licence may be referred to the Minister for consideration of cancellation on the basis of the holder conducting insufficient activity on the licence.
- 16 The licence holder shall forward to the Minister, with every application for renewal of this licence, and upon the expiry or sooner determination thereof, a comprehensive report to the satisfaction of the Minister containing full particulars of:
- (i) exploration activities, including expenditure thereon, carried out by the licence holder during the period of the licence or the last renewal thereof as the case may be;
  - (ii) results of such exploration activities and conclusions reached by the licence holder, as to the mineral resources potential of the subject area; and
  - (iii) the proposed scheme for further exploration of the area the subject of any application for renewal.
- 17 The licence holder shall forward to the Minister upon the completion of each major exploration program or sooner determination of this licence a detailed geological report which provides a complete assessment of the coal resources potential of the area, including all such maps, plans and data as are necessary for the satisfactory interpretation and evaluation of the report. Accompanying each report shall be a detailed lithological log of every hole drilled by the licence holder together with the results of all analysis and tests. Lithological logs are to be supplied on paper and silver halide microfiche. In addition, the Minister may direct the licence holder to undertake analyses and tests on any or all coal seams intersected in the drill holes which in the opinion of the Minister are likely to be economically mineable.
- 18 The licence holder shall forward to the Minister such further reports on exploration activities as the Minister may from time to time require.
- 19 All drillholes are to be properly surveyed to determine their horizontal and vertical positions and survey details are to be furnished with written reports. Surface levels related to the Australian Height Datum and Integrated Survey Grid co-ordinate values are to be supplied for each drillhole. This data must be qualified by the respective notations (A.H.D.) and (I.S.G.). The vertical position for each drillhole is required to an accuracy of  $\pm 0.3$  metre and the horizontal position for each drillhole is required to an accuracy of  $\pm$ one (1) metre unless otherwise directed by the Director-General.
- 20 The licence holder shall provide to the Department of Mineral Resources such notifications, cores and samples as required by the Director-General.
- 21 Within 6 months of the completion of any airborne geophysical survey within the subject area the licence holder shall forward to the Director-General copies of levelled located computer tapes each of which shall, unless otherwise directed by the Director-General, be recorded on XA Byte tape with the data conforming to ASEG-GDF standard and with the GDF data format being specified in the header file on each tape.

REFERENCE MARKS

1	338°02' - 9.69	RM.G.I.P.
2	210°18' - 44.11	RM.G.I.P.
	105°23' - 14.53	RM.G.I.N. & 1/4 IN MAHOGANY FD. (D.P.116326)
3	191°46' - 4.44	RM.G.I.P.
4	8°47' - 4.82	RM.G.I.P.
5	55°30' - 6.85	RM.G.I.P.
6	278°34' - 1.5	RM.G.I.P.
	98°34' - 1.38	G.I.N. & 1/4 IN DEAD TREE
12	186°27' - 9.71	RM.G.I.P.
13	190°06' - 9.92	RM.G.I.P.
14	262°03' - 5.1	RM.G.I.P.

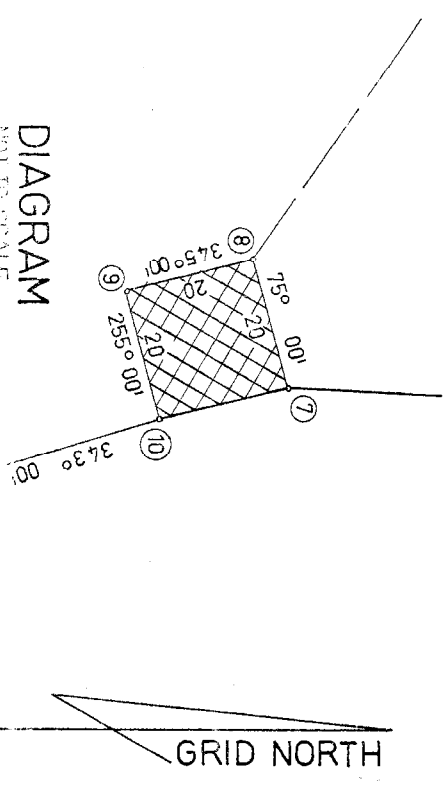
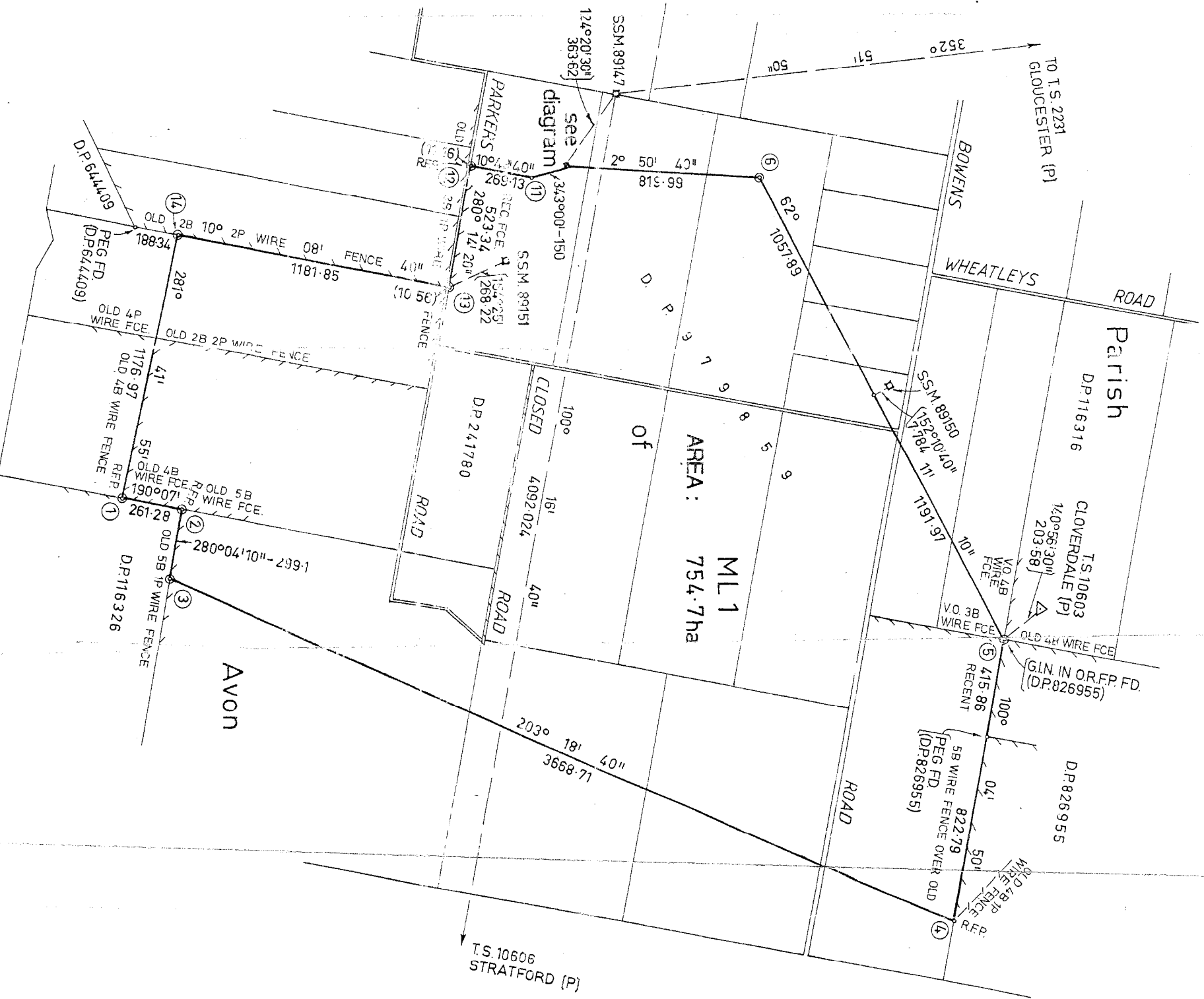


DIAGRAM  
NOT TO SCALE

CNR	EASTING	NORTHING
1	330093.40	1440818.61
2	390939.40	1441075.83
3	391233.90	1441023.54
4	392685.71	1444392.76
5	391666.18	1444609.54
6	389476.25	1443559.75
7	389435.56	1442740.77
8	389415.24	1442735.60
9	389421.41	1442716.28
10	389440.73	1442721.45
11	389484.59	1442578.01
12	389434.11	1442313.66
13	389949.12	1442220.64
14	389740.98	1441057.26

CONTROL MARKS	DATE	19th July 1994	ZONE 56/1		SOURCE	H ACC.
			EASTING	NORTHING		
T.S. 10603 CLOVERDALE (P)			391337.900	1444767.627	S.C.I.M.S.	1
T.S. 10606 STRATFORD (P)			393142.371	1442210.655	S.C.I.M.S.	1
T.S. 2231 GLOUCESTER (P)			387424.335	1456454.381	S.C.I.M.S.	1
S.S.M. 89147			389116.000	1442940.725	G.P.S.	
S.S.M. 89150			390408.288	1444060.252	G.P.S.	
S.S.M. 89151			389833.299	1442462.559	G.P.S.	



PLAN OF PORTION ML1

PARISH(S) AVON  
COUNTY(S) GLOUCESTER  
MAP SHEET NO(S) GRAVEN 9233-1-S  
REDUCTION RATIO GLOUCESTER 9233-1-N  
LENGTHS ARE IN METRES

MINING LEASE APPLICATION NO 24  
MINING DIVISION SINGLETON  
APPLICANT STRATFORD COAL PTY. LTD.  
APPLICANT DATE 27. 10. 94

Surface exceptions/ depth restrictions  
 EMBRACES THE SURFACE AND THE LAND BELOW THEREOF TO AN UNLIMITED DEPTH.  
 EMBRACES THE SURFACE AND THE LAND BELOW THEREOF TO AN UNLIMITED DEPTH BUT EXCLUSIVE OF THE RAILROAD.

This is the plan referred to in the annexed Mining Lease No. 136 granted under the provisions of the Mining Act, 1992 to:

CIM RESOURCES PTY LTD  
EXCEL MINING PTY LTD  
ICA COAL PTY LTD  
on the 21st day of DECEMBER 1994

Lease Holder  
 [Signature]  
 Lease Holder  
 [Signature]  
 [Signature]  
 Lease Holder

Azimuth :  
 Plans used in the calculation  
 DP.241780 DP.979889  
 DP.116328 DP.826955  
 DP.116316  
 DP.64409  
 DP.116325

Survey declared on this plan to be final

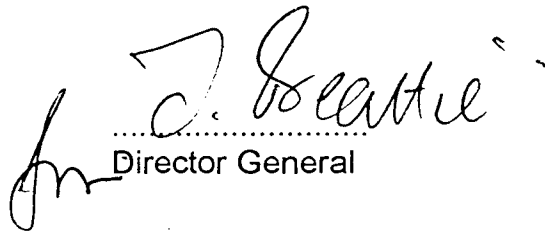
JULIAN VERNON CAIVER  
 of CALVER DEWITT & TAYLOR PTY LTD  
 P.O. BOX 194, GLOUCESTER 2422  
 a surveyor registered under the Surveyors Act 1929,  
 hereby certify that the survey represented in this plan  
 is accurate and has been completed in accordance with  
 the Survey Practice Regulations, 1990 and the  
 Directions for the Guidance of Mining Surveyors  
 and was completed on 8th December 1994  
 Signature : [Signature]  
 Surveyor's reference: GL764

SURVEY CATEGORIES: ACCEPTED PLAN, NOT CHECKED IN THE DEPT. OF MINERAL RESOURCES.  
 PLAN INVESTIGATED:  
 PLAN APPROVED  
 FOR USE  
 PAPER NO.: C.94.2111

**ENDORSEMENT SCHEDULE**  
**C95/2025 & C96/0135**

Deed of Release dated 1 October 1996 between ABN AMRO Australia Limited (ACN 000 862 797) and CIM Resources Limited (ACN 008 881 712), Excel Stratford Pty Limited (ACN 070 387 914) & ors registered in the Department of Mineral Resources against the following:-

Mining Lease No.1360 (Act 1992)  
Authorisation No.311 (Act 1973)  
Authorisation No.315 (Act 1973)

  
.....  
Director General

→ Louise Houghton PJC/LFH



NSW DEPARTMENT OF MINERAL RESOURCES  
Minerals and Energy House, 29-57 Christie Street  
(P.O. Box 536), St Leonards, NSW 2065, Australia  
Phone (02) 901 8888 · Fax (02) 901 8777  
DX 3324 St Leonards

Allen Allen & Hemsley  
Solicitors  
2 Chifley Square  
Sydney 2000

C95/2025

Dear Sir,

**Stratford Colliery -Registration of  
Deed of Release**

Reference is made to previous correspondence (PJC 1072623 LFH).  
In accordance with Section 161 of the Mining Act 1992, Deed of Release dated  
19 June 1996 between ABN AMRO Australia Limited and Excel Mining Pty  
Limited has been registered in the Department against Mining Lease No.1360  
(Act 1992) and Authorisation Nos. 311 & 315 (Act 1973).  
The original deeds in respect of the three authorities are enclosed herewith and  
have been endorsed as to the registrations.

Yours faithfully

A handwritten signature in cursive script that reads 'T.A. Beattie'.

T.A. Beattie  
for Director General

14/8/96

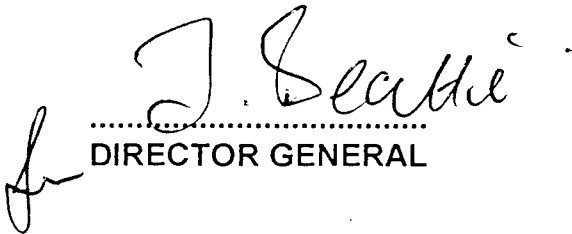
Received

19.08.96

**ENDORSEMENT SCHEDULE**  
**C95/2025**

Deed of Release dated 19 June 1996 between ABN AMRO Australia Limited (ACN 000 862 797) and Excel Mining Pty Limited (ACN 057 982 233) registered in the Department of Mineral Resources against the following authorities;

Mining Lease No.1360 (Act 1992)  
Authorisation No.311 (Act 1973)  
Authorisation No.315 (Act 1973)

  
.....  
DIRECTOR GENERAL



**ENDORSEMENT SCHEDULE**

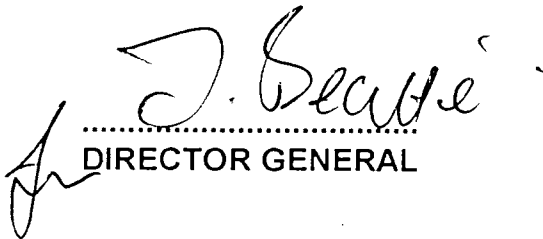
**C95/2025**

**Deed of Release dated 19 June 1996 between ABN AMRO Australia Limited (ACN 000 862 797) and Excel Mining Pty Limited (ACN 057 982 233) registered in the Department of Mineral Resources against the following authorities;**

**Mining Lease No.1360 (Act 1992)**

**Authorisation No.311 (Act 1973)**

**Authorisation No.315 (Act 1973)**

  
.....  
**DIRECTOR GENERAL**

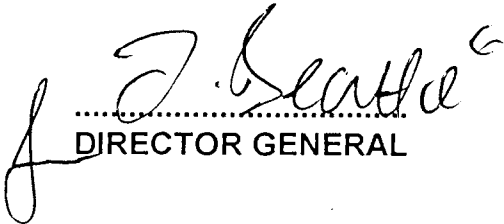
**ENDORSEMENT SCHEDULE**  
**C95/2025**

Deed of Release dated 19 June 1996 between ABN AMRO Australia Limited (ACN 000 862 797) and Excel Mining Pty Limited (ACN 057 982 233) registered in the Department of Mineral Resources against the following authorities;

Mining Lease No.1360 (Act 1992)

Authorisation No.311 (Act 1973)

Authorisation No.315 (Act 1973)

  
.....  
DIRECTOR GENERAL



NSW DEPARTMENT OF MINERAL RESOURCES  
Minerals and Energy House, 29-57 Christie Street  
(P.O. Box 536), St Leonards, NSW 2065, Australia  
Phone (02) 9901 8888 · Fax (02) 9901 8777  
DX 3324 St Leonards

Allen Allen and Hemsley  
Solicitors and Notaries  
GPO BOX 50  
SYDNEY NSW 2001

C96/0135

30th April, 1996

**ATTENTION: LOUISE HOURIGAN**

Dear Sirs,

**STRATFORD COLLIERY PROJECT -  
MEMORANDUM OF MORTGAGE AND CHARGE**

Reference is made to previous correspondence (Your Reference PJC 1072623 LFH).

It is advised that Memorandum of Mortgage and Charge dated 1st December, 1995 between Excel Stratford Pty Limited and ABN AMRO Australia Limited has been registered in the Department of Mineral Resources against

- 1) Mining Lease No. 1360 (Act, 1992),
- 2) Authorisation No. 311 (Act, 1973), and
- 3) Authorisation No. 315 (Act, 1973).

Enclosed please find Endorsement Schedules in regard to the registrations which we would be pleased if you could arrange to have appended to the respective authority documents.

Yours faithfully,

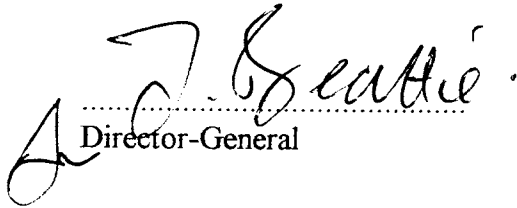
T A Beattie  
for Director-General

Enc.

**ENDORSEMENT SCHEDULE**

**(C96-0135)**

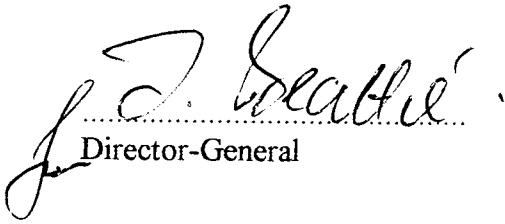
Memorandum of Mortgage and Charge dated 1st December, 1995 between Excel Stratford Pty Limited (ACN 070 387 914) and ABN AMRO Australia Limited (ACN 000 862 797) registered in the Department of Mineral Resources on 2 May, 1996 against Mining Lease No. 1360 (Act, 1992).

  
.....  
Director-General

**ENDORSEMENT SCHEDULE**

**(C96-0135)**

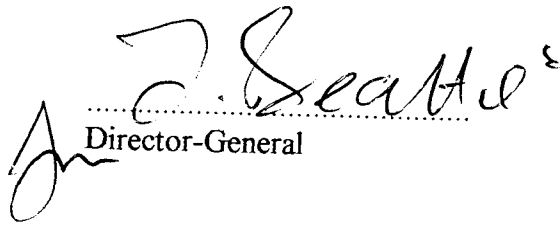
Memorandum of Mortgage and Charge dated 1st December, 1995 between Excel Stratford Pty Limited (ACN 070 387 914) and ABN AMRO Australia Limited (ACN 000 862 797) registered in the Department of Mineral Resources on 2 May, 1996 against Authorisation No. 311 (Act, 1973).

  
.....  
Director-General

**ENDORSEMENT SCHEDULE**

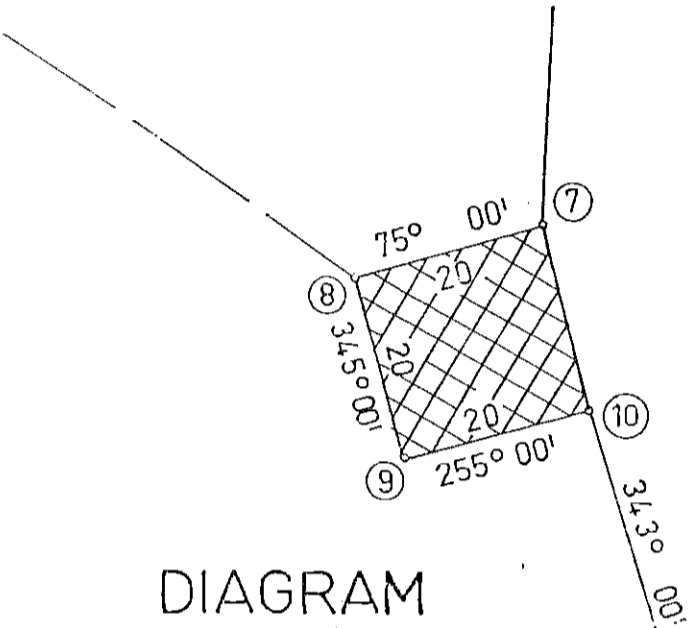
(C96-0135)

Memorandum of Mortgage and Charge dated 1st December, 1995 between Excel Stratford Pty Limited (ACN 070 387 914) and ABN AMRO Australia Limited (ACN 000 862 797) registered in the Department of Mineral Resources on 2 May, 1996 against Authorisation No. 315 (Act, 1973).

  
.....  
Director-General

REFERENCE MARKS

1	338°02' - 9.69	R.M.G.I.P.
2	210°18' - 44.11 105°23' - 14.53	R.M.G.I.P. R.M.G.I.N. & 1/4 IN MAHOGANY FD. (D.P.116326)
3	191°46' - 4.44	R.M.G.I.P.
4	8°47' - 4.82	R.M.G.I.P.
5	55°30' - 6.85	R.M.G.I.P.
6	278°34' - 1.5 98°34' - 1.38	R.M.G.I.P. G.I.N. & 1/4 IN DEAD TREE
12	188°27' - 9.71	R.M.G.I.P.
13	190°06' - 9.92	R.M.G.I.P.
14	262°03' - 5.1	R.M.G.I.P.



GRID NORTH

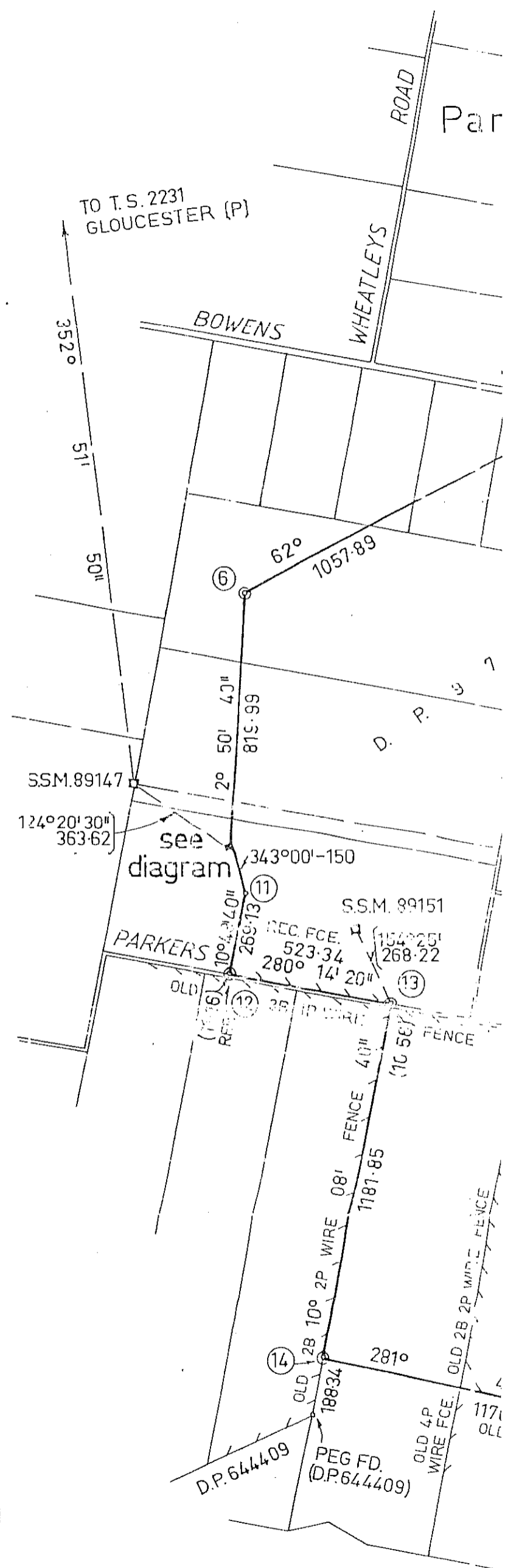


DIAGRAM NOT TO SCALE

BOWENS

CNR	EASTING	NORTHING
1	390393.50	1440818.61
2	390939.40	1441075.83
3	391233.90	1441023.54
4	392685.71	1444392.76
5	391466.18	1444609.54
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11	389484.59	1442578.01
12	389434.11	1442313.66
13	389949.12	1442220.64
14	389740.98	1441057.26

CONTROL MARKS DATE 19th July 1994 ZONE 56/1

MARK	I. S. G. CO-ORDINATES		SOURCE	H. ACC.
	EASTING	NORTHING		
T. S. 10603 CLOVERDALE (P)	391337.900	1444767.627	S.C.I.M.S.	1
T. S. 10606 STRATFORD (P)	393142.371	1442210.655	S.C.I.M.S.	1
T.S. 2231 GLOUCESTER (P)	387424.335	1456454.381	S.C.I.M.S.	1
S.S.M. 89147	389116.000	1442940.725	G.P.S.	
S.S.M. 89150	390408.288	1444060.252	G.P.S.	
S.S.M. 89151	389833.299	1442462.559	G.P.S.	

Parish



# PLAN OF PORTION ML 1

PARISH(S) AVON  
 COUNTY(S) GLOUCESTER  
 MAP SHEET NO(S) CRAVEN 9233-1-S GLOUCESTER 9233-1-N  
 REDUCTION RATIO 1:15000  
 LENGTHS ARE IN METRES

MINING LEASE APPLICATION NO 24  
 MINING DIVISION SINGLETON  
 APPLICANT STRATFORD COAL PTY. LTD.  
 APPLICANT DATE 27.10.94

### Surface exceptions/ depth restrictions

EMBRACES THE SURFACE AND THE LAND BELOW THEREOF TO AN UNLIMITED DEPTH.

EMBRACES THE SURFACE AND THE LAND BELOW THEREOF TO AN UNLIMITED DEPTH BUT EXCLUSIVE OF THE RAILROAD.

This is the plan referred to in the annexed Mining Lease No. 136 granted under the provisions of the Mining Act, 1992 to:

CIM RESOURCES PTY LTD  
 EXCEL MINING PTY LTD  
 ICA COAL PTY LTD

on the 21st day of DECEMBER 1994

.....  
 Lease Holder Minister

.....  
 Lease Holder

.....  
 Lease Holder

Azimuth : .....  
 Plans used in the course of this survey or calculation  
 D.P. 241780 D.P. 979859  
 D.P. 116328 D.P. 826955  
 D.P. 116316  
 D.P. 544409  
 D.P. 116326

Survey declared on this plan is for lines

JULIAN VERNON CALVER  
 of CALVER deWITT & TAYLOR PTY. LTD.  
 P.O. BOX 194 GLOUCESTER 2422  
 a surveyor registered under the Surveyors Act, 1929,  
 hereby certify that the survey represented in this plan  
 is accurate and has been completed in accordance with  
 the Survey Practice Regulations, 1990 and the  
 Directions for the Guidance of Mining Surveyors  
 and was completed on 8th December 1994

Signature : *J V Calver*

Surveyor's reference: GL764

SURVEY CALCS.: ..... ACCEPTED PLAN, NOT CHECKED IN THE DEPT. OF MINERAL RESOURCES.  
 PLAN INVESTIGATED: .....

PLAN APPROVED *J V Calver* 15.12.94 (Authorised Officer)  
 FOR USE  
 PAPER NO.: 94-2111



MINING LEASE  
MINING ACT 1992

**N.S.W. STAMP DUTY**  
**CL. No. 1840900 COAL MINING LEASE**  
**2003 - 2004 - 2005**

SM 03



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NO. 1528

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DATED 20 January A.D. 2003

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THE MINISTER FOR MINERAL RESOURCES  
OF THE STATE  
OF NEW SOUTH WALES  
TO

**Gloucester Coal Ltd**  
**ACN. 008 881 712**

And

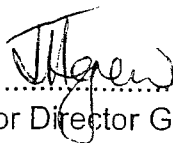
**CIM Stratford Pty Ltd**  
**ACN. 070 387 914**

And

**ICA Coal Pty Limited**  
**ACN 066 784 558**

---

RECORDED in the Department of Mineral  
Resources at Sydney, this thirty-first  
day of January,  
A.D. 2003, at the hour of eleven  
o'clock in the forenoon.



.....  
for Director General

**MINING ACT 1992**

**MINING LEASE**

THIS DEED made the twentieth day of January, Two Thousand and Three, in pursuance of the provisions of the Mining Act 1992 (hereinafter called "the Act") BETWEEN THE HONOURABLE **EDWARD OBEID**, Minister for Mineral Resources of the State of New South Wales (hereinafter called "the Minister" which expression shall where the context admits or requires include the successors in office of the Minister and the person acting as such Minister for the time being) AND **Gloucester Coal Ltd, ACN. 008 881 712, CIM Stratford Pty Ltd ACN. 070 387 914 and ICA Coal Pty Limited, ACN 066 784 558**), (which with its successors and transferees is hereinafter called "the lease holder") **Level 9 Citadel Towers, Tower B, 799 Pacific Highway, CHATSWOOD 2067** in the state of NSW.

WHEREAS

- (a) in conformity with the Act application was made for a mining lease over the lands hereinafter described; and
- (b) all conditions and things required to be done and performed before granting a mining lease under the Act have been done and performed NOW THIS DEED WITNESSETH that in consideration of the observance and performance of the covenants contained in this Deed and the payment of royalty by the lease holder, the Minister in pursuance of the provisions of the Act DOES HEREBY demise and lease to the lease holder ALL THAT piece or parcel of land containing by admeasurement **205.9 hectares** and more particularly described and delineated in the plan **Catalogue No. M26987R** attached for the purpose of prospecting and mining for coal.

TO HOLD the said land together with any appurtenances thereon subject to:

- (a) such rights and interests as may be lawfully subsisting therein or which may be reserved by the Act at the date of this Deed; and
- (b) such conditions, provisos and stipulations as are contained in this Deed UNTO the lease holder from and including the date of this Deed for the period of **21 years** for the purpose as stated and for no other purpose.

1 THAT in this lease except insofar as the context otherwise indicates or requires:

- (a) any reference to an Act includes that Act and any Act amending or in substitution for the same; "Director General" means the person for the time being holding office or acting as Director General, Department of Mineral Resources, Sydney; the word "mine" has the meaning assigned to it by the Act; words importing the singular number shall include the plural, the masculine gender the feminine or neuter gender and vice versa; and
- (b) any covenant on the part of two or more persons shall be deemed to bind them jointly and severally.

2 THAT the lease holder shall during the said term pay to the Minister in Sydney in respect to of all such minerals as stated, recovered from the land hereby demised, royalty at the rate or rates prescribed by the Act and the Regulations thereunder at the time the minerals are recovered, or at the rate or rates fixed by the Minister from time

to time during the term of this demise in exercise of the power in that behalf conferred upon him by the Act.

3 THAT the lease holder shall at all times during the term of this lease keep and preserve the said mine from all avoidable injury or damage and also the levels, drifts, shafts, watercourses, roadways, works, erections and fixtures therein and thereon in good repair and condition and in such state and condition shall on the expiration or sooner determination of the said term or any renewal thereof deliver possession of the land and the premises hereby demised to the Minister or other persons authorised to receive possession thereof.

4 THAT the conditions and provisions set forth in the Schedule of Conditions of Authority herein and numbered:- **1 to 3 inclusive, 14 to 27 inclusive, 29 to 33 inclusive, 37, 41 to 51 inclusive and 54 inclusive** are embodied and incorporated within this Deed as conditions and provisions of the lease hereby granted AND that the lease holder shall observe fulfil and perform the same.

PROVIDED always and it is hereby declared as follows:

(a) THAT this lease is granted subject to amendment as provided under Section 79 of the Act.

(b) THAT if the lease holder at any time during the term of this demise -

(i) fails to fulfil or contravenes the covenants and conditions herein contained; or

(ii) fails to comply with any provision of the Act or the Regulations with which the lease holder is required to comply; or

(iii) fails to comply with the requirements of any agreement or assessment in relation to the payment of compensation,

this lease may be cancelled by the Minister by instrument in writing and the cancellation shall have effect from and including the date on which cancellation is served on the lease holder or on such later date as is specified in the notice; and any liability incurred by the lease holder before the cancellation took effect shall not be affected.

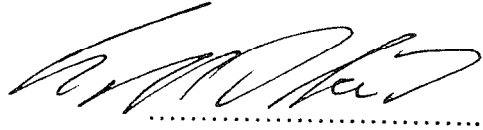
(c) THAT no implied covenant for title or for quiet enjoyment shall be contained herein.

(d) THAT all the conditions and provisions contained in the Mining Act 1992 and the Regulations thereunder, the Mines Inspection Act 1901 and the Coal Mines Regulations Act 1982 or any other law hereafter to be passed or prescribed shall be incorporated within this Deed as conditions and provisions of the lease granted. The lease holder hereby covenants to observe, fulfil and perform the same.

- (e) THAT such of the provisions and conditions declared and contained in this Deed as requiring anything to be done or not to be done by the lease holder, shall be read and construed as covenants by the lease holder with the Minister which are to be observed and performed.

IN WITNESS WHEREOF the parties hereto have executed this Deed this day and year first abovewritten.

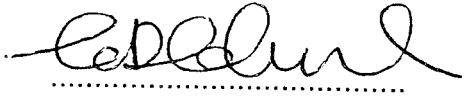
SIGNED AND DELIVERED  
BY THE HONOURABLE  
EDWARD OBEID,



as such Minister as aforesaid

CHRISTOPHER DAVID CHURCH  
JUSTICE OF THE PEACE  
6 CAMDEN STREET NEWTOWN NSW  
REGISTRATION No - 7510071

in the presence of

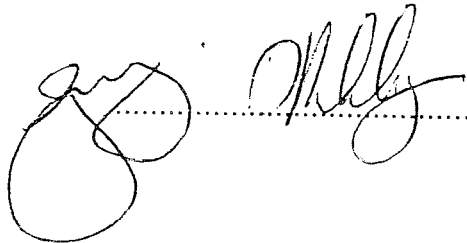


Witness

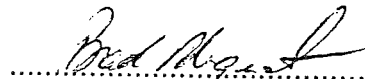
SIGNED, SEALED AND DELIVERED  
by the said



Gloucester Coal Ltd, ACN. 008 881 712



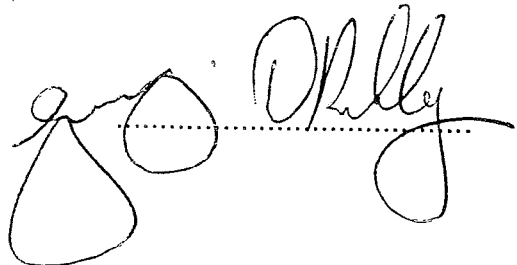
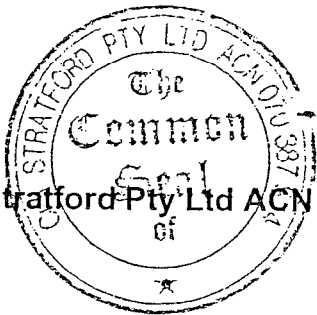
in the presence of



Witness

AND

CIM Stratford Pty Ltd ACN 070 387 914



in the presence of



Witness

AND

SIGNED SEALED AND DELIVERED  
by the said

ICA Coal Pty Limited, ACN 066 784 558

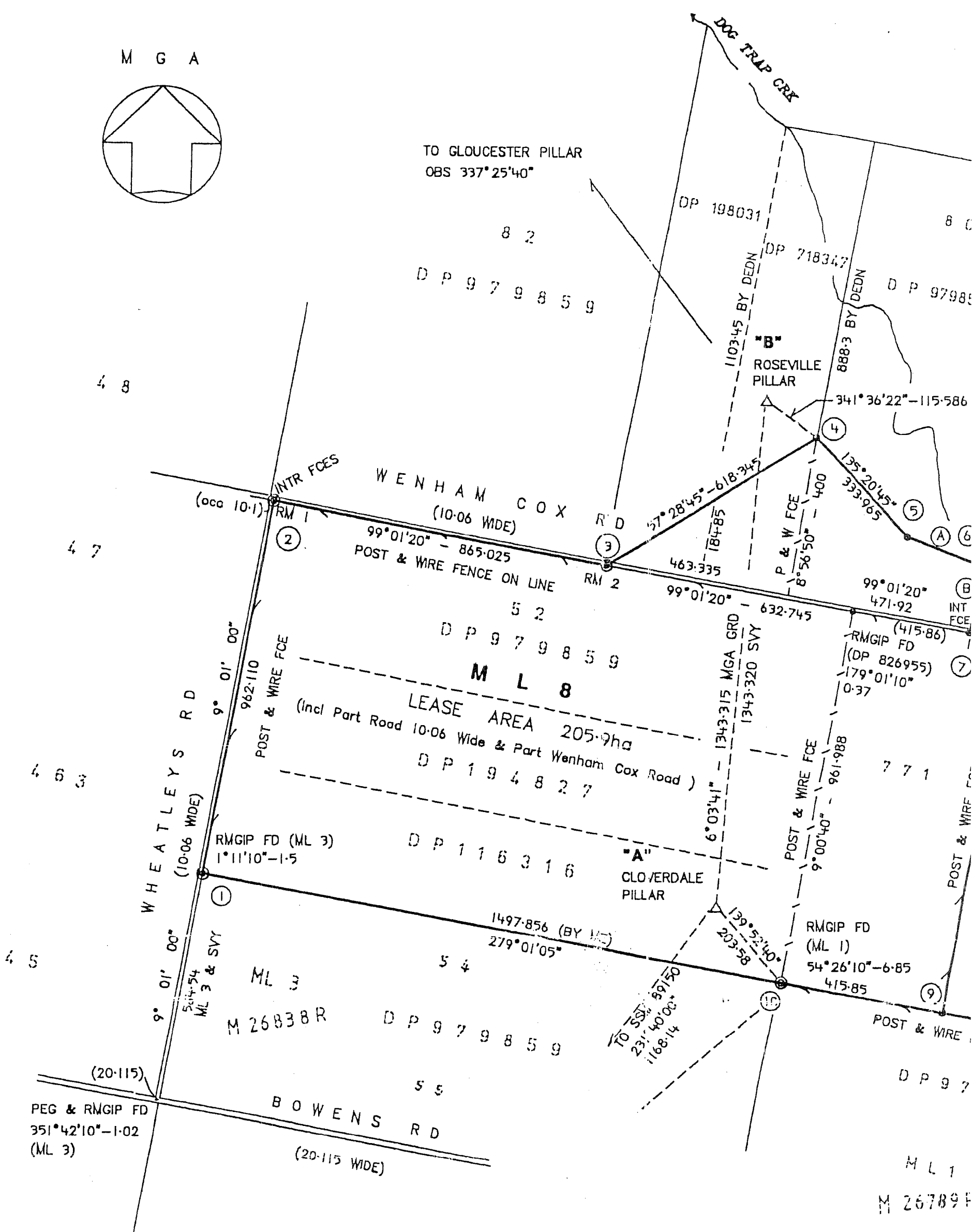
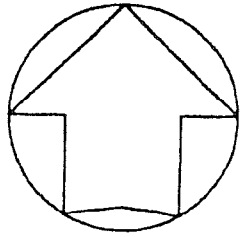


*[Handwritten signature]*  
.....

in the presence of

*[Handwritten signature]*  
.....  
Witness

M G A



SURVEY PRACTICE REGULATIONS 2001

MARK	EASTING	NORTHING	CLASS	ZONE
CLOVERDALE PILLAR	402 739.921	6 446 109.243	A	56
ROSEVILLE PILLAR	402 881.722	6 447 444.642	A	56
GLOUCESTER PILLAR	398 611.695	6 457 717.788	A	56

COORDINATES FOR CORNERS  
CALCULATED FROM CLOVERDALE PILLAR

No.	EASTING	NORTHING	No.	EASTING	N
1	401 392.181	6 446 188.330	6	403 347.823	6
2	401 542.918	6 447 138.262	7	403 320.370	6
3	402 396.981	6 447 002.653	8	403 432.071	6
4	402 918.209	6 447 334.978	9	403 281.657	6
5	403 152.857	6 447 097.479	10	402 871.072	6

ADOPTED FROM SCIMS SEPT 02  
CSF 0-997696  
ALL DISTANCES ARE GROUND DISTANCES

**PLAN OF PORTION ML 8**

PARISH AVON

COUNTY GLOUCESTER

MAP SHEET No. GLOUCESTER 9233-1-N

REDUCTION RATIO 1:10000

MINING LEASE APPLICATION No. No 169 & No 189  
MINING DIVISION SINGLETON

APPLICANT GLOUCESTER COAL LTD  
CIM STRATFORD PTY LTD  
ICA COAL PTY LTD  
APPLICATION DATE: 26-02-01 & 26-10-01

MINING LEASE No. 1528 (1992)

STATUS

METHOD OPEN CUT

DEPTH RESTRICTION/SURFACE EXCEPTION

NIL

NOTES:

NIL

Azimuth: CLOVERDALE TS - ROSEVILLE TS

Plans used in the course of this survey/compilation  
DP 116316 DP 979859 DP 198031 DP 718347  
DP 826955 DP 194827 ML 1 ML 3

Survey declared on this plan for lines  
1-13 & Connections

I GEOFFREY ALLAN GOLLEDGE  
of 36 ST ANDREWS ST. MAITLAND NSW 2320  
a surveyor registered under the Surveyors Act, 1929,  
hereby certify that the survey/compilation represented  
in this plan is accurate and has been completed in  
accordance with the Surveyors (Practice) Regulations 2001  
and the Surveyor General's Direction for Mining Surveys  
and was completed on 14-2-2001

Signature *Geoffrey Allan Gollidge*

Surveyors Reference 00-073-03

Survey Calcs: *J. M. Keefe*  
Plan Investigated: *J. M. Keefe 25.09.02*  
Plan Approved: *J. M. Keefe 26.09.02*  
Paper No. 01/0573, C99/0924

M 26987 R

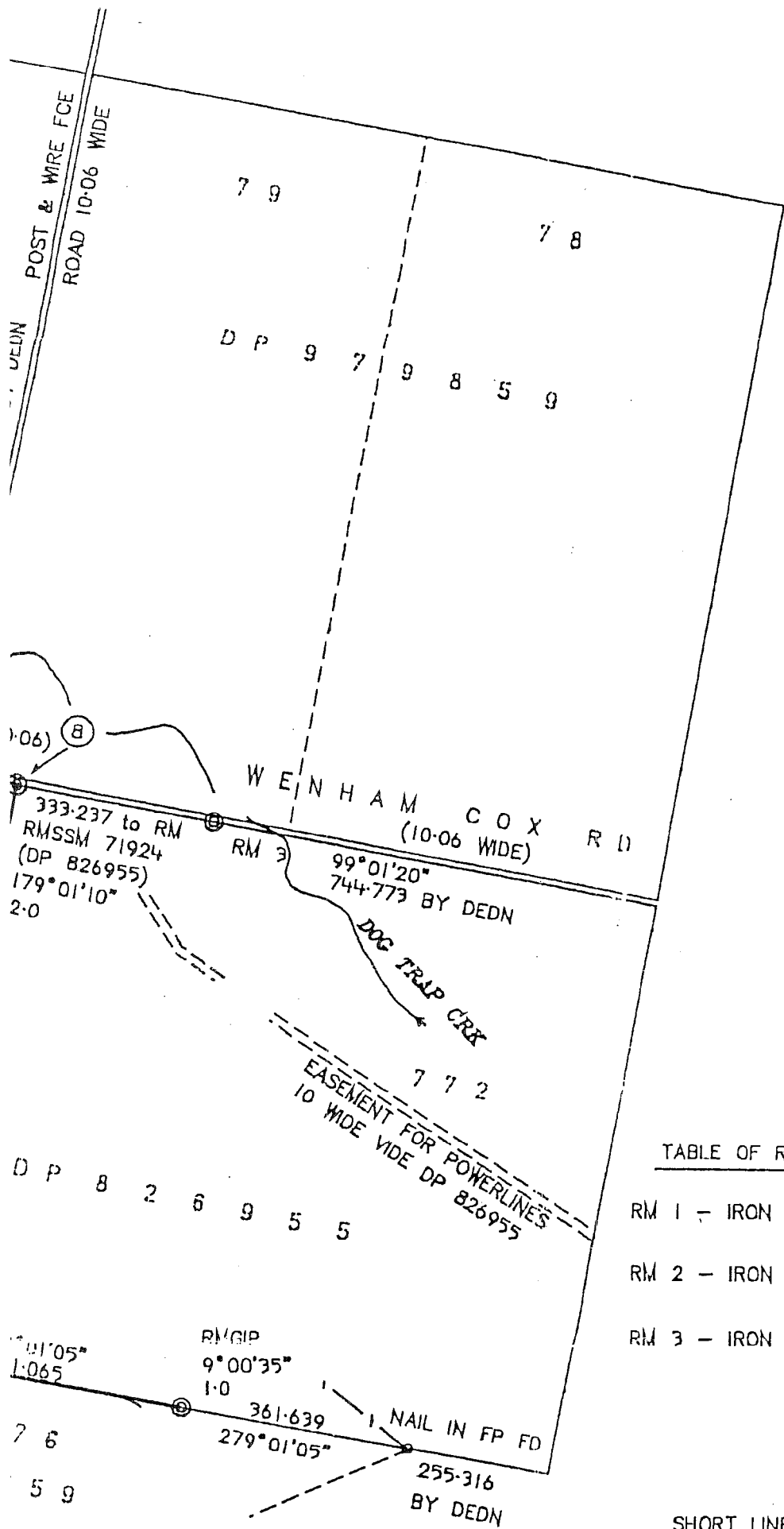


TABLE OF REFERENCE MKS

RM 1	- IRON SPIKE	- 16°32'	2-385
RM 2	- IRON SPIKE	- 189°01'	1-00
RM 3	- IRON SPIKE	- 188°56'	3-31

SHORT LINE TABLE

A	- 109°45'15"	- 207-22
B	- 9°05'55"	- 173-665 163-605 to INT FCE

NG
027-463
856-042
338-306
388-457
353-619



**SCHEDULE OF  
CONDITIONS OF AUTHORITY 1999 (COAL)**

**EXTRACTION OF COAL**

- 1 The lease holder shall extract as large a percentage of the coal in the subject area as is practicable consistent with the provisions of the Coal Mines Regulations Act 1982 and the Regulations thereunder and shall comply with any direction given or which may be given in this regard by the Minister.

**MINING, REHABILITATION, ENVIRONMENTAL MANAGEMENT PROCESS (MREMP)**

**MINING OPERATIONS PLAN (MOP)**

- 2 (1) Mining operations, including mining purposes, must be conducted in accordance with a Mining Operations Plan (the Plan) satisfactory to the Director-General. The Plan together with environmental conditions of development consent and other approvals will form the basis for:-
- (a) ongoing mining operations and environmental management; and
  - (b) ongoing monitoring of the project.
- (2) The Plan must be prepared in accordance with the Director-General's guidelines current at the time of lodgment.
- (3) A Plan must be lodged with the Director-General:-
- (a) prior to the commencement of operations;
  - (b) subsequently as appropriate prior to the expiry of any current Plan; and
  - (c) in accordance with any direction issued by the Director-General.
- (4) The Plan must present a schedule of proposed mine development for a period of up to seven (7) years and contain diagrams and documentation which identify:-
- (a) area(s) proposed to be disturbed under the Plan;
  - (b) mining and rehabilitation method(s) to be used and their sequence;
  - (c) areas to be used for disposal of tailings/waste;
  - (d) existing and proposed surface infrastructure;
  - (e) progressive rehabilitation schedules;
  - (f) areas of particular environmental sensitivity;
  - (g) water management systems (including erosion and sediment controls);
  - (h) proposed resource recovery; and

- (i) where the mine will cease extraction during the term of the Plan, a closure plan including final rehabilitation objectives/methods and post mining landuse/vegetation
- (5) The Plan when lodged will be reviewed by the Department of Mineral Resources.
- (6) The Director-General may within two (2) months of the lodgement of a Plan, require modification and relodgement.
- (7) If a requirement in accordance with clause (6) is not issued within two months of the lodgement of a Plan, lease holder may proceed with implementation of the Plan submitted subject to the lodgement of the required security deposit within the specified time.
- (8) During the life of the Mining Operations Plan, proposed modifications to the Plan must be lodged with the Director-General and will be subject to the review process outlined in clauses (5) - (7) above.

### **ANNUAL ENVIRONMENTAL MANAGEMENT REPORT (AEMR)**

- 3 (1) Within 12 months of the commencement of mining operations and thereafter annually or, at such other times as may be allowed by the Director-General, the lease holder must lodge an Annual Environmental Management Report (AEMR) with the Director-General.
- (2) The AEMR must be prepared in accordance with the Director-General's guidelines current at the time of reporting and contain a review and forecast of performance for the preceding and ensuing twelve months in terms of:-
  - (a) the accepted Mining Operations Plan;
  - (b) development consent requirements and conditions;
  - (c) Environment Protection Authority and Department of Land and Water Conservation licences and approvals;
  - (d) any other statutory environmental requirements;
  - (e) details of any variations to environmental approvals applicable to the lease area. and
  - (f) where relevant, progress towards final rehabilitation objectives.
- (3) After considering an AEMR the Director-General may, by notice in writing, direct the lease holder to undertake operations, remedial actions or supplementary studies in the manner and within the period specified in the notice to ensure that operations on the lease area are conducted in accordance with sound mining and environmental practice.

- (4) The lease holder shall, as and when directed by the Minister, co-operate with the Director-General to conduct and facilitate review of the AEMR involving other government agencies.

#### **SHAFTS, DRIFTS, ADITS**

- 14 Operations shall be conducted in such a manner as not to cause any danger to persons or stock and the lease holder shall provide and maintain adequate protection to the satisfaction of the Minister around each shaft or excavation opened up or used by the lease holder.

#### **DUMPS**

- 15 The lease holder shall comply with any direction, given or which may be given by the Inspector regarding the dumping, depositing or removal of material extracted as well as the stabilisation and revegetation of any dumps of coal, minerals, mine residues, tailings or overburden situated on the subject area or the associated colliery holding.

The lease holder shall comply with any direction given or which may be given by the Minister regarding the spraying of coal dumps on the subject area.

#### **DUST**

- 17 The lease holder shall take such precautions as are necessary to abate any dust nuisance.

#### **MANAGEMENT AND REHABILITATION OF LANDS (GENERAL)**

- 18 The lease holder shall not interfere in any way with any fences on or adjacent to the subject area unless with the prior written approval of the owner thereof or the Minister and subject to such conditions as the Minister may stipulate.

- 19 The lease holder shall observe any instruction given or which may be given by the Minister with a view to minimising or preventing public inconvenience or damage to public or private property.

If required to do so by the Minister and within such time as may be stipulated by the Minister the lease holder shall carry out to the satisfaction of the Minister surveys of structures, buildings and pipelines on adjacent landholdings to determine the effect of operations on any such structures, buildings and pipelines.

- 21 If so directed by the Minister the lease holder shall rehabilitate to the satisfaction of the Minister any lands within the subject area which may have been disturbed by the lease holder.

- 22 Upon completion of operations on the surface of the subject area or upon the expiry or sooner determination of this authority or any renewal thereof, the lease holder shall remove from such surface such buildings, machinery, plant, equipment, constructions and works as may be directed by the Minister and such surface shall be rehabilitated and left in a clean, tidy and safe condition to the satisfaction of the Minister.

- 23 If so directed by the Minister the lease holder shall rehabilitate to the satisfaction of the Minister and within such time as may be allowed by the Minister any lands within the subject area which may have been disturbed by mining or prospecting operations whether such operations were or were not carried out by the lease holder.
- 24 The lease holder shall take all precautions against causing outbreak of fire on the subject area.
- 25 The lease holder shall provide and maintain to the satisfaction of the Minister efficient means to prevent contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area or any undue interference to fish or their environment and shall observe any instruction given or which may be given by the Minister with a view to preventing or minimising the contamination, pollution, erosion or siltation of any river, stream, creek, tributary, lake, dam, reservoir, watercourse or catchment area or any undue interference to fish or their environment.

## **BLASTING**

The lease holder shall monitor noise and vibration and institute controls, generally in accordance with the recommendations of Australian Standard AS-2187-1993 and ANZEC Guidelines.

### **(a) Ground Vibration**

The lease holder shall design all blasts on the basis that the ground vibration peak particle velocity generated by any blasting within the subject area, shall not exceed the levels in or conditions of the EPA Licence for the mine, at any dwelling or occupied premises not owned by the lease holder, the holder of an authority under the Mining Act, or not subject to a valid agreement with the lease holder, with respect to the effects of blasting.

### **(b) Blast Overpressure**

The lease holder shall design all blasts on the basis that the blast overpressure noise level generated by any blasting within the subject area, shall not exceed the levels in or conditions of the EPA Licence for the mine, at any dwelling or occupied premises not owned by the lease holder, the holder of an authority under the Mining Act, or not subject to a valid agreement with the lease holder, with respect to the effects of blasting.

## **TREES (PLANTING AND PROTECTION OF) FLORA AND FAUNA AND ARBOREAL SCREENS**

- 27 If so directed by the Minister, the lease holder shall ensure that operations are carried out in such manner so as to minimise disturbance to flora and fauna within the subject area.
- 29 The lease holder shall maintain an arboreal screen to the satisfaction of the Minister within such parts of the subject area as may be specified by the Minister and shall plant such trees or shrubs as may be required by the Minister to preserve the arboreal screen in a condition satisfactory to the Minister.

## SOIL EROSION

- 30 The lease holder shall conduct operations in such a manner as not to cause or aggravate soil erosion and the lease holder shall observe and perform any instructions given or which may be given by the Minister with a view to minimising or preventing soil erosion.

## ROADS

- 31 The lease holder shall pay to **Gloucester Shire Council**, Department of Land and Water Conservation or the Chief Executive, Roads and Traffic Authority the cost incurred by such Council or Department or Chief Executive of making good any damage caused by operations carried on by or under the authority of the lease holder to any road adjoining or traversing the surface or the excepted surface, as the case may be of the subject area.

PROVIDED HOWEVER that the amount to be paid by the lease holder as aforesaid shall be reduced by such sum of money if any as may be paid to the said Council the Department of Land and Water Conservation or the Chief Executive, Roads and Traffic Authority as the case may be from the Mine Subsidence Compensation Fund constituted under the Mine Subsidence Compensation Act, 1961, in settlement of a claim for compensation for the same damage.

- 32 In the event of operations being conducted on the surface of any road, track or firetrail traversing the subject area or in the event of such operations causing damage to or interference with any such road, track or firetrail the lease holder, at his own expense, shall if directed to do so by the Minister provide to the satisfaction of the Minister an alternate road, track or firetrail in a position as required by the Minister and shall allow free and uninterrupted access along such alternate road, track or firetrail and, if required to do so by the Minister, the lease holder shall upon completion of operations rehabilitate the surface of the original road, track or firetrail to a condition satisfactory to the Minister.

## CATCHMENT AREAS

- 33 (a) Operations shall be carried out in such a way as not to cause any pollution of the **Manning Catchment Area**.
- (b) If the lease holder is using or about to use any process which in the opinion of the Minister is likely to cause contamination of the waters of the said Catchment Area the lease holder shall refrain from using or cease using as the case may require such process within twenty four (24) hours of the receipt by the lease holder of a notice in writing under the hand of the Minister requiring the lease holder to do so.
- (c) The lease holder shall comply with any regulations now in force or hereafter to be in force for the protection from pollution of the said Catchment Area.

## TRIG. STATIONS AND SURVEY MARKS

- 37 (a) The marks in connection with any trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area shall not be interfered with and the unrestricted right of access to such station by authorised persons and also the right to clear sight lines to surrounding stations is reserved at all times.

- (b) The lease holder shall take all necessary precautions to preserve the trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) and the cairn, mast and vanes which might be erected upon the subject area.
- (c) No buildings or other structures shall be erected which would make observations to and from surrounding trigonometrical stations difficult to effect.
- (d) In the event of operations interfering with or damaging any trigonometrical station, Permanent Mark or State Mark (under the Survey Co-ordination Act, 1949) erected on or near the subject area, or if required to do so by the Minister, the lease holder shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to the satisfaction of, and in a position required by, the Department of Land and Water Conservation, the Land Information Centre, Bathurst and the Minister and, if required to do so by the Minister, and subject to such conditions as the Minister may impose, the lease holder, upon completion of operations shall relocate any such trigonometrical station, Permanent Mark or State Survey Mark (under the Survey Co-ordination Act, 1949) to its original position.

#### TRANSMISSION LINES, COMMUNICATION LINES AND PIPELINES

- 41 The lease holder shall as far as is practicable so conduct operations as not to interfere with or impair the stability or efficiency of any transmission line, communication line or pipeline traversing the surface or the excepted surface of the subject area and shall comply with any direction given or which may be given by the Minister in this regard.
- 42 Unless with the consent of **Transgrid**, the lease holder shall not carry out any operations within any easement for power transmission line traversing the subject area.

#### ABORIGINAL PLACE OR RELIC

- 43 The lease holder shall not knowingly destroy, deface or damage any aboriginal place or relic within the subject area except in accordance with an authority issued under the National Parks and Wildlife Act, 1974, and shall take every precaution in drilling, excavating or disturbing the land against any such destruction, defacement or damage.

#### LABOUR/EXPENDITURE

- 44 The lease holder shall during each year of the term of the authority:
  - (a) ensure that at least **eight** workers are efficiently employed on the subject area; or
  - (b) expend on operations carried out in the course of prospecting or mining the subject area, an amount of not less than **\$140,000.00**.

The Minister may, at any time after a period of two (2) years from the date on which this authority has effect or from the date on which the renewal of this authority has effect, increase or decrease the amount of expenditure or labour required.

## ADDITIONAL INFORMATION

- 45 The lease holder shall if directed by the Minister and within such time as the Minister may stipulate furnish to the Minister:
- (a) information regarding the ownership of the land within the subject area;
  - (b) information regarding the ownership of the coal within the subject area prior to 1st January, 1982;
  - (c) an indemnity in a form approved by the Minister indemnifying the Crown and the Minister against any wrong payment effected as a result of incorrect information furnished by the lease holder;
  - (d) information regarding the financial viability of the lease holder and operations within and associated with the subject area; and
  - (e) information regarding shareholdings in the lease holder.

## SERVICE OF NOTICES

- 46 Within a period of three (3) months from the date of this authority or a period of three (3) months from the date of service of the notice of renewal, or within such further time as the Director General may allow, the lease holder shall serve on each landholder within the subject area a notice in writing indicating that this authority has been granted or renewed and whether the authority includes the surface. The notice shall be accompanied by an adequate plan and description of the subject area.

If there are ten (10) or more landholders affected the lease holder may serve the notice by publication in a newspaper circulating in the region where the subject area is situated. The notice shall indicate that this authority has been granted or renewed, state whether the authority includes the surface and shall contain an adequate plan and description of the subject area.

## INSPECTORS

- 47 (a) Where an Inspector under the Mining Act 1992 is of the opinion that any condition of this authority relating to operations within the subject area, or any provision of the Mining Act, 1992, relating to operations within the subject area, are not being complied with by the lease holder, the Inspector may serve on the lease holder a notice stating that and give particulars of the reason why, and may in such notice direct the lease holder:
- (i) to cease operations within the subject area in contravention of that condition or Act; and
  - (ii) to carry out within the specified time works necessary to rectify or remedy the situation.

- (b) The lease holder shall comply with the directions contained in any notice served pursuant to sub paragraph (a) of this condition. The Director General may confirm, vary or revoke any such direction.
- (c) A notice referred to in his condition may be served on the Colliery Manager.

## INDEMNITIES

- 48 The lease holder shall indemnify and keep indemnified the Crown from and against all actions suits and claims and demands of whatsoever nature and all costs charges and expense which may be brought against the lease holder or which the lease holder may incur respect of any accident or injury to any person or property which may arise out of the construction maintenance or working of any workings now existing or to be made by the lease holder within the boundaries of the subject area or in connection with any of the operations notwithstanding that all other conditions of this authority shall in all respects have been observed by the lease holder or that any such accident or injury shall arise from any act or thing which the lease which the lease holder may be licensed or compelled to do hereunder.
- 49 The lease holder shall save harmless the Crown from payment of compensation and from and against all claims, actions, suits or demands whatsoever in the event of any damage resulting from mining operations under or near the subject area.

## PROSPECTING (GENERAL)

- 50 (a) Where the lease holder desires to commence prospecting operations in the subject area the lease holder shall notify the Director General in writing and shall comply with such additional conditions as the Minister may impose including any condition requiring the lodgement of an additional bond or other form of security for rehabilitation of the area affected by such operations.
- (b) Where the lease holder notifies the Director General pursuant to sub paragraph (a) of this condition the lease holder shall furnish with that notification details of the type of prospecting methods that would be adopted and the extent and location of the area that would be affected by them.

## SECURITY DEPOSIT

- 51 (a) The lease holder shall, upon request by the Director General, lodge with the Minister the sum of **nil** as security for the fulfillment of the obligations of the lease holder under this authority. In the event that the lease holder fails to fulfill any of the lease holder's obligations under this authority the said sum may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purposes of the clause a lease holder shall be deemed to have failed to fulfill the lease holder's obligations under this authority, if the lease holder fails to comply with any condition or provision of this authority, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision of this authority or of any provision of the Act or regulations made thereunder.



- (b) The lease holder must provide the security required by sub-clause (a) hereof in one of the following forms:-
- (i) cash, or
  - (ii) a security certificate in such form and given by such surety as may from time to time be approved by the Minister.
- (c) The Minister may at any time after the commencement of this authority or any renewal thereof, vary the amount of security required in accordance with this condition.

#### **ROYALTY AT ADDITIONAL RATE**

- 54 The lease holder shall during the term of this authority pay to the Minister royalty at the additional rate as prescribed by the Regulations for coal recovered by open cut mining methods from the area.



Mr Dan Buckley  
Operations Director  
Gloucester Coal Pty Ltd  
PO Box 168  
GLOUCESTER NSW 2422

Our Ref: 04-1723  
Contact: Gary Walker  
Telephone: (02) 65 724200

Dear Sir

**MINING LEASE APPLICATION NO 247**

The Minister on 1 March 2006 granted Mining Lease No 1577 (Act 1992) in satisfaction of this application. The lease is enclosed for your records.

You are reminded of the following:

- ◆ Mining operations must be conducted in accordance with a Mining Operations Plan satisfactory to the Director-General. This plan must be lodged before operations commence.
- ◆ Before operations commence you must also negotiate an agreement regarding compensation with any affected landholder or have compensation assessed by the Warden.
- ◆ Notification of the grant of the lease must be served on each affected landholder not later than 3 months from the date of grant.

Authorisation 315 (Act 1973) has now ceased to exist over the land of this mining lease.

As directed by the Minister, the land subject of this lease has been recorded in the Colliery Holding Register as part of Stratford Colliery Holding.

If you have any queries, please contact me.

Yours faithfully

Gary Walker  
for Director General

20 March 2006

**MINERALS - TITLES**

PO BOX 51  
SINGLETON NSW 2330

ABN 51 734 124 190  
gary.walker@dpi.nsw.gov.au  
Tel: 02 6572 4200  
Fax: 02 6572 1201

Office of State Revenue NSW Treasury	
Client No: 1846988	2372
Duty: N/A	Trans No: ML 1577
Asst details: COAL	

MINING LEASE

MINING ACT 1992

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NO 1577

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DATED 01 March 2006

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THE MINISTER FOR MINERAL  
RESOURCES

OF THE STATE

OF NEW SOUTH WALES

TO

**GLOUCESTER COAL LTD**

**ACN 008 881 712**

and

**CIM STRATFORD PTY LTD**

**ACN 070 387 914**

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**MINING ACT 1992**

**MINING LEASE**

THIS DEED made the first day of March Two thousand and six in pursuance of the provisions of the Mining Act 1992 (hereinafter called "the Act") BETWEEN **IAN MACDONALD, MLC, MINISTER FOR MINERAL RESOURCES** of the State of New South Wales (hereinafter called "the Minister" which expression shall where the context admits or requires include the successors in office of the Minister and the person acting as such Minister for the time being) AND **Gloucester Coal Ltd (ACN 008 881 712) and CIM Stratford Pty Ltd (ACN 070 387 914)** (which with its successors and transferees is hereinafter called "the lease holder") of **Level 9, Citadel Towers, 799 Pacific Highway, Chatswood NSW 2067.**

WHEREAS

- (a) in conformity with the Act application was made for a mining lease over the lands hereinafter described; and
- (b) all conditions and things required to be done and performed before granting a mining lease under the Act have been done and performed NOW THIS DEED WITNESSETH that in consideration of the observance and performance of the covenants contained in this Deed and the payment of royalty by the lease holder, the Minister in pursuance of the provisions of the Act DOES HEREBY demise and lease to the lease holder ALL THAT piece or parcel of land containing by admeasurement **2.2** hectares as shown on Plan No. **M27053**, more particularly described and delineated in the plan attached for the purpose of prospecting and mining for coal.

TO HOLD the said land together with any appurtenances thereon subject to:

- (a) such rights and interests as may be lawfully subsisting therein or which may be reserved by the Act at the date of this Deed; and
  - (b) such conditions, provisos and stipulations as are contained in this Deed UNTO the lease holder from and including the date of this Deed for the period of **twenty one** years for the purpose as stated and for no other purpose.
1. THAT in this lease except insofar as the context otherwise indicates or requires:

- (a) any reference to an Act includes that Act and any Act amending or in substitution for the same; "Director-General" means the person for the time being holding office or acting as Director-General, Department of Primary Industries; the word "mine" has the meaning assigned to it by the Act; words importing the singular number shall include the plural, the masculine gender the feminine or neuter gender and vice versa; and
  - (b) any covenant on the part of two or more persons shall be deemed to bind them jointly and severally.
2. THAT the lease holder shall during the said term pay to the Minister in Sydney in respect of all such minerals as stated, recovered from the land hereby demised, royalty at the rate or rates prescribed by the Act and the Regulations thereunder at the time the minerals are recovered, or at the rate or rates fixed by the Minister from time to time during the term of this demise in exercise of the power in that behalf conferred upon him by the Act.
3. THAT the lease holder shall at all times during the term of this lease keep and preserve the said mine from all avoidable injury or damage and also the levels, drifts, shafts, watercourses, roadways, works, erections and fixtures therein and thereon in good repair and condition and in such state and condition shall on the expiration or sooner determination of the said term or any renewal thereof deliver possession of the land and the premises hereby demised to the Minister or other persons authorised to receive possession thereof.
4. THAT the conditions and provisions set forth in the Schedule of Mining Lease Conditions 2004 herein and numbered: **1 to 21 inclusive, 23, 24 & 26** are embodied and incorporated within this Deed as conditions and provisions of the lease hereby granted AND that the lease holder shall observe fulfil and perform the same. Condition Nos 4, and 13 to 21 inclusive are identified as conditions relating to environmental management for the purposes of Sections 125(3) and 374A of the Mining Act 1992.

PROVIDED always and it is hereby declared as follows:

- (a) THAT this lease is granted subject to amendment as provided under Section 79 of the Act.
- (b) THAT if the lease holder at any time during the term of this demise -
  - (i) fails to fulfil or contravenes the covenants and conditions herein contained; or
  - (ii) fails to comply with any provision of the Act or the Regulations with which the lease holder is required to comply; or

- (iii) fails to comply with the requirements of any agreement or assessment in relation to the payment of compensation,

this lease may be cancelled by the Minister by instrument in writing and the cancellation shall have effect from and including the date on which notice of the cancellation is served on the lease holder or on such later date as is specified in the notice; and any liability incurred by the lease holder before the cancellation took effect shall not be affected.


- (c) THAT no implied covenant for title or for quiet enjoyment shall be contained herein.
- (d) THAT all the conditions and provisions contained in the Mining Act 1992 and the Regulations thereunder, the Mines Inspection Act 1901 and the Coal Mines Regulation Act 1982 or any other law hereafter to be passed or prescribed shall be incorporated within this Deed as conditions and provisions of the lease granted. The lease holder hereby covenants to observe, fulfil and perform the same.
- (e) THAT such of the provisions and conditions declared and contained in this Deed as requiring anything to be done or not to be done by the lease holder, shall be read and construed as covenants by the lease holder with the Minister which are to be observed and performed.

IN WITNESS WHEREOF the parties hereto have executed this Deed the day and year first abovewritten.

SIGNED AND DELIVERED  
BY

**Gloucester Coal Ltd**  
**ACN 008 881 712**

  
DANIEL J BUCKLEY (DIRECTOR)


  
BARRY R TUDOR - SECRETARY


  
.....

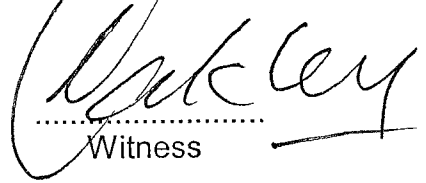
Witness

in the presence of

**CIM Stratford Pty Ltd**  
**ACN 070 387 914**

  
DANIEL J BUCKLEY (DIRECTOR)

  
BARRY R TUDOR - SECRETARY

  
.....


Witness

in the presence of

SIGNED AND DELIVERED  
BY

  
.....

in the presence of

  
.....  
Witness

## CONDITIONS OF AUTHORITY (ML) (2004)

### **Notice to Landholders**

1. Within a period of three months from the date of grant/renewal of this lease or within such further time as the Minister may allow, the lease holder must serve on each landholder of the land a notice in writing indicating that this lease has been granted/renewed and whether the lease includes the surface. An adequate plan and description of the lease area must accompany the notice.

If there are ten or more landholders affected, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this lease has been granted/renewed; state whether the lease includes the surface and must contain an adequate plan and description of the lease area.

### **Mining, Rehabilitation, Environmental Management Process (MREMP)**

#### **Mining Operations Plan (MOP)**

2. (1) Mining operations, including mining purposes, must be conducted in accordance with a Mining Operations Plan (the Plan) satisfactory to the Director-General. The Plan together with environmental conditions of development consent and other approvals will form the basis for:-
  - (a) ongoing mining operations and environmental management; and
  - (b) ongoing monitoring of the project.
- (2) The Plan must be prepared in accordance with the Director-General's guidelines current at the time of lodgement.
- (3) A Plan must be lodged with the Director-General:-
  - (a) prior to the commencement of mining operations (including mining purposes);
  - (b) subsequently as appropriate prior to the expiry of any current Plan; and
  - (c) in accordance with any direction issued by the Director-General.
- (4) The Plan must present a schedule of proposed mine development for a period of up to seven (7) years and contain diagrams and documentation which identify:-
  - (a) area(s) proposed to be disturbed under the Plan;
  - (b) mining and rehabilitation method(s) to be used and their sequence;
  - (c) areas to be used for disposal of tailings/waste;
  - (d) existing and proposed surface infrastructure;
  - (e) existing flora and fauna on the site;
  - (f) progressive rehabilitation schedules;



- (4) The lease holder shall, as and when directed by the Minister, co-operate with the Director-General to conduct and facilitate review of the AEMR involving other government agencies and the local council.

### **Subsidence Management**

4. (a) The lease holder shall prepare a Subsidence Management Plan prior to commencing any underground mining operations which will potentially lead to subsidence of the land surface.
- (b) Underground mining operations which will potentially lead to subsidence include secondary extraction panels such as longwalls or miniwalls, associated first workings (gateroads, installation roads and associated main headings, etc), and pillar extractions, and are otherwise defined by the *Guideline for Applications for Subsidence Management Approvals*.
- (c) The lease holder must not commence or undertake underground mining operations that will potentially lead to subsidence other than in accordance with a Subsidence Management Plan approved by the Director-General, an approval under the *Coal Mines Regulation Act 1982*, or the document *New Subsidence Management Plan Approval Process – Transitional Provisions*.
- (d) Subsidence Management Plans are to be prepared in accordance with the *Guideline for Applications for Subsidence Management Approvals*.
- (e) Subsidence Management Plans as approved shall form part of the Mining Operations Plan required under Condition 2 and will be subject to the Annual Environmental Management Report process as set out under Condition 3. The SMP is also subject to the requirements for subsidence monitoring and reporting set out in the document *New Approval Process for Management of Coal Mining Subsidence - Policy*.

### **Working Requirement**

5. The lease holder must:
- (a) ensure that at least one (1) competent person is efficiently employed on the lease area on each week day except Saturday or any week day that is a public holiday,
- OR
- (b) expend on operations carried out in the course of prospecting or mining the lease area, an amount of not less than \$17,500 per annum whilst the lease is in force.

The Minister may at any time or times, by instrument in writing served on the lease holder, increase or decrease the expenditure required or the number of people to be employed.

### **Control of Operations**

6. (a) If an Environmental Officer of the Department of Mineral Resources believes that the lease holder is not complying with any provision of the Act or any condition of this lease relating to the working of the lease, he may direct the lease holder to:-

- (c) The Director-General may extend the period of confidentiality.

#### **Terms of the non-exclusive licence**

10. The terms of the non-exclusive copyright licence granted under condition 8 (a) are:
- (a) the Minister may sub-licence others to publish, print, adapt and reproduce but not on-licence reports.
  - (b) the Minister and any sub-licensee will acknowledge the lease holder's and any identifiable consultant's ownership of copyright in any reproduction of the reports, including storage of reports onto an electronic database.
  - (c) the lease holder does not warrant ownership of all copyright works in any report and, the lease holder will use best endeavours to identify those parts of the report for which the lease holder owns the copyright.
  - (d) there is no royalty payable by the Minister for the licence.
  - (e) if the lease holder has reasonable grounds to believe that the Minister has exercised his rights under the non-exclusive copyright licence in a manner which adversely affects the operations of the lease holder, that licence is revocable on the giving of a period of not less than three months notice.

#### **Blasting**

11. (a) Ground Vibration

The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Environment and Conservation.

- (b) Blast Overpressure

The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Environment and Conservation.

#### **Safety**

12. Operations must be carried out in a manner that ensures the safety of persons or stock in the vicinity of the operations. All drill holes shafts and excavations must be appropriately protected, to the satisfaction of the Director-General, to ensure that access to them by persons and stock is restricted. Abandoned shafts and excavations opened up or used by the lease holder must be filled in or otherwise rendered safe to a standard acceptable to the Director-General.

#### **Rehabilitation**

13. (a) Land disturbed must be rehabilitated to a stable and permanent form suitable for a subsequent land use acceptable to the Director-General and in accordance with the Mining Operations Plan so that:-

### **Prevention of Soil Erosion and Pollution**

16. Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.

### **Transmission lines, Communication lines and Pipelines**

17. Operations must not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility on the area without the prior written approval of the Director-General and subject to any conditions he may stipulate.

### **Fences, Gates**

18. (a) Activities on the lease must not interfere with or damage fences without the prior written approval of the owner thereof or the Minister and subject to any conditions the Minister may stipulate.
- (b) Gates within the lease area must be closed or left open in accordance with the requirements of the landholder.

### **Roads and Tracks**

19. (a) Operations must not affect any road unless in accordance with an accepted Mining Operations Plan or with the prior written approval of the Director-General and subject to any conditions he may stipulate.
- (b) The lease holder must pay to the designated authority in control of the road (generally the local council or the Roads and Traffic Authority) the cost incurred in fixing any damage to roads caused by operations carried out under the lease, less any amount paid or payable from the Mine Subsidence Compensation Fund.
20. Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks must be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations. The design and construction of access tracks must be in accordance with specifications fixed by the Department of Infrastructure, Planning and Natural Resources.

### **Trees and Timber**

21. (a) The lease holder must not fell trees, strip bark or cut timber on the lease without the consent of the landholder who is entitled to the use of the timber, or if such a landholder refuses consent or attaches unreasonable conditions to the consent, without the approval of a warden.
- (b) The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease area except such as directly obstructs or prevents the carrying on of operations. Any clearing not authorised under the Mining Act 1992 must comply with the provisions of the Native Vegetation Conservation Act 1997.
- (c) The lease holder must have any necessary licence from State Forests of NSW before using timber from any Crown land within the lease area.

- (b) If the lease holder fails to fulfil any one or more of the obligations under this lease, then the security held may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purpose of this clause the lease holder shall be deemed to have failed to fulfil the obligations of the lease if the lease holder fails to comply with any condition or provision hereof, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision hereof or of any provision of the Act or regulations made thereunder.

PLAN OF PORTION ML 10

PARISH(S) AVON  
 COUNTY(S) GLOUCESTER  
 MAP SHEET NO(S) GLOUCESTER 9233-1-N  
 REDUCTION RATIO 1:1500

MINING LEASE APPLICATION NO. 247  
 MINING DIVISION SINGLETON

APPLICANT(S) GLOUCESTER COAL LTD  
 C.M. STRATFORD PIV. LTD.

APPLICATION DATE 05/07/2004

MINING LEASE NO. 1577 (Act 1992)

STATUS  
 METHOD OPEN CUT

SURFACE EXCEPTION / DEPTH RESTRICTION  
 Embraces the surface and land below thereof  
 to an unlimited depth.

NOTES

Azimuth 'X'-'Y' (MGA)  
 Plans used in the course of this survey/compilation  
 ML1 DP 979859  
 ML8 DP 826955

Survey declared on this plan is for lines 1-7

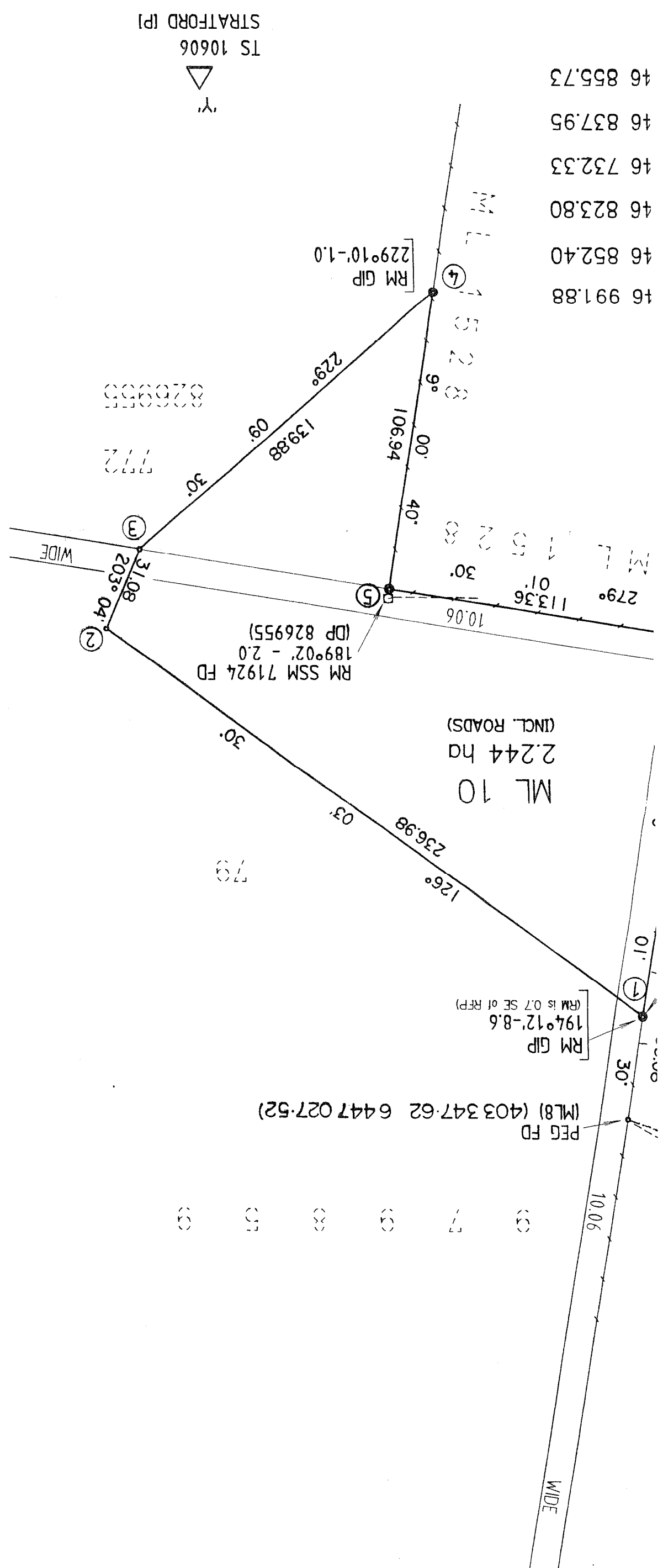
JULIAN VERNON CALVER  
 of, CALVER DEWITT & TAYLOR PTY.LTD.  
 P.O. BOX 194 GLOUCESTER 2422

a surveyor registered under the Surveyors Act, 2002,  
 hereby certify that the survey represented in this  
 plan is accurate and has been completed in accordance  
 with the Surveying Regulation, 2001, and the Surveyor  
 General's Directions for Mining Surveys  
 and was completed on 18.10.05

Signature: *[Signature]*  
 Surveyor's Reference: GL764

Survey Dates: 25-01-2006  
 Plan Investigated: 25-01-2006  
 Plan Approved: 25-01-2006

M 27053

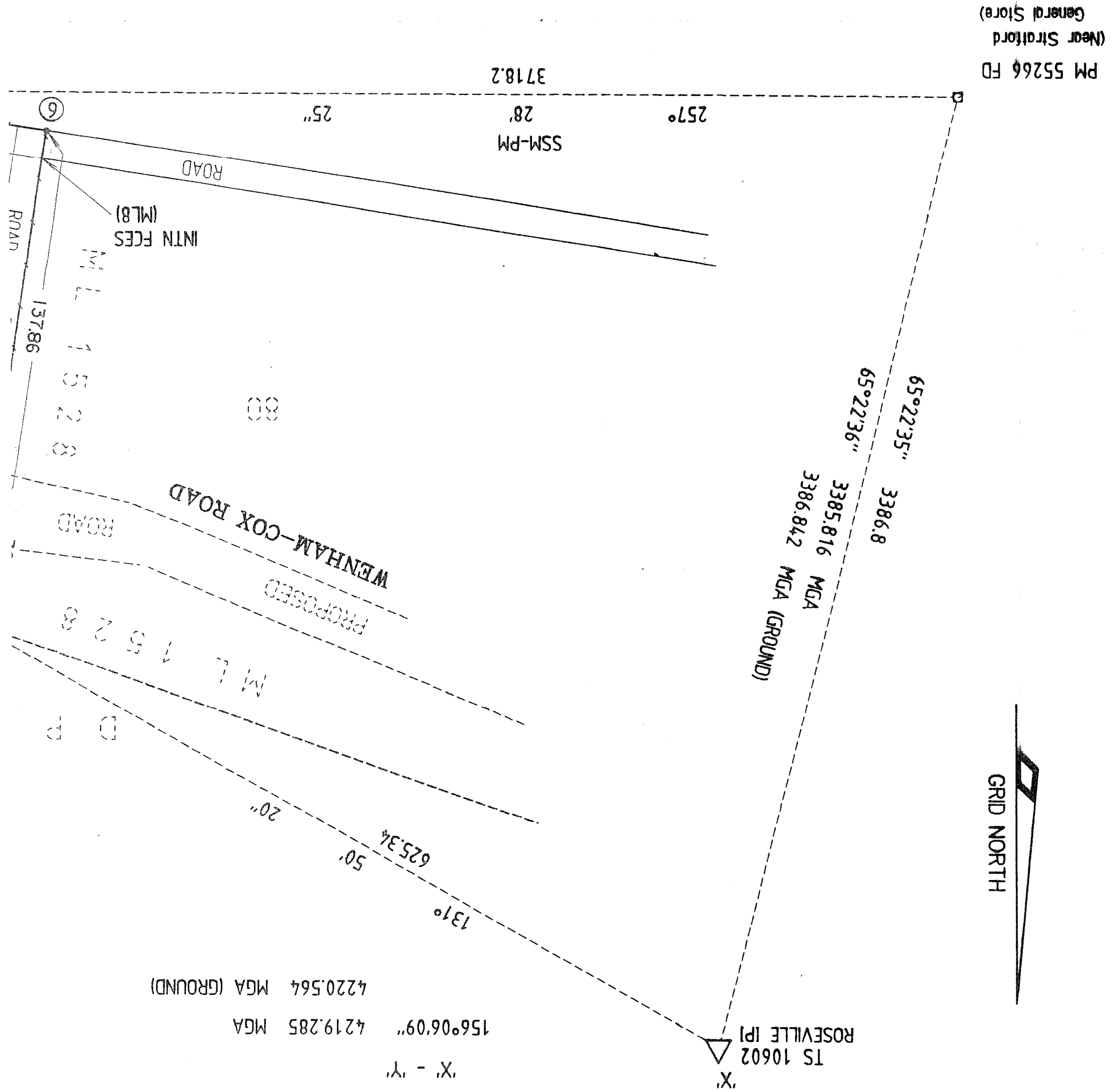


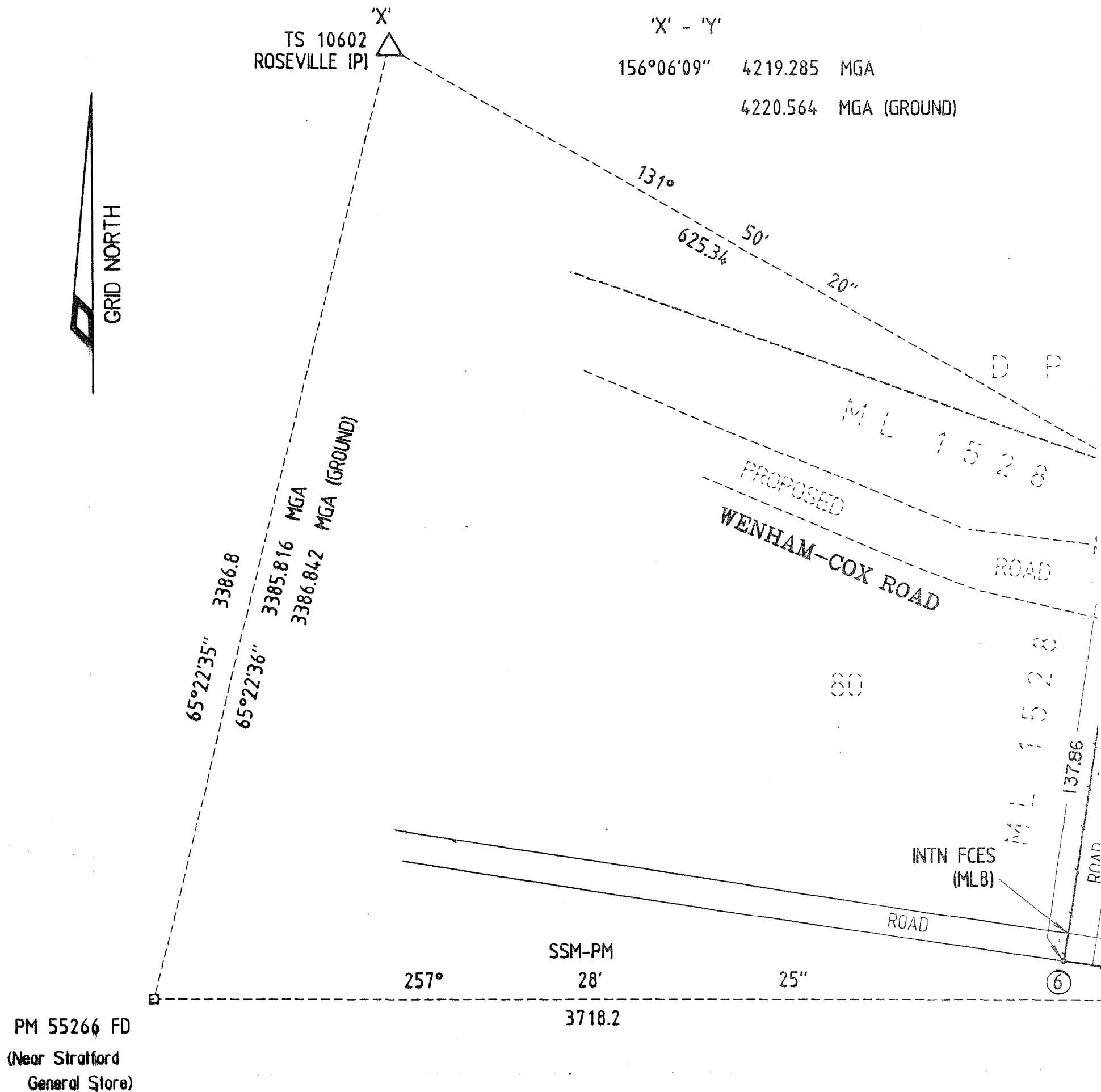
MARK	EASTING		RT. (AHD.)	CLASS	ORDER	V. ACC.
	M.G.A. CO-ORDINATES					
PM 55266	399 803.775	6 446 033.962	124.736	B	U	2
TS 10606	404 590.939	6 443 587.087	446.944	A	U	2
TS 10602	402 881.708	6 447 444.663	123	A	U	7

- ① 403 341.96 6 4
- ② 403 533.53 6 4
- ③ 403 521.36 6 4
- ④ 403 415.53 6 4
- ⑤ 403 432.29 6 4
- ⑥ 403 320.33 6 4

LEASE CORNERS  
 MGA COORDS

DP  
 771





PM 55266 FD  
(Near Stratford  
General Store)

771

DP

LEASE CORNERS  
MGA COORDS

- ① 403 341.96 6 4
- ② 403 533.53 6 4
- ③ 403 521.36 6 4
- ④ 403 415.53 6 4
- ⑤ 403 432.29 6 4
- ⑥ 403 320.33 6 4

MARK	M.G.A. CO-ORDINATES		RL. (A.H.D.)	CLASS	ORDER	V. ACC.
	EASTING	NORTHING				
TS 10602	402 881.708	6 447 444.663	123	A	U	7
TS 10606	404 590.939	6 443 587.087	446.944	A	U	2
PM 55266	399 803.775	6 446 033.962	124.736	B	U	2

COMBINED SEA LEVEL & SCALE FACTOR : 0.999697 ZONE: 56  
SOURCE : S.C.I.M.S. DATE : 19th October 2005



Reference: 11/1142

Mr John Sheehan  
Senior Resources Geologist  
Gloucester Coal Ltd  
PO Box 168  
GLOUCESTER NSW 2422

Dear Sir,

**AUTHORISATION NO 315**

I refer to your application for renewal of this licence.

In accordance with the provisions of Section 114 (1) (a) of the *Mining Act 1992*, the Minister has renewed the licence subject to the terms and conditions set out in the attached Instrument of Renewal.

Renewal of the licence took effect on **14 October 2013**.

It is the licence holder's responsibility to be aware of the expiry date of this licence, and if renewal is required, to lodge a renewal application within the prescribed period. Renewals may be lodged by completing an Application for Renewal of an Exploration Licence (Form EL5). This form and a list of fees are available on the Departmental website (<http://www.resources.nsw.gov.au>).

Please be aware that prospecting operations cannot be carried out on any land (including land where Native Title exists), unless you have entered into an access arrangement with the landholder/s. Sections 138-158 of the *Mining Act 1992* relate to this matter.

In addition, compensation is payable to landholder/s for any loss suffered, or likely to be suffered, as a result of the exercise of the rights conferred by the licence or by an access arrangement in respect of the licence. Section 263 of the Act relates to this matter.

The Environmental Sustainability Unit's Guidelines regarding the sealing of boreholes on land or water may be downloaded from the Environment section of the Department's website: [www.resources.nsw.gov.au](http://www.resources.nsw.gov.au).



In regard to the Cooperation Agreement condition -- the MinView system located on the Department's website will be of assistance in determining the presence of overlapping petroleum titles.

For further information, please contact the undersigned on (02) 4931 6451.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'M. Lannen', with a long horizontal flourish extending to the right.

Margaret Lannen  
Coal and Petroleum Titles  
17 October 2013


MINING ACT 1992

INSTRUMENT OF RENEWAL OF AUTHORISATION 315  
HELD BY GLOUCESTER COAL LTD AND CIM STRATFORD PTY LTD

I, **CHRIS HARTCHER MP, MINISTER FOR RESOURCES AND ENERGY** for the State of New South Wales **HEREBY RENEW THE LICENCE** subject to the terms and conditions set out below:

- 1. The licence is renewed for a further term until **28 November 2017**.
- 2. The conditions of the licence are amended by deleting all the conditions contained in the licence prior to this renewal and by including the attached **Exploration Licence Conditions (Coal) 2012** numbered:  
**1 – 3 (Inclusive), 5 – 47 (Inclusive) and 50 – 54 (Inclusive)**
- 3. The licence is renewed over the land described hereunder and shown on the **Exploration Area** attached hereto.
- 4. Mineral Group covered by this licence: **Group 9. (Coal & Oil Shale)**.

We, **Gloucester Coal Ltd (ACN 008 881 712)** and **CIM Stratford Pty Ltd (ACN 070 387 914)**, hereby accept the renewal of this Exploration Licence and agree to be bound by the conditions specified.


  
.....

**GLOUCESTER COAL LTD  
(ACN 008 881 712)**

  
.....

**CIM STRATFORD PTY LTD  
(ACN 070 387 914)**

Renewed this *14* day of *October* 20 *13*

  
.....

**MINISTER FOR RESOURCES AND ENERGY**

## EXPLORATION AREA

The exploration area embraces an area of about **7430 Hectares**, as shown on the **Plan No A315-05** hereunder exclusive of:-

- (a) land subject to any assessment lease, mining lease or mineral claim under the *Mining Act 1992*, at the date this renewal has effect.
- (b) land subject to any pending application for a mining lease, mining purposes lease or claim under the *Mining Act 1973* or any application for a coal lease under the *Coal Mining Act 1973*, made prior to **4:00 pm** on the **twentieth** day of **September, 1982**.
- (c) land subject to any pending application for an assessment lease, mining lease or mineral claim under the *Mining Act 1992*, made prior to **4:00 pm** on the **twentieth** day of **September, 1982**.
- (d) land on which bona fide mining operations were being carried out at the date of grant of the licence by the owner of the mineral or some person with his consent and over which the exploration licence was not granted by virtue of the provisions of Section 23(4) of the *Coal Mining Act 1973*.
- (e) land on which mining operations were being carried out at the date of grant of the licence by the owner of the mineral or some person with his consent and over which an exploration licence may not be granted by virtue of the provisions of Section 20 of the *Mining Act 1992*.
- (f) land vested in the Commonwealth of Australia.
- (g) land subject to any national park, regional park, historic site, nature reserve, karst conservation reserve or Aboriginal area at the date of grant of this licence.

**Note:** This exclusion includes national parks and Aboriginal areas contained within Community Conservation Area Zones 1 and 2 established under the *Brigalow and Nandewar Community Conservation Area Act 2005*.

- (h) any other land that was not subject to the licence immediately before this renewal.
- (i) land subject to any mining reserve constituted under section 367 of the *Mining Act 1992* that prohibits exploration, that was notified prior to the date of grant.

# RESOURCES & ENERGY

File: 11/1142

DIAGRAM OF AUTHORISATION No. 315

HOLDER: GLOUCESTER COAL LTD & CIM STRATFORD PTY LTD

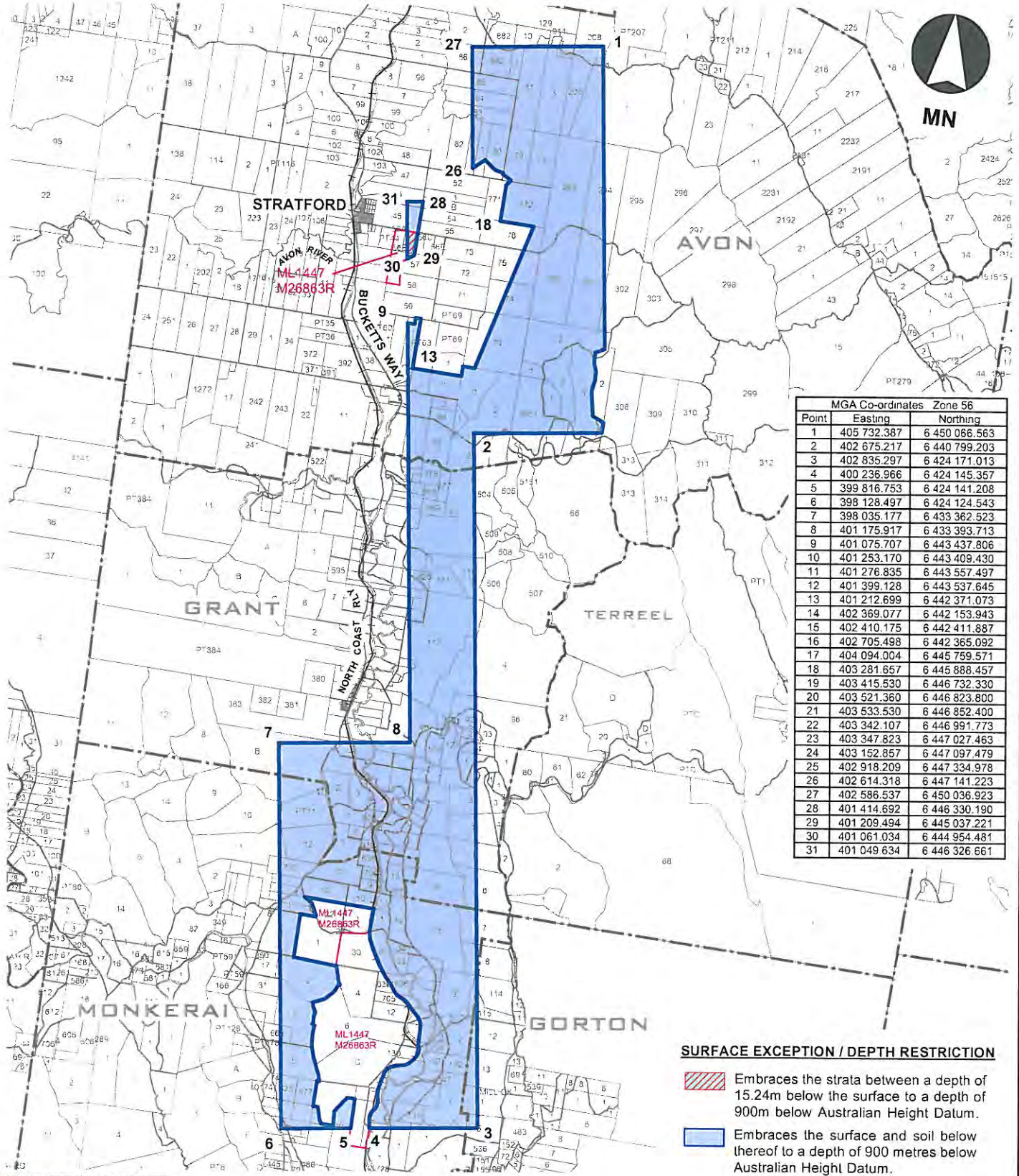
PARISHES: AVON, GRANT, GORTON & MONKERAI

COUNTY: GLOUCESTER

REF MAPS: 9233-1-N, 9233-4-N, 9233-1-S, 9333-4-S & 9233-2-N



SCALE 1:130000

SUBJECT TO SURVEY

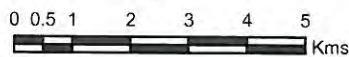


MGA Co-ordinates Zone 56		
Point	Easting	Northing
1	405 732.387	6 450 066.563
2	402 675.217	6 440 799.203
3	402 835.297	6 424 171.013
4	400 236.966	6 424 145.357
5	399 816.753	6 424 141.208
6	398 128.497	6 424 124.543
7	398 035.177	6 433 362.523
8	401 175.917	6 433 393.713
9	401 075.707	6 443 437.806
10	401 253.170	6 443 409.430
11	401 276.835	6 443 557.497
12	401 399.128	6 443 537.645
13	401 212.699	6 442 371.073
14	402 369.077	6 442 153.943
15	402 410.175	6 442 411.887
16	402 705.498	6 442 365.092
17	404 094.004	6 445 759.571
18	403 281.657	6 445 888.457
19	403 415.530	6 446 732.330
20	403 521.360	6 446 823.800
21	403 633.530	6 446 852.400
22	403 342.107	6 446 991.773
23	403 347.823	6 447 027.463
24	403 152.857	6 447 097.479
25	402 918.209	6 447 334.978
26	402 614.318	6 447 141.223
27	402 586.537	6 450 036.923
28	401 414.692	6 446 330.190
29	401 209.494	6 445 037.221
30	401 061.034	6 444 954.481
31	401 049.634	6 446 326.661

**SURFACE EXCEPTION / DEPTH RESTRICTION**

-  Embraces the strata between a depth of 15.24m below the surface to a depth of 900m below Australian Height Datum.
-  Embraces the surface and soil below thereof to a depth of 900 metres below Australian Height Datum.

UNIVERSAL TRANSVERSE MERCATOR PROJECTION  
HORIZONTAL DATUM: GDA84



**AREA: abt. 7430 ha**

Prepared by: G.Walker  
Date: 18-12-2012  
Approved by: P.Hord  
Date: 04-02-2013  
Maitland Regional Office

**DISCLAIMER:** The compilation of information shown on this diagram is derived from plans and data, some of which has been produced and provided by third parties. Title boundaries have been adjusted to maintain their relationship with the digital cadastral database in some circumstances, thereby creating certain inaccuracies in the data. The Department and the State of New South Wales make no statement, representation or warranty that the titles information shown on this diagram is complete, accurate or free from error. Users rely on the titles information supplied on this diagram at their own risk. The Department and the State of New South Wales accept no responsibility for any person, acting on or relying on or upon any of the titles information shown on this diagram and disclaim all liability for any loss, damage, cost, expense or injury (including death) incurred or arising by reason of any person using or relying on the titles information contained on this diagram by reason of or by any error, omission, defect or misstatement (whether such error, omission or misstatement is caused by or arises from negligence, lack of care or otherwise). Users should always verify historical material by making and relying upon their own separate inquiries prior to making any important decisions or taking any action on the basis of titles information.

# EXPLORATION LICENCE CONDITIONS (COAL) 2012

## DEFINITIONS

Words used in this exploration licence have the same meaning as defined in the *Mining Act 1992* except where otherwise defined below:

**Act** means the *Mining Act 1992*.

**Borehole** means any hole made by drilling or boring, but excludes sampling and coring using hand held equipment.

**Category 1 prospecting operations** means development to which clause 10(2) of the Mining SEPP applies.

**Category 2 prospecting operations** means:

- a) Development of a kind described in clause 10(2) of the Mining SEPP but that is not exempt development because it will not take place on land that is described in clause 10(1);
- b) Construction of an access way such as a track or road;
- c) Excavations (including bulk samples) totalling less than 100 cubic metres;
- d) Non-intensive drilling of boreholes;
- e) Construction of water monitoring bores required in connection with prospecting operations; and
- f) Seismic surveys.

**Category 3 prospecting operations** means:

Development, not being development to which clause 10(2) of the Mining SEPP applies, which is:

- a) Excavation totalling more than 100 cubic metres, including bulk samples, but not if the bulk sample is permissible only with consent under the EP&A Act;
- b) Intensive drilling of boreholes;
- c) Shaft sinking or tunnelling; and
- d) Any other prospecting operations not being Category 1 prospecting operations or Category 2 prospecting operations.

**Department** means the Division of Resources & Energy within the Department of Trade and Investment, Regional Infrastructure and Services.

**Director-General** means the Director-General of the Department of Trade and Investment, Regional Infrastructure and Services.

**Environment** has the same meaning as in the *Protection of the Environment Operations Act 1997*.

**EP&A Act** means the *Environmental Planning and Assessment Act 1979*.

**Exploration licence area** means the land and water which is subject to this exploration licence.

---

**Harm to the environment** includes any direct or indirect alteration of the environment that has the effect of degrading the environment and, without limiting the generality of the above, includes any act or omission that results in pollution, contributes to the extinction or degradation of any threatened species, populations or ecological communities and their habitats and causes impacts to places, objects and features of significance to Aboriginal people.

**Landholder** for the purposes of these conditions does not include a secondary landholder and includes, in the case of exempted areas, the controlling body for the exempted area.

**Material harm to the environment** has the same meaning as in the *Protection of the Environment Operations Act 1997*.

**Minister** means the Minister administering the Act.

**Pollution incident** has the same meaning as in the *Protection of the Environment Operations Act 1997*.

**Standard working hours** means:

- a) Monday to Friday 7am to 6pm;
- b) Saturday 8am to 1pm; and
- c) No work on Sundays or Public Holidays.

**Mining SEPP** means the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, as amended from time to time.

**Waste** has the same meaning as in the *Protection of the Environment Operations Act 1997*.

**Water land** has the same meaning as in section 198A of the *Fisheries Management Act 1994*.

**Wetland** has the same meaning as in section 198A of the *Fisheries Management Act 1994*.

## CONDITIONS

Conditions 1 to 3, 8 to 19, 23 to 29 and 37 to 49 of this exploration licence are identified as conditions relating to environmental management.

### Prospecting operations permitted under this exploration licence

1. The licence holder may conduct Category 1 prospecting operations on the exploration licence area subject to the conditions of this licence.

*Note:* a) The licence holder must comply with the requirements of the Act and other relevant legislation.

b) *Category 1 prospecting operations:*

- i) must be of minimal environmental impact;
- ii) cannot be carried out in critical habitat of an endangered species, population or ecological community (identified under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994); and
- iii) can not be carried out in a wilderness area (identified under the Wilderness Act 1987).

### Prospecting operations requiring further approval

2. The licence holder must obtain the Minister's written approval prior to carrying out any of the following prospecting operations on the exploration licence area:

- a) Category 2 prospecting operations; and
- b) Category 3 prospecting operations.

*Note:* The information required to be submitted as part of the licence holder's request for written approval under this condition is set out in the "Note" following condition 3 below.

3. The licence holder must comply with the conditions of an approval under condition 2 when carrying out those prospecting operations.

*Note:* In the case of prospecting operations identified in condition 2 as requiring approval by the Minister, the application for approval must be accompanied by a Surface Disturbance Notice (SDN). A Review of Environmental Factors and Agricultural Impact Statement may be required for Category 2 prospecting operations if the Minister is of the opinion that the prospecting operations may result in more than minimal environmental impact.

A Surface Disturbance Notice, Review of Environmental Factors and Agricultural Impact Statement are required for all Category 3 prospecting operations.

If the impact of prospecting operations on the environment is determined as likely to significantly affect the environment (including critical habitat) or threatened species, populations or ecological communities, or their habitats, in terms of Part 5 of the EP&A Act, then the licence holder will be required to submit an Environmental Impact Statement (EIS).

Applications may also require a Groundwater Monitoring and Modelling Plan (see condition 12)).

### Native Title

4. Not used

### Community consultation

5. The licence holder must engage with the community in relation to the planning for and conduct of prospecting operations authorised under this exploration licence.
6. The consultation must be undertaken in accordance with the *Guideline for community consultation requirements for the exploration of coal and petroleum, including coal seam gas* (NSW Trade & Investment, 2012) as amended from time to time.

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7. An annual report on Community Consultation must be submitted to the Department within 28 days of the anniversary of this licence being granted, together with evidence that the consultation has been undertaken in accordance with the Guideline.

*Note: Copies of the Guideline are available from [www.resources.nsw.gov.au](http://www.resources.nsw.gov.au)*

### **Access to exploration licence and relevant documents**

8. The licence holder must ensure that a copy of this exploration licence and any relevant documentation relating to the conduct of prospecting operations is:
  - a) accessible on the site of active prospecting operations authorised by this exploration licence; and
  - b) made available to all supervisors or other persons concerned in the day to day management of prospecting operations authorised by this exploration licence.

*Note: For the purposes of this condition, relevant documentation includes, but is not limited to:*

- a) *access arrangements required under Part 8 of the Act;*
- b) *exempted area consents required under section 30 of the Act;*
- c) *approvals under condition 2 of this exploration licence, and any document specified as forming part of that approval, such as a Review of Environmental Factors; and*
- d) *the approved Groundwater Monitoring and Modelling Plan under condition 12 of this exploration licence.*

### **Environmental harm**

9. The licence holder must implement all reasonably practicable measures to prevent and/or minimise harm to the environment that may result from the conduct of any prospecting operations under this exploration licence.

### **Erosion and sediment control**

10. The licence holder must prevent erosion and pollution of watercourses resulting from the conduct of prospecting operations by implementing effective erosion and sediment control measures.
11. The planning, design and construction of erosion and sediment control measures must be conducted generally in accordance with *Managing Urban Stormwater: Soils and Construction* (DECC 2007), as amended or replaced from time to time.

### **Groundwater Monitoring and Modelling Plan**

12. Prior to conducting prospecting operations involving the construction and use of boreholes, the licence holder must:
  - a) Prepare a Groundwater Monitoring and Modelling Plan in consultation with the NSW Office of Water;
  - b) Ensure that the Groundwater Monitoring and Modelling Plan:
    - i) describes methods for identifying aquifers, their depths, behaviour, containing layers and connectivity with surrounding aquifers or surface water systems;
    - ii) describes methods for collection of data relevant to the type, quantity and quality of water contained within aquifer systems likely to be encountered during prospecting operations;
    - iii) provides for the future development of a conceptual model of regional groundwater behaviour;
    - iv) provides for the future development of a calibrated computer model of regional groundwater behaviour, to enable the impacts of any proposed mining operations to be assessed;



- v) describes how records of all data collected will be maintained;
  - vi) describes the staging process for implementation of the plan; and
  - vii) is prepared in accordance with any additional requirements prescribed by the Director-General.
- c) The Groundwater Monitoring and Modelling Plan must address the requirements identified in b)i) to b)vii) in a level of detail commensurate with the scale, timing and potential impact of proposed operations;
  - d) Have the Groundwater Monitoring and Modelling Plan approved by the Minister; and
  - e) Implement and comply with the approved Groundwater Monitoring and Modelling Plan.

*Note. The Groundwater Monitoring and Modelling Plan is required to ensure:*

- (a) there is sufficient groundwater data available to assess future operations against the Aquifer Interference Policy (NSW Office of Water, 2012), as amended or replaced from time to time; and*
- (b) 2 years of baseline data is available prior to submitting an application for any future production operations.*

*An application may be made to the Department at any time to vary an approved Groundwater Monitoring and Modelling Plan.*

## **Use of Chemicals and Fuel**

13. The licence holder must ensure that all chemicals, fuels and oils, excluding those contained within plant and equipment and those for personal use, are:
- a) stored and handled in accordance with the relevant Material Safety Data Sheet and Australian Standards for the material;
  - b) stored in appropriate containers that are in good condition and labelled to clearly identify the stored product; and
  - c) kept in a facility or area which is capable of containing at least 100% of the largest container capacity stored within that area;

unless otherwise approved by the Minister.

14. The licence holder must ensure that adequate spill prevention and oil absorbent materials required to manage spills and leaks for all chemicals, fuels and oils on site are readily available at all times where prospecting operations are being carried out. Equipment and/or materials to capture drips and spills must be used during transfer of chemicals, fuels and oils, and when maintaining oil or fuel filled components.

## **Noise**

15. The licence holder must carry out operations in accordance with the requirements of the *Interim Construction Noise Guidelines* (DECC, 2009), as amended or replaced from time to time. Unless otherwise approved by the Minister, the licence holder must ensure that:
- a) noise levels during standard working hours do not exceed the Rating Background Level (RBL) +10dB at any residence or other sensitive receiver (as defined in the *Interim Construction Noise Guidelines*).
  - b) noise levels outside of standard working hours do not exceed the RBL +5dB.
16. The noise limits identified in condition 15 will not apply where the licence holder has negotiated a written agreement with:

- a) the relevant landholder; or
- b) in the case of a prospecting operation that will result in an exceedance of the criteria at a dwelling or other sensitive receiver, the resident of that dwelling or occupier of the sensitive receiver;
- c) to allow different limits and the licence holder complies with those limits.

## Vegetation Clearing

17. Vegetation clearing and vegetation disturbance must be limited to the minimum extent necessary to facilitate the conduct of prospecting operations authorised by this exploration licence.

*Note: Any clearing of native vegetation which is not authorised under the Mining Act 1992 is subject to the Native Vegetation Act 2003.*

*Additional approvals may also be required before using timber from Crown land.*

## Fire prevention

18. The licence holder must take all reasonably practicable precautions against causing an outbreak of fire.
19. The licence holder must not burn off any grass, foliage or herbage without the consent of the landholder and the local fire authority.

## Infrastructure

20. The licence holder must ensure that prospecting operations do not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility without the prior written approval of the infrastructure owner and subject to any conditions that may be stipulated by the infrastructure owner.

## Passage of stock

21. The licence holder must permit the passage of stock through the exploration licence area and must conduct operations in a manner so as not to cause danger to travelling stock.
22. The licence holder must not interfere with or prevent the access of stock to any watering places or approaches to such watering places without the approval of the landholder.

## Roads and Tracks

23. Except where otherwise approved under condition 2, the licence holder must ensure that:
- a) Existing roads and tracks are used in preference to constructing new roads and tracks;
  - b) The planning, design, construction and maintenance of unsealed roads and tracks is constructed generally in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC 2007) as amended or replaced from time to time; and
  - c) All water land and wetland crossing works are constructed in accordance with the requirements of the Policy and Guidelines for Fish Friendly Waterway Crossings (NSW DPI 2003) and *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) as amended or replaced from time to time.

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24. The licence holder must restrict the use of any unsealed road or track during wet weather to prevent damage to that road or track unless the road or track has been designed and constructed for use in wet weather.

### Topsoil management

25. The licence holder must ensure that all topsoil removed in the course of prospecting operations is stockpiled for later use in rehabilitating those operations.

### Drilling

26. The licence holder must:
- a) Construct, maintain and decommission all boreholes and petroleum wells in accordance with standards equivalent to or exceeding the *Minimum Construction Requirements for Water Bores in Australia* (NUDLC 2012), as amended or replaced from time to time. Where this condition is inconsistent with other conditions set out in this exploration licence, those conditions prevail to the extent of that inconsistency.
  - b) Ensure that the construction, operation, maintenance and decommissioning of boreholes does not cause or enhance:
    - i) hydraulic connection between aquifers;
    - ii) contamination or cross-contamination of aquifers;
    - iii) the escape of natural or noxious gases;
    - iv) the uncontrolled surface discharge of ground waters;
    - v) collapse of the surrounding surface; or
    - vi) hazards to persons, stock and wildlife;
  - c) Before commencing any drilling within the exploration licence area, carry out an assessment of the risk of blowouts. Details of the assessment must be notified to the Department at least 7 days prior to the proposed commencement of drilling. If this assessment indicates that there is potential for a blowout to occur, blowout prevention equipment must be installed, in accordance with the *Schedule of Onshore Petroleum Exploration and Production Safety Requirements* (DMR 1992), as amended or replaced from time to time;
  - d) Implement appropriate controls to manage any risks associated with natural or noxious gases, both during and after drilling;
  - e) Contain all drill cuttings, fluids and groundwater returned to the surface as part of the drilling process in above-ground tanks or in-ground sumps pending re-circulation or disposal. In-ground sumps must be lined with an impermeable barrier where there is a potential risk of contamination from drill cuttings or fluids;
  - f) Survey boreholes to a minimum of 0.5 metre accuracy at collar, with the survey to be carried out by a surveyor registered with the Board of Surveying and Spatial Information under the *Surveying and Spatial Information Act 2002*;
  - g) Remove equipment and logging tools from the borehole prior to plugging and abandonment of the borehole, unless otherwise approved by the Minister; and;
  - h) Once a borehole ceases to be used, the borehole must be completely filled with cement grout during drill rod withdrawal and plugged, unless otherwise approved by the Minister.
27. The licence holder must report any blowout associated with prospecting operations to the Department:
- a) immediately; and
  - b) provide a written report within 24 hours.

*Note. The licence holder should have regard to any Director-General's guidelines related to the drilling, operation and abandonment of boreholes.*

## **Waste Management**

28. The licence holder must ensure that:
- a) the sites of prospecting operations are maintained in a clean and tidy condition at all times;
  - b) all waste, including contaminated residues, must be collected, segregated and securely deposited in properly constructed containers and disposed lawfully;
  - c) drilling by-products contaminated by chemicals, oils or fuels must be collected and remediated or disposed lawfully; and
  - d) all drill cuttings and drilling fluids not being reused in drilling operations are disposed lawfully.

*Note. Alternative reuse of drill cuttings and treated fluids may be approved by the Minister under condition 2 of this exploration licence.*

29. The licence holder must maintain records of:
- a) all waste generated as a result of prospecting operations under this exploration licence; and
  - b) the means of disposal of all waste.

*Note. Waste is regulated under the Protection of the Environment Operations Act 1997 and the NSW Waste Regulations. Contact the Local Council or the Environment Protection Authority for details of those requirements.*

## **Safety**

30. The licence holder must notify the Department at least 7 days prior to the proposed commencement of any prospecting operation involving any drilling, blasting or other potentially hazardous operation. This notification must be made in the form approved by the Director-General.
31. The licence holder must carry out operations in a manner that ensures the safety of members of the public, stock and wildlife in the vicinity of the operations.
32. The licence holder must put in place measures to control safety hazards. These measures include, but are not limited to, the development of a Safety Management Plan prepared in accordance with relevant Departmental guidelines.

*Note: Mining activities in NSW, including exploration, are subject to the Work Health and Safety Act 2011 which is the main Act dealing with the health, safety and welfare of persons at work. The Work Health and Safety Act 2011 is to be read in conjunction with the Coal Mine Health and Safety Act 2002 which deals with health, safety and welfare of people at work at coal operations or related places and puts in place special provisions necessary for the control of particular risks arising from the exploration for coal.*

## **Technical Manager**

33. The licence holder must ensure that prospecting operations are conducted, or directly supervised, by a Technical Manager, being:
- a) a person with tertiary qualifications in geoscience, petroleum or mining engineering; or
  - b) a person having other qualifications or exploration experience approved by the Minister.

- 
34. The licence holder must advise the Minister of the name and contact details of the Technical Manager(s) within ten (10) working days of any changes to the nominated Technical Manager or their contact details.

### Cooperation with other title holders

35. The licence holder must make every reasonable attempt, and be able to demonstrate their attempts, to enter into a cooperation agreement with the holder(s) of any overlapping authorisations under the *Mining Act 1992* or petroleum title under the *Petroleum (Onshore) Act 1991*. The cooperation agreement should address but not be limited to:
- a) access arrangements;
  - b) operational interaction arrangements;
  - c) dispute resolution;
  - d) information exchange;
  - e) location of prospecting operations;
  - f) timing of drilling;
  - g) potential resource extraction conflicts; and
  - h) integrated rehabilitation activities.

### Minister's approval of change in control

36. a) It is a condition of this licence that, where the licence-holder is a corporation or a trust, the Minister's prior written approval is required before there occurs:
- (i) any change in the effective control of the licence-holder; or
  - (ii) any foreign acquisition of substantial control in the licence-holder.
- b) Subject to Clause (d), for the purposes of this condition, there is a "change in effective control" where, after the imposition of this condition, any Third Party or Trustee of a Trust Estate:
- (i) acquires the capacity to appoint or control at least 50% of the number of directors of the licence-holder's board;
  - (ii) becomes entitled to exercise (directly or indirectly) greater than 50% of the votes entitled to be cast at any general meeting of the licence-holder; or
  - (iii) holds more than 50% of the issued share capital (other than shares issued with no rights other than to receive a specified amount in distribution) of the licence-holder.
- c) Subject to Clause (d), for the purposes of this condition, there is a "foreign acquisition of substantial control" where, after the imposition of this condition, a Foreign Party:
- (i) acquires the capacity to appoint or control at least 15% of the number of directors of the licence-holder's board;
  - (ii) becomes entitled to exercise (directly or indirectly) greater than 15% of the votes entitled to be cast at any general meeting of the licence-holder; or

- (iii) holds more than 15% of the issued share capital (other than shares issued with no rights other than to receive a specified amount in distribution) of the licence-holder;

For the purposes of this condition a Foreign Party means:

- (iv) a natural person not ordinarily resident in Australia (foreign person);
  - (v) a corporation incorporated outside Australia (foreign corporation);
  - (vi) a corporation in which a foreign person or foreign corporation is a shareholder holding more than 15% of issued capital entitled to vote at any general meeting of the licence holder;
  - (vii) a corporation in which 2 or more persons, each of whom is either a foreign person or a foreign corporation are shareholders and collectively hold not more than 40% of issued capital entitled to vote at general meetings of the corporation;
  - (viii) the trustee of a trust estate, in which a foreign person or a foreign corporation is a beneficiary of the trust estate and holds more than 15% of the beneficial interest in the trust estate; or
  - (ix) the trustee of a trust estate in which 2 or more persons, each of whom is either a foreign person or a foreign corporation, are beneficiaries of the trust estate and collectively hold more than 40% of the beneficial interest in the trust estate, provided that a foreign party shall not include a related body corporate of the licence holder.
- d) Approval under (a) is not required where a change in effective control of the licence holder or a foreign acquisition of substantial control of the licence holder occurs as a result of the acquisition of shares or other securities on a registered stock exchange.
- e) For the purpose of this condition:
- (i) Related Body Corporate means in relation to a body corporate, a body corporate which is a related body corporate of the first mentioned body corporate for the purposes of the *Corporations Act 2001 (Cth)*; and
  - (ii) Third Party means any person who is not a Related Body Corporate of the licence holder.

## Rehabilitation

37. All disturbance resulting from prospecting operations carried out under this exploration licence must be rehabilitated by the licence holder to the satisfaction of the Minister.
38. In rehabilitating the disturbance resulting from prospecting operations, the licence holder must ensure that:
- a) all machinery, buildings and other infrastructure is removed from the area;
  - b) the area is left in a clean, tidy and stable condition
  - c) there is no adverse environmental effect outside the disturbed area;
  - d) the land is properly drained and protected from soil erosion;
  - e) the land is not a potential source of pollution;

- f) the land is compatible with the surrounding land and land use requirements;
  - g) the landforms, soils, hydrology and flora require no greater maintenance than that in, or on, the surrounding land;
  - h) the land does not pose a threat to public safety; and
  - i) in cases where vegetation has been removed or damaged:
    - i) where the previous vegetation was native, species used for revegetation are endemic to the area; or
    - ii) where the previous vegetation was not native, species used for revegetation are appropriate to the area; and
    - iii) any revegetation is of an appropriate density and diversity.
39. The licence holder must ensure that all water land and wetland crossings that are disturbed during prospecting operations are rehabilitated such that the natural flow of water is unimpeded and bank stability is maintained to prevent erosion.
40. The licence holder must comply with any relevant guidelines issued by the Director-General in the rehabilitation of disturbance resulting from prospecting operations under this exploration licence.
41. All rehabilitation of disturbance resulting from prospecting operations under this exploration licence must be completed before the expiry of this exploration licence or as soon as practicable following cancellation of this exploration licence, unless otherwise approved by the Minister.
42. Boreholes that have been abandoned as a result of previous mining or prospecting operations, and which have been opened up or used by the licence holder are subject to the conditions of this exploration licence as if the boreholes were constructed by the holder of this exploration licence.

## REPORTING

### Environmental Management Report

43. The licence holder must submit an Environmental Management Report to the Department in the following circumstances:
- a) where the licence holder is seeking to renew this exploration licence, an Environmental Management Report must accompany an exploration licence renewal application; or
  - b) where the licence holder is seeking to cancel or part cancel this exploration licence, an Environmental Management Report must accompany an exploration licence cancellation application;
  - c) where the licence holder is not seeking to renew or cancel this exploration licence, an Environmental Management Report must be submitted prior to the expiry of this exploration licence.
44. The report must be prepared in accordance with any Director-General's requirements for environmental and rehabilitation reporting on exploration licences and include information on all disturbance resulting from prospecting operations and rehabilitation carried out within the exploration licence area. The report must be prepared to the satisfaction of the Director-General.

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## Environmental Incident and Complaint Reporting

45. The licence holder must, in addition to the requirements under section 148 of the *Protection of the Environment Operations Act 1997*:

- a) Notify the Department of all:
  - i) pollution incidents causing or threatening material harm to the environment;
  - ii) breaches of the conditions of this exploration licence; and
  - iii) breaches of environment protection legislation (as defined in the *Protection of the Environment Administration Act 1991*),

arising in connection with prospecting operations under this exploration licence.

- b) The notification must be given immediately, i.e. promptly and without delay, after the licence holder becomes aware of the incident, breach or complaint.

*Note.* Refer to [www.resources.nsw.gov.au/environment](http://www.resources.nsw.gov.au/environment) for notification contact details.

- c) Submit an Environmental Incident and Complaints Report to the Department within seven (7) days of all:

- i) pollution incidents causing or threatening material harm to the environment;
- ii) breaches of the conditions of this exploration licence;
- iii) breaches of environment protection legislation (as defined in the *Protection of the Environment Administration Act 1991*); and
- iv) complaints from landholders or the public alleging environmental harm or a breach of conditions of this exploration licence or of environment protection legislation,

arising in connection with prospecting operations under this exploration licence.

- d) The Environmental Incident and Complaints Report must include:

- i) the details of the exploration licence;
- ii) contact details for the licence holder, complainant and landholder;
- iii) a map showing the area of concern;
- iv) a description of the nature of the incident or complaint, likely causes and consequences;
- v) a timetable showing actions taken or planned to address the incident or complaint; and
- vi) a summary of all previous incidents or complaints relating to prospecting operations under this exploration licence.

*Note.* The licence holder should have regard to any relevant Director-General's guidelines in the preparation of an Environmental Incident and Complaints Report. Refer to [www.resources.nsw.gov.au/environment](http://www.resources.nsw.gov.au/environment) for further details.

## SECURITY

### Security

46. This authorisation is subject to a condition that the holder of the authorisation is required to provide and maintain a security deposit to secure funding for the fulfilment of obligations of all or any kind under the authorisation, including obligations of all or any kind under the authorisation that may arise in the future.



47. The amount of the security deposit to be provided has been assessed by the Director-General at **\$480,000**.

### **Group Security**

48. Not used  
49. Not used

## **EXPLORATION MANAGEMENT**

### **Samples**

50. The licence holder must:
- a) if using non-core drilling methods, retain representative cuttings every one (1) metre drilled. Such samples must be at least 200 grams in dry weight, dried, stored appropriately, and securely labelled with depth limits; and
  - b) if using core drilling methods, retain the cores (other than material required from the cores for the purpose of assay) and samples in standard modular durable core boxes and label the cores and samples after the completion of the borehole.
51. Cores and samples must be made available for examination and/or sampling by officers of the Department for the purpose of analysis or other testing upon request.
52. The licence holder must not dispose of the cores or samples referred to in Condition 50 without approval of the Minister and without first offering them to the Department for archival storage. If so directed, the licence holder must lodge selected core and samples with one of the Department's Core Libraries. Selected core must be lodged with the Department in standard modular core boxes. Information on the borehole and drilling depths must be clearly and permanently indicated on both the inside and outside of each box.
- Note: Conditions 50 and 52 do not apply to boreholes or sections of boreholes sunk in surface gravel or alluvial ground.*
- Specifications for standard modular core boxes can be obtained by contacting the Department.*
53. The licence holder must undertake analyses and tests on any or all coal seams intersected in boreholes if directed to do so by the Minister.

### **Work Program**

54. Unless otherwise approved by the Minister, the licence holder must implement and complete the work program specified in the renewal application for this exploration licence.

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## SPECIAL CONDITIONS

### Aboriginal Land Council Notification

55. Not used

APPENDIX B  
ASSESSMENTS OF SIGNIFICANCE

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## EXECUTIVE SUMMARY

Stratford Coal Pty Ltd is seeking approval to undertake Category 1, 2 and 3 exploration activities within Mining Lease (ML) 1360, ML 1528, ML 1577 and Authorisation 315. The proposed exploration program (the Program) would include drilling approximately 74 drill holes and associated downhole geophysical surveys for the purposes of coal exploration.

The purpose of this document is to assess whether the Program is likely to significantly affect threatened species, populations or ecological communities or their habitats listed under the New South Wales (NSW) *Threatened Species Conservation Act, 1995* (TSC Act) in accordance with Part 5 of the NSW *Environmental Planning and Assessment Act, 1979*. This document has been prepared to accompany a Review of Environmental Factors for the Program.

Some land clearance associated with the drill hole sites and associated infrastructure (e.g. access tracks) would be necessary. The Program would result in the clearance of 1.5 ha of native vegetation. The clearance areas would be rehabilitated as soon as practicable upon completion of exploration activity.

A number of safeguards and mitigation measures are proposed, including selection of drill hole sites to avoid mature trees, hollow-bearing trees (wherever practicable) and the 'Vegetated Riparian Zone' defined by the *Guidelines for Riparian Corridors on Waterfront Land*, utilising relevant existing tracks, progressive rehabilitation, measures to minimise noise, light, dust, exotic animals, exotic plants and bushfire risk.

The Program is not likely to have a significant adverse impact on any species, populations or ecological communities or their habitats listed under the TSC Act because the majority of clearance is located in cleared land (2.0 ha), no threatened flora, ecological communities, threatened frogs or threatened populations have potential to occur within the Program site, there is a low number of threatened fauna species records within the Program site, and because of the proposed avoidance, mitigation and rehabilitation measures.

## **1 INTRODUCTION**

### **1.1 THE PROGRAM**

#### **1.1.1 Background**

The Stratford Mining Complex (consisting of the Stratford Coal Mine and Bowens Road North Open Cut) is an open cut coal operation located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) in the Gloucester Basin (Figure 1). The Stratford Mining Complex operations are undertaken on Mining Lease (ML) 1360, ML 1447, ML 1521, ML 1528, ML 1538 and ML 1577 (Figure 2). Stratford Coal Pty Ltd (SCPL) is the owner and operator of the Stratford Mining Complex. SCPL is a wholly owned subsidiary of Yancoal Australia Limited (Yancoal).

Authorisation (AUTH) 315 is located adjacent the Stratford Mining Complex (Figures 1 and 2) and is held by Gloucester Coal Ltd (GCL) and CIM Stratford Pty Ltd. SCPL manages exploration activities in AUTH 315 on behalf of GCL and CIM Stratford Pty Ltd.

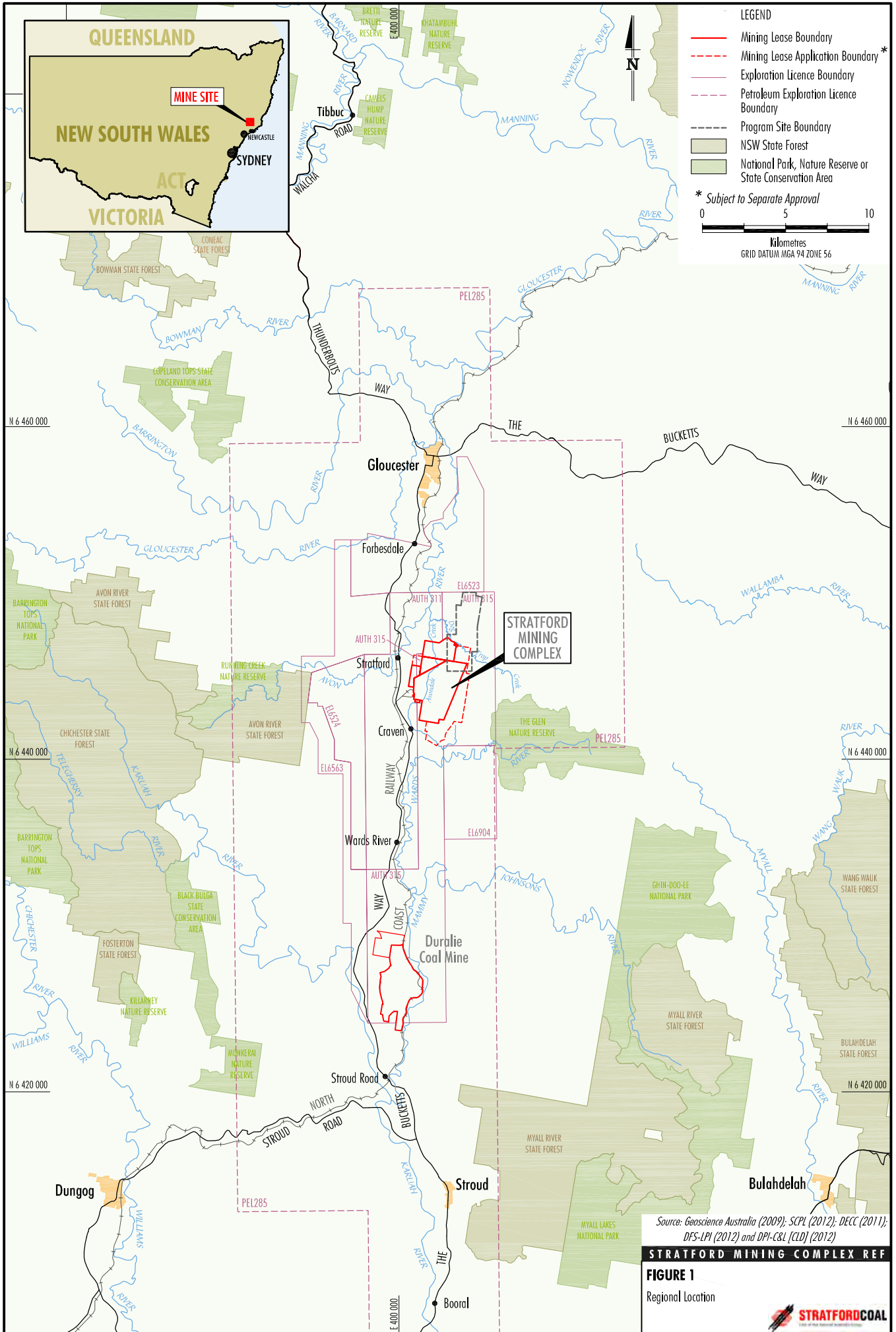
Recent exploration activities undertaken have included exploration drilling as described in *Exploration Drilling Program – Review of Environmental Factors Exploration Authorisation (EA) 315* (the 2010 REF) (GCL, 2010).

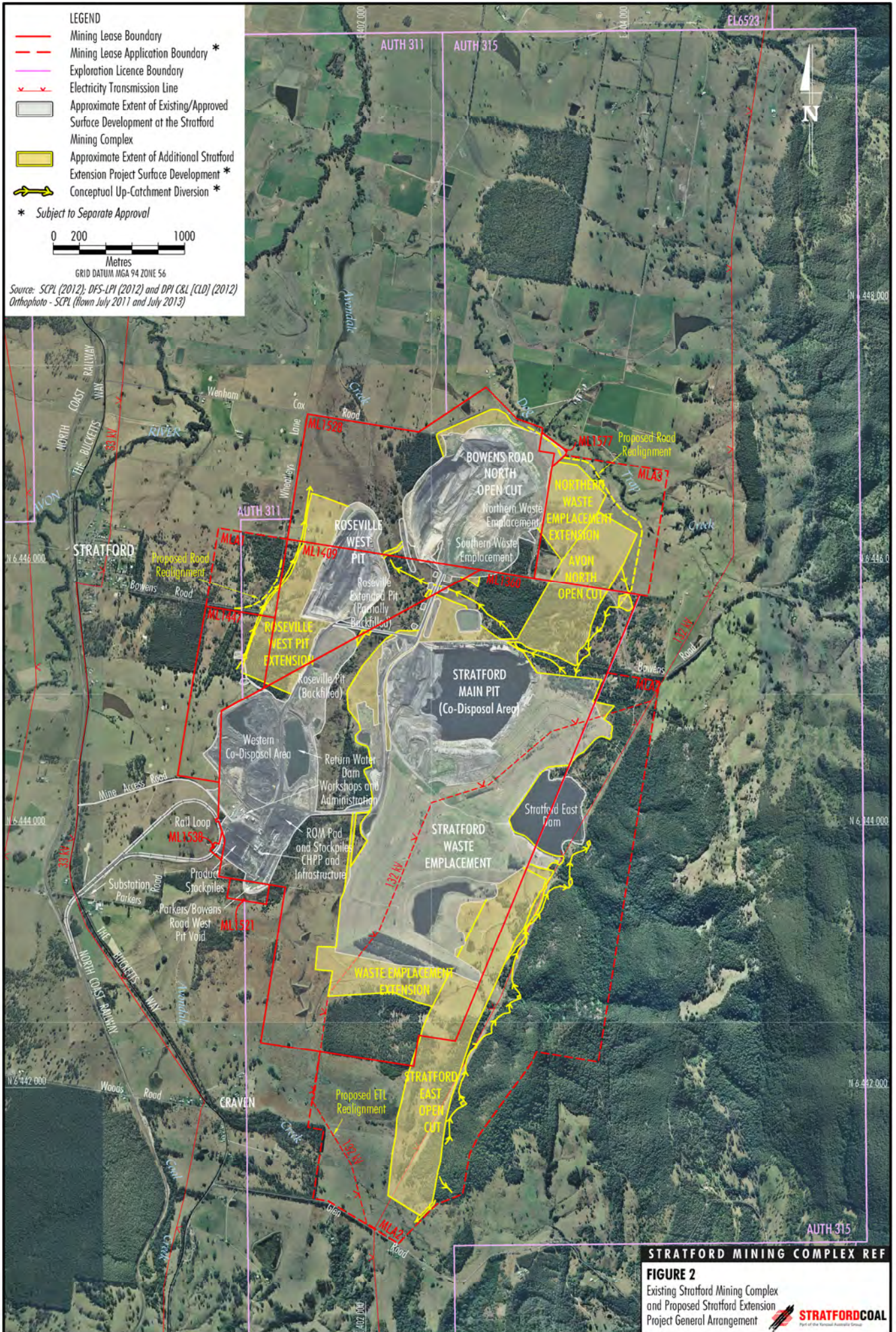
SCPL prepared the *Stratford Extension Project Environmental Impact Statement* (SCPL, 2012a) to support a Development Application for the Stratford Extension Project (SSD-4966) under the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). The location of the proposed Stratford Extension Project in proximity to the proposed exploration program (the Program) is shown on Figure 2. This Assessments of Significance refers to a number of the specialist assessments prepared for the *Stratford Extension Project Environmental Impact Statement* (SCPL, 2012a) where relevant.

#### **1.1.2 Summary of the Program**

SCPL is seeking approval to undertake Category 1, 2 and 3 exploration activities (drilling and downhole geophysical surveys) within ML 1360, ML 1528, ML 1577 and AUTH 315. This REF is intended to supersede the 2010 REF.

The Program would include drilling approximately 74 drill holes and associated downhole geophysical surveys for the purposes of coal exploration. An overview of the Program is provided in Table 1 and indicative borehole locations are shown on Figure 2.







**Table 1  
Summary of the Program**

Title number	ML 1360, ML 1528, ML 1577 and AUTH 315.
Titleholders	Gloucester Coal Ltd and CIM Stratford Pty Ltd.
Operator	SCPL.
Activity type	Category 1, 2 and 3 exploration activities.
Activity scope	Drilling of approximately 74 exploration boreholes. Downhole geophysical surveys.
Activity location	Within ML 1360, ML 1528, ML 1577 and AUTH 315.
Activity duration	Approximately 2.5 years from commencement of Program activities.
Type of approval being sought	Approval is being sought for Category 1, 2 and 3 exploration activities.

## 1.2 PURPOSE OF THIS DOCUMENT

The purpose of this document is to assess whether the Program is likely to significantly affect threatened species, populations or ecological communities or their habitats listed under the NSW *Threatened Species Conservation Act, 1995* (TSC Act) in accordance with Part 5 of the EP&A Act. This document has been prepared to accompany a REF for the Program.

## 1.3 OVERVIEW OF POTENTIAL IMPACTS AND MANAGEMENT

### 1.3.1 Habitat Clearance

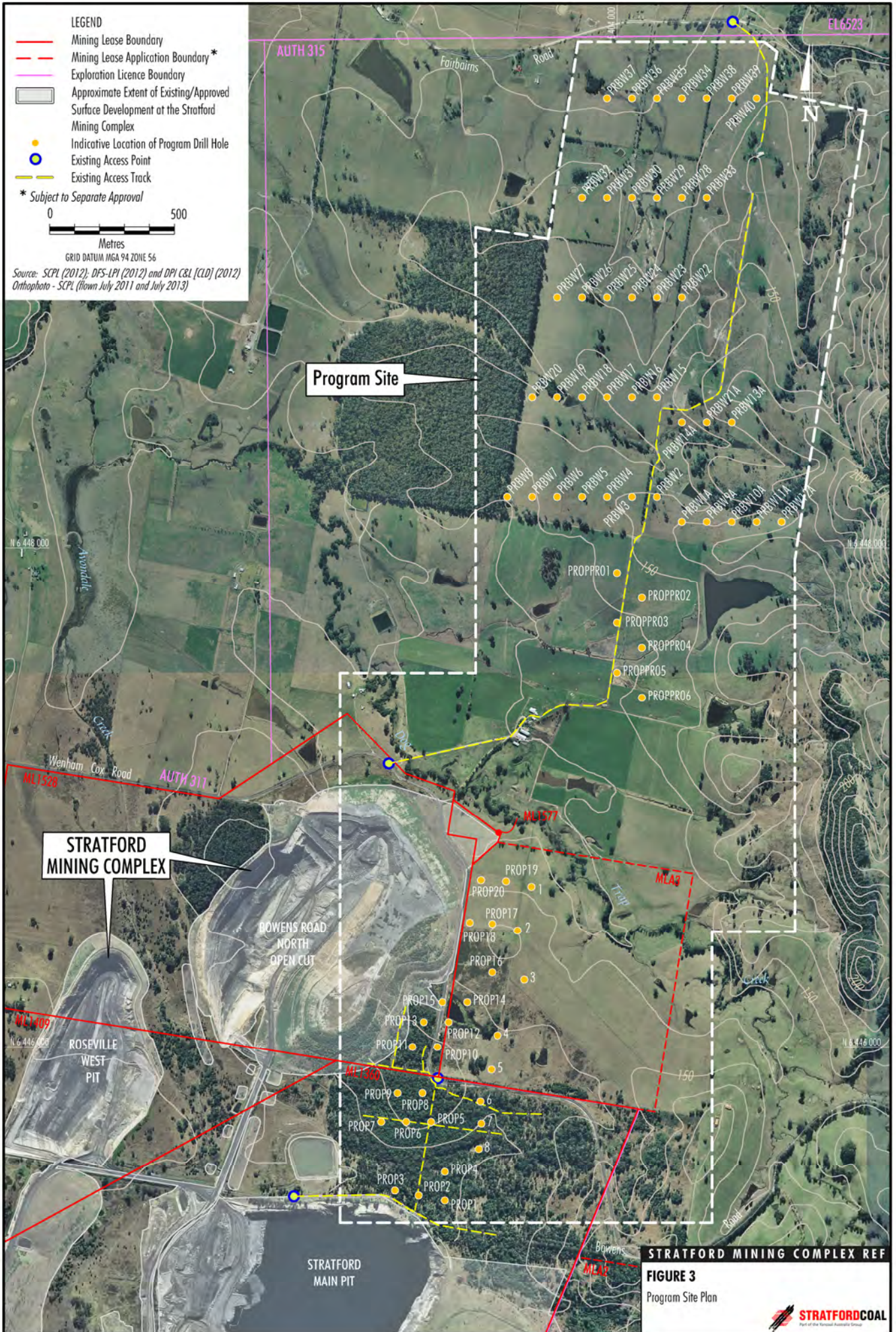
The Program would include drilling approximately 74 drill holes and associated downhole geophysical surveys for the purposes of coal exploration.

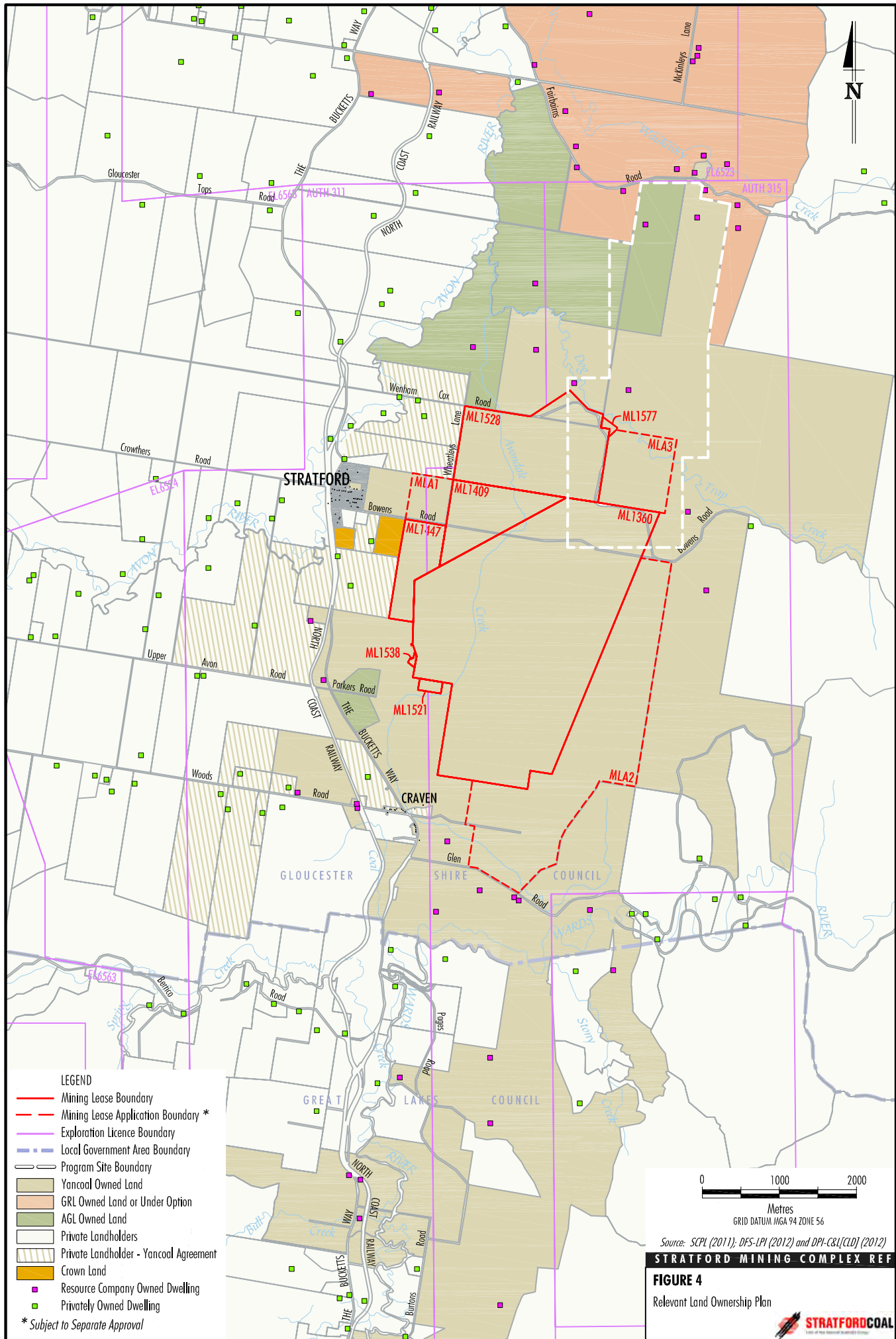
Some land clearance associated with the drill hole sites and associated infrastructure (e.g. access tracks) would be necessary. However, the majority of ground disturbance works (60 out of the 74 drill hole sites) would occur in non-native, cleared land (Figures 3 and 4). The size of each drill hole site has been conservatively estimated to be approximately 250 square metres, and the access tracks have been conservatively estimated to be a maximum of 4 metres wide.

The Program would result in the disturbance of approximately 2.0 hectares (ha) of cleared land and 1.5 ha of native vegetation comprised of the following vegetation and habitat types (FloraSearch, 2012; Australian Museum Business Services [AMBS], 2012; Figures 3 and 4):

#### ***Vegetation Types***

- Spotted Gum – Grey Ironbark dry open forest of the lower foothills of the Barrington Tops, North Coast (HU630).
- Cabbage Gum open forest or woodland on flats of the North Coast and New England Tablelands (HU526).
- Smooth-barked Apple – White Stringybark Shrubby Forest.
- Introduced Pasture with Scattered Naive Trees (non-native)
- Planted Trees (non-native).





**LEGEND**

- Mining Lease Boundary
- - - Mining Lease Application Boundary \*
- - - Exploration Licence Boundary
- - - Local Government Area Boundary
- Program Site Boundary
- Yancoal Owned Land
- GRL Owned Land or Under Option
- AGL Owned Land
- Private Landholders
- Private Landholder - Yancoal Agreement
- Crown Land
- Resource Company Owned Dwelling
- Privately Owned Dwelling

\* Subject to Separate Approval

0 1000 2000  
Metres

GRID DATUM MGA 94 ZONE 56

Source: SCPL (2011); DFS-LPI (2012) and DPI-C&L(CLD) (2012)

**STRATFORD MINING COMPLEX REF**

**FIGURE 4**

Relevant Land Ownership Plan



### ***Fauna Habitat Types***

- Dry Sclerophyll Forest.
- Dry Sclerophyll Forest – Young Regrowth.
- Grassy Woodland.
- Plantings (non-native).
- Cleared Land (non-native).

The clearance areas, drill holes and new tracks would be rehabilitated as soon as practicable upon completion of the exploration activity.

The final location of drill hole sites and access tracks would be selected based on a selection process including the following relevant measures:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of cleared areas wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable).
- Avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Guidelines for Riparian Corridors on Waterfront Land* (NSW Office of Water [NOW], 2012).
- Minimisation of impacts on agricultural production and assets (e.g. fences).
- Compliance with the *Interim Construction Noise Guideline* (Department of Environment and Climate Change [DECC], 2009) at residential dwellings (i.e. noise levels below the 'noise affected' management level), except with agreement of the affected landholder(s) (described further below).

### **1.3.2 Exotic Animals**

SCPL would seek to avoid attracting exotic animals in the Program site by appropriately storing or removing all waste products including packaging for equipment or waste generated by Program personnel from each site at the end of each shift. Mobile toilets may be located adjacent to the site area and removed at the end of drilling.

### **1.3.3 Weeds**

A portion of the Program site has been previously mapped by FloraSearch (2012) (Figure 3). The cleared land component mapped as part of the Stratford Extension Project was reported as having approximately 48.9% introduced flora species (FloraSearch, 2012). On some farm lands it was noted that the removal of intensive grazing by stock had allowed exotic pasture species to form dense rank grasslands, with Whisky Grass being common and widespread (FloraSearch, 2012). Only a portion of the Program site was previously surveyed, however it is considered that the characteristics of the cleared land component, and the presence of weed species, would be similar.

Weeds have the capacity to establish on areas of bare soil resulting from vegetation clearance. As such, before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds.

In addition, the rehabilitation stage aims to return the Program site to its condition prior to the Program. Revegetation techniques such as brush matting, seeding and, if necessary, direct planting of seedling stock would be implemented as required.

Rehabilitation monitoring would occur at each drill hole site for at least six months after complete decommissioning to assess if the rehabilitation strategies have established, and there are no ongoing erosion and weed risks from the exploration activities.

#### **1.3.4 Fire**

SCPL would implement bushfire hazard reduction measures to minimise additional bushfire risk from the Program. These would include:

- regular servicing of drilling equipment to reduce the risk of sparks;
- slashing of grass within the fenced area of drill hole sites;
- diesel fuel used on-site would be appropriately handled and stored;
- fire fighting equipment would be carried on all exploration vehicles; and
- no hot work would be undertaken on days of extreme or catastrophic fire danger.

#### **1.3.5 Vehicle Strike**

Vehicle movements to and from each site would be restricted to defined tracks, where possible.

#### **1.3.6 Noise and Dust**

Noise and dust generation as a result of the Program is not considered to significantly impact wildlife considering the relatively small scale of the Program, and the management measures implemented.

Dust generation during the exploration activities is expected to be relatively low. However, in the event of excessive dust levels on established roads or new access tracks, appropriate dust suppression measures (e.g. use of a water cart) would be deployed at the site.

## 2 ASSESSMENTS

FloraSearch (2012) and AMBS (2012) undertook database searches, including the Atlas of NSW Wildlife, Royal Botanic Gardens and Domain Trust, Australian Museum, Birds Australia and Preliminary and Final Determinations of the NSW Scientific Committee for the Stratford Extension Project. These searches were used to identify threatened flora and fauna listed under the TSC Act that could potentially occur within the Stratford Mining Complex and surrounds.

The threatened species and communities resulting from these searches that were considered to have the potential to be impacted by the Program were assessed under the *Threatened Species Assessment Guidelines – Assessment of Significance* (DECC, 2007; FloraSearch, 2012; AMBS, 2012). These species are listed in Table 2 and detailed in the following sections.

**Table 2**  
**Threatened Species Considered for Assessment**

Common Name	Scientific Name	TSC Act Status <sup>1</sup>
<b>Birds</b>		
Little Eagle	<i>Hieraaetus morphnoides</i>	V
Glossy Black-cockatoo	<i>Calyptorhynchus lathami</i>	V
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	V
Little Lorikeet	<i>Glossopsitta pusilla</i>	V
Swift Parrot	<i>Lathamus discolor</i>	E
Sooty Owl	<i>Tyto tenebricosa</i>	V
Masked Owl	<i>Tyto novaehollandiae</i>	V
Powerful Owl	<i>Ninox strenua</i>	V
Barking Owl	<i>Ninox connivens</i>	V
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V
Speckled Warbler	<i>Chthonicola sagittata</i>	V
Regent Honeyeater	<i>Anthochaera Phrygia</i>	CE
Hooded Robin (south-eastern form)	<i>Melanodryas cucullata cucullata</i>	V
Flame Robin	<i>Petroica phoenicea</i>	V
Scarlet Robin	<i>Petroica boodang</i>	V
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V
Varied Sittella	<i>Daphoenositta chrysoptera</i>	V
Diamond Firetail	<i>Stagonopleura guttata</i>	V
<b>Mammals</b>		
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V
Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	V
Common Planigale	<i>Planigale maculate</i>	V
Koala	<i>Phascolarctos cinereus</i>	V
Squirrel Glider	<i>Petaurus norfolcensis</i>	V
Long-nosed Potoroo	<i>Potorous tridactylus</i>	V
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V
Yellow-bellied Sheath-tail-bat	<i>Saccolaimus flaviventris</i>	V
Eastern Freetail-bat	<i>Mormopterus norfolkensis</i>	V
Little Bentwing-bat	<i>Miniopterus australis</i>	V
Eastern Bentwing-bat	<i>Miniopterus schreibersii oceanensis</i>	V
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	V
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V
Southern Myotis	<i>Myotis macropus</i>	V

**Table 2 (Continued)**  
**Threatened Species Considered for Assessment (Continued)**

Common Name	Scientific Name	TSC Act Status <sup>1</sup>
<b>Mammals (Continued)</b>		
Greater Broad-nosed Bat	<i>Scoteanax rueppellii</i>	V
Eastern Cave Bat	<i>Vespadelus troughtoni</i>	V

<sup>1</sup> Conservation status current as of 2 May 2014.

V = Vulnerable; E = Endangered; CE = Critically Endangered.

## 2.1 FLORA

No threatened flora species listed under the TSC Act are considered to have the potential to occur within the Program site and, as such, are not assessed in this document.

An assessment of significance was conducted on threatened flora species with the potential to occur within the Stratford Extension Project area based on habitat availability and threatened species records (FloraSearch, 2012). This included the following threatened species listed under the TSC Act (FloraSearch, 2012):

- *Asperula asthenes*.
- *Cynanchum elegans*.
- *Euphrasia arguta*.
- *Melaleuca groveana*.
- *Pomaderris queenslandica*.
- *Senna acclinis*.

The result of the assessment was that all threatened flora species were considered highly unlikely to be impacted (FloraSearch, 2012). In addition, no threatened flora species listed under the TSC Act were found within the Stratford Extension Project study area despite extensive surveys between 1994 and 2011 by multiple botanists (FloraSearch, 2012).

## 2.2 ECOLOGICAL COMMUNITIES

No threatened ecological communities listed under the TSC Act are considered to have the potential to occur within the Program site and, as such, are not assessed in this document.

One vegetation type, “Cabbage Gum open forest or woodland on flats of the North Coast and New England Tablelands (HU526)” present along Dog Trap Creek and in the southern area of the Program site (Figure 3) has similar floristic similarities to an Endangered Ecological Community (EEC); *River-flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions* EEC. However, this vegetation type is not considered to be equivalent to this EEC because key diagnostic features outlined in DECC (2004) were not met (FloraSearch, 2012):

- It is not situated south of Port Stephens or on a coastal floodplain.
- It does not lack a humic layer.
- It is not situated on river flat or flood terrace.
- It does not have an open forest or woodland structure.
- It does not have a relatively low number of Sheoaks, Paperbarks and Swamp Mahogany trees.

## 2.3 AMPHIBIANS

No threatened frog species listed under the TSC Act are considered to have the potential to occur within the Program site and, as such, are not assessed in this document. No threatened frog species have been recorded within the Program site and none were considered for assessment (AMBS, 2012). The closest known record is approximately 4.5 km south-east of the Program, within the Wards River in the Glen Nature Reserve.

Surveys undertaken as part of the Stratford Extension Project targeted the Giant Barred Frog (*Mixophyes iteratus*) and the Green and Golden Bell Frog (*Litoria aurea*), including along Dog Trap Creek (AMBS, 2012). The Stuttering Frog (*Mixophyes balbus*), Booroolong Frog (*Litoria booroolongensis*), Green-thighed Frog (*Litoria brevipalmata*) and Davies' Tree Frog (*Litoria daviesae*) were also considered to have potential to occur based on database search results (AMBS, 2012).

The Giant Barred Frog, Booroolong Frog and Davies' Tree Frog utilise streams and riparian vegetation. The Green and Golden Bell Frog utilises marshes, dams and stream sides and associated vegetation. The Stuttering Frog and Green-thighed Frog utilise rainforest and wet open forest (OEH, 2014a). Dog Trap Creek and riparian vegetation represents potential habitat for the former three species, however this habitat is disturbed and exploration drilling within the 'Vegetated Riparian Zone' defined by the *Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012) would be avoided and, as such, no riparian vegetation would be impacted by the Program. A dam is located within the Program site, however it would not be impacted. A small area of wet sclerophyll forest is located along Dog Trap Creek within the Program site, however this would not be disturbed. As such, limited, degraded habitat is available within the Program site for the abovementioned threatened frog species, and none would be impacted.

## 2.4 BIRDS

The following threatened bird species listed as either Vulnerable, Endangered (Swift Parrot only) or Critically Endangered (Regent Honeyeater only) under the TSC Act are considered in this assessment:

- Little Eagle (*Hieraaetus morphnoides*).
- Glossy Black-cockatoo (*Calyptorhynchus lathamii*).
- Gang-gang Cockatoo (*Callocephalon fimbriatum*).
- Little Lorikeet (*Glossopsitta pusilla*).
- Swift Parrot (*Lathamus discolor*).
- Sooty Owl (*Tyto tenebricosa*).
- Masked Owl (*Tyto novaehollandiae*).
- Powerful Owl (*Ninox strenua*).
- Barking Owl (*Ninox connivens*).
- Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*).
- Speckled Warbler (*Chthonicola sagittata*).
- Regent Honeyeater (*Anthochaera phrygia*).
- Hooded Robin (south-eastern form) (*Melanodryas cucullata cucullata*).
- Flame Robin (*Petroica phoenicea*).
- Scarlet Robin (*Petroica boodang*).
- Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*).



- Varied Sittella (*Daphoenositta chrysoptera*).
- Diamond Firetail (*Stagonopleura guttata*).

The Grey-crowned Babbler (eastern subspecies) and Varied Sittella have been recorded by surveys in the Program site (AMBS, 2012) (Figure 5). The Grey-crowned Babbler (eastern subspecies) was recorded twice along Dog Trap Creek (EcoBiological, 2011a; Birds Australia, 2011) and the Varied Sittella was recorded once in the south of the Program site (EcoBiological, 2011a) (Figure 5).

Survey and database records of the Little Eagle, Glossy Black-cockatoo, Gang-gang Cockatoo, Little Lorikeet, Swift Parrot, Sooty Owl, Masked Owl, Barking Owl, Speckled Warbler, Flame Robin and Scarlet Robin exist surrounding the Program site, within approximately 15 km (EcoBiological, 2009; AMBS, 2011; Birds Australia, 2011; EcoBiological, 2011a; Office of Environment and Heritage [OEH], 2011; AGC Woodward-Clyde, 1994). Four threatened bird species, Diamond Firetail, Hooded Robin (south-eastern form), Regent Honeyeater and Brown Treecreeper (eastern subspecies) are not known to occur within 20 km of the Program.

The Program site consists primarily of cleared land with smaller areas of dry sclerophyll forest and plantings (Figures 3 and 4). These forest areas provide potential habitat for these threatened bird species (AMBS, 2012).

**(a) *In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.***

Two threatened bird species have been recorded within the Program site, the Grey-crowned Babbler (eastern subspecies) and Varied Sittella (AMBS, 2011) (Figure 5).

The threatened bird species listed in the dot points above may all use forest habitats associated with the Program site (AMBS, 2012). Exploration boreholes and associated access tracks would disturb a total of approximately 1.5 ha of potential habitat for these species.

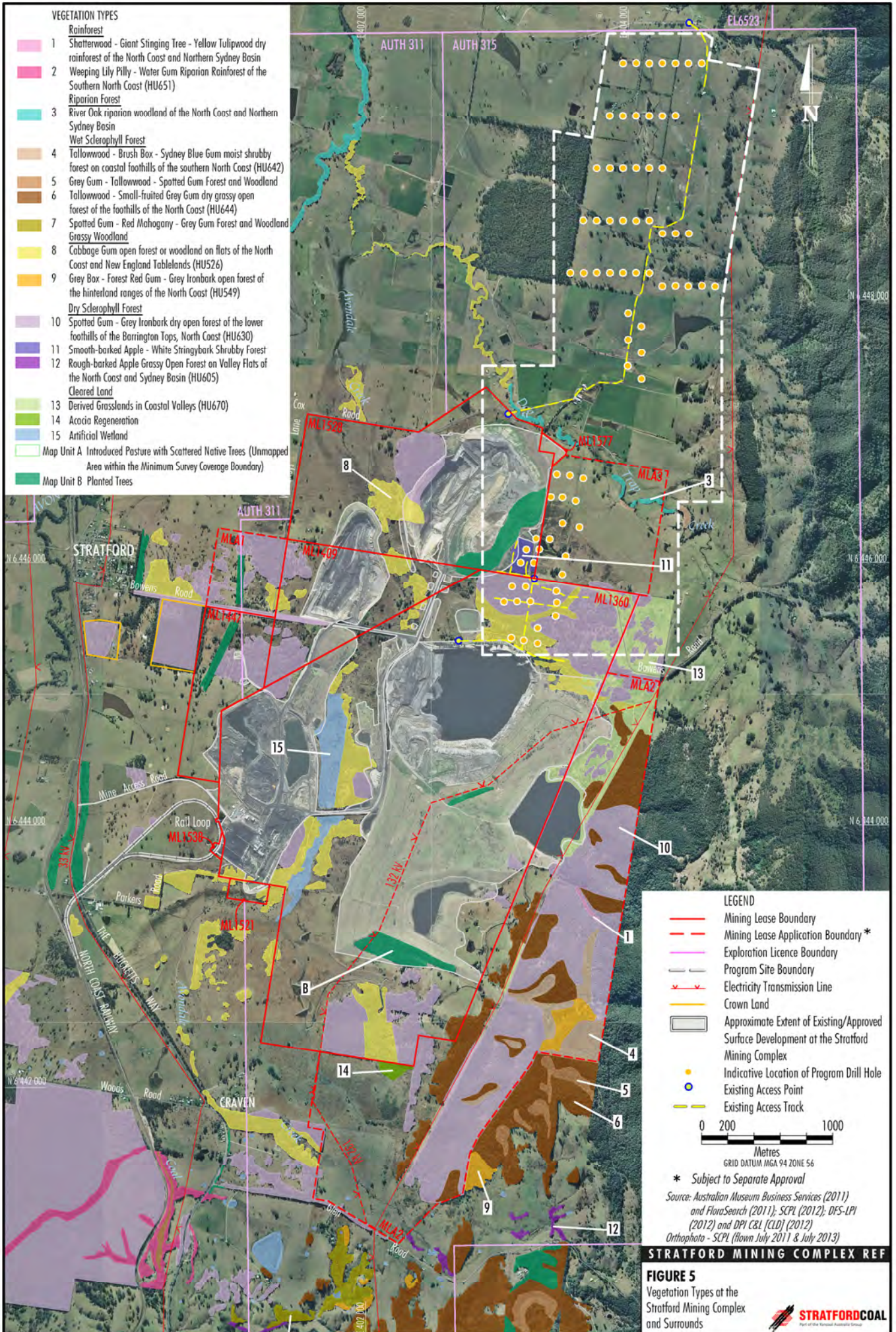
Powerful Owl, Barking Owl, Masked Owl, Sooty Owl, Diamond Firetail and Grey-crowned Babbler (eastern subspecies) are also predicted to utilise degraded riparian vegetation along Dog Trap Creek (AMBS, 2012). However, exploration drilling within the 'Vegetated Riparian Zone' defined by the Guidelines for Riparian Corridors on Waterfront Land would be avoided (NOW, 2012) and, as such, no riparian vegetation would be impacted by the Program.

Glossy Black-cockatoo was not assessed to use habitat mapped within the Program site by AMBS (2012), however the species utilises open forests and woodlands (OEH, 2014a) and is conservatively assumed to utilise forest habitat within the Program site.

The Program is unlikely to adversely impact these bird threatened species because:

- Trees with hollows, which provide potential shelter for owl species, Swift Parrot and the Little Lorikeet, would be avoided where practicable.
- The Program would impact small areas of potential habitat (approximately 1.5 ha of native vegetation) and similar habitat exists adjacent to the Program site.

The Program would not have an adverse effect on the lifecycle of these species such that a viable local population of these species (should one exist) is likely to be placed at risk of extinction for the reasons above.



- (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the lifecycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.**

There are no endangered population of the Little Eagle, Glossy Black-cockatoo, Gang-gang Cockatoo, Little Lorikeet, Swift Parrot, Sooty Owl, Masked Owl, Powerful Owl, Barking Owl, Brown Treecreeper (eastern subspecies), Speckled Warbler, Regent Honeyeater, Hooded Robin (south-eastern form), Flame Robin, Scarlet Robin, Grey-crowned Babbler (eastern subspecies), Varied Sittella or Diamond Firetail listed under the TSC Act.

- (c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:**
- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction; or**
  - (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.**

Not applicable.

- (d) In relation to the habitat of a threatened species, population or ecological community:**
- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed;**
  - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action; and**
  - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

The Program would result in minimal disturbance of potential habitat (1.5 ha of native vegetation) as it is mostly confined to areas of cleared land (approximately 2.0 ha). Further, similar vegetation exists adjacent to the Program site (Figures 3 and 4). Due to the mobile nature of these threatened bird species, it is considered unlikely that habitat fragmentation would be relevant.

It is considered that the Program would not remove, modify, fragment or isolate habitat important for the long-term survival for these threatened bird species due to minimal potential habitat disturbance.

- (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).**

No critical habitat for these threatened bird species has been listed on the Critical Habitat Register (OEH, 2014b).

- (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.**

There is no recovery plan listed for the Little Eagle, Glossy Black-cockatoo, Gang-gang Cockatoo, Little Lorikeet, Barking Owl, Brown Treecreeper (eastern subspecies), Speckled Warbler, Hooded Robin (south-eastern form), Flame Robin, Scarlet Robin, Grey-crowned Babbler (eastern subspecies), Varied Sittella or Diamond Firetail (OEH, 2014a).

The relevant activities to assist these threatened bird species, as listed on the respective threatened species profiles, include objectives associated with bushfire, fencing and the control of cattle, habitat protection, habitat fragmentation, retention of hollow-bearing trees and large, mature trees, retention of food resources, limit the use of pesticides and control of feral animals (OEH, 2014a).

The objectives listed in the national recovery plan for the Swift Parrot (Saunders and Tzaros, 2011), Powerful Owl, Sooty Owl and Masked Owl (DEC, 2006) and Regent Honeyeater (Menkhorst, *et al.*, 1999) are similar to the abovementioned objectives.

The Program would involve a number of refinements and management measures consistent with actions/objectives for the abovementioned species. These include the following:

- Compliance with the requirements of any relevant access arrangements with landholders.
- The selection of cleared areas wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees, where practicable.
- Avoidance of hollow-bearing trees, where practicable.
- All waste products including packaging for equipment or waste generated by Program personnel would be appropriately stored or removed from each site at the end of each shift to avoid the attraction of feral animals.
- Vehicle movements to and from each site would be restricted to defined tracks, where practicable.

**(g) *Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.***

Key threatening processes considered relevant to these threatened bird species are as follows (OEH, 2014a):

- Clearing of native vegetation.
- Loss of hollow-bearing trees.
- Removal of dead wood and dead trees.
- Predation by the European Red Fox (*Vulpes vulpes*).
- Predation by the Feral Cat (*Felis catus*).
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition.

Disturbance associated with the Program is relevant to the first three dot points listed above. However, disturbance is of a small scale and is primarily located in cleared land, including approximately 2.0 ha of cleared land, 1.5 ha of native vegetation. The selection of cleared areas would be undertaken wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable).

In addition only two threatened bird species (Grey-crowned Babbler [eastern subspecies]) and Varied Sittella) have been recorded within the Program site (Figure 5). Given the above, it is unlikely that the Program would increase the impact of a key threatening process such that it would result in a significant impact to these threatened bird species.

For the remaining key threatened processes mentioned above, predation and high-frequency fire, the Program is unlikely to result in the operation of, or increase the impact of, this key threatening process.

## 2.5 ARBOREAL MAMMALS

The following threatened arboreal mammal species, both listed as Vulnerable under the TSC Act, are considered in this assessment:

- Koala (*Phascolarctos cinereus*).
- Squirrel Glider (*Petaurus norfolcensis*).
- Brush-tailed Phascogale (*Phascogale tapoatafa*).

The Squirrel Glider has been recorded by surveys in woodland on the western boundary of the Program site (AMBS, 2011) (Figure 6). The Brush-tailed Phascogale has been recorded on one occasion by surveys in woodland in the south of the Program site (EcoBiological, 2011b) (Figure 6).

Survey and database records of the Koala exist within 10 km of the Program site (EcoBiological, 2011b; AMBS, 2011). An assessment of koala habitat under *State Environmental Planning Policy No. 44 – Koala Habitat Protection* was conducted for the Stratford Extension Project (AMBS, 2012). Based on Koala records and vegetation mapping, it was determined that “potential koala habitat” was present, however no “core koala habitat” was present (AMBS, 2012).

The Program site consists primarily of cleared land with smaller areas of dry sclerophyll forest and plantings (Figure 4). These forested areas provide potential habitat for these threatened arboreal mammal species (AMBS, 2012).

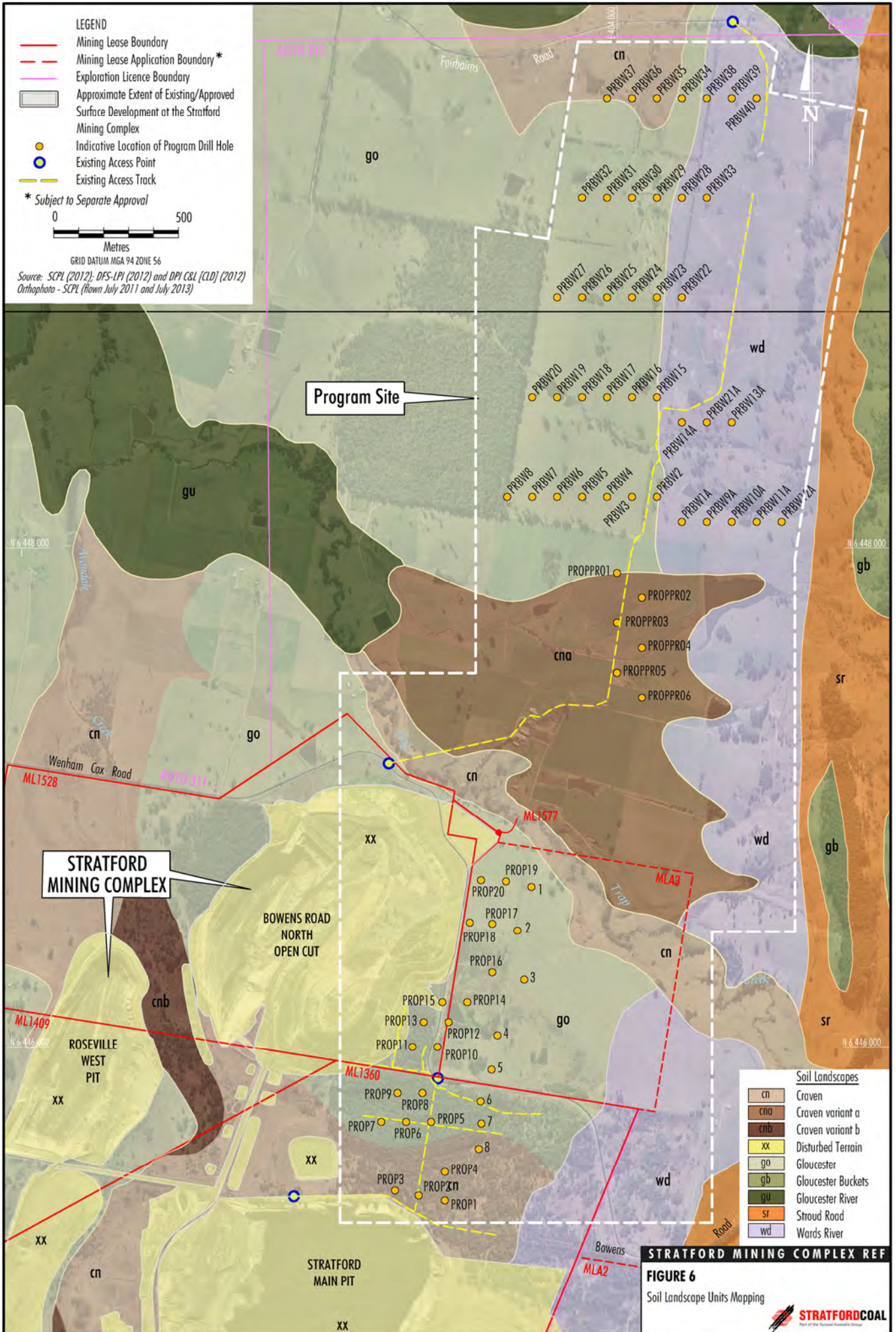
**(a) *In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.***

Only two threatened arboreal mammal species have been recorded within the Program site, the Squirrel Glider and Brush-tailed Phascogale (AMBS, 2011) (Figure 6).

The threatened arboreal mammal species listed in the dot points above may all use habitats associated with the Program site (AMBS, 2012). Exploration boreholes and associated access tracks would disturb a total of approximately 1.5 ha of potential habitat for these threatened arboreal mammal species.

The Program is unlikely to adversely impact these threatened arboreal mammal species because the Program would impact small areas of potential habitat (approximately 1.5 ha) and similar habitat exists adjacent to the Program site.

The Program would not have an adverse effect on the lifecycle of these threatened arboreal mammal species such that a viable local population of these species (should one exist) is likely to be placed at risk of extinction for the reasons above.



- (b) In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the lifecycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.**

There are no endangered populations of the Koala, Squirrel Glider and Brush-tailed Phascogale listed under the TSC Act.

- (c) In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:**
- (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction; or**
  - (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.**

Not applicable.

- (d) In relation to the habitat of a threatened species, population or ecological community:**
- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed;**
  - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action; and**
  - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

The Program would result in minimal disturbance of potential foraging or roosting habitat (1.5 ha within native vegetation) as it is mostly confined to areas of cleared land (approximately 2.0 ha). Further, similar vegetation exists adjacent to the Program site (Figures 3 and 4).

It is considered that the Program would not remove, modify, fragment or isolate habitat important for the long-term survival for the Koala, Squirrel Glider and Brush-tailed Phascogale due to minimal potential habitat disturbance.

- (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).**

No critical habitat for these threatened arboreal mammal species has been listed on the Critical Habitat Register (OEH, 2014b).

- (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.**

There is no recovery plan listed for the Brush-tailed Phascogale and Squirrel Glider (OEH, 2014a). The relevant activities to assist these threatened arboreal mammal species, as listed on the respective threatened species profiles, include objectives associated with bushfire, control of cattle, habitat protection, retention of food resources and control of feral animals (OEH, 2014a). The objectives listed in the national recovery plan listed for the Koala (DECC, 2008) are similar.

The Program would involve a number of refinements and management measures consistent with actions/objectives for the abovementioned species. These include the following:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of cleared areas wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable).
- Avoidance of hollow-bearing trees, where practicable.
- All waste products including packaging for equipment or waste generated by Program personnel would be appropriately stored or removed from each site at the end of each shift to avoid the attraction of feral animals.
- Vehicle movements to and from each site would be restricted to defined tracks, where possible.

**(g) *Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.***

Key threatening processes considered relevant to these threatened arboreal mammal species are as follows (OEH, 2014a):

- Clearing of native vegetation.
- Loss of hollow-bearing trees.
- Removal of dead wood and dead trees.
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition.

Disturbance associated with the Program is relevant to the first three dot points listed above. However, disturbance is of a small scale and is primarily located in cleared land, including approximately 2.0 ha of cleared land, 1.5 ha of native vegetation. The selection of cleared areas would be undertaken wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable).

In addition only two threatened arboreal mammal species (Squirrel Glider and Brush-tailed Phascogale) have been recorded within the Program site (Figure 6). Given the above, it is unlikely that the Program would increase the impact of a key threatening process such that it would result in a significant impact to these threatened arboreal mammal species.

For the remaining key threatened process mentioned above, high frequency fire, the Program is unlikely to result in the operation of, or increase the impact of, this key threatening process.

## **2.6 GROUND MAMMALS**

The following threatened ground mammal species, all listed as Vulnerable under the TSC Act, are considered in this assessment:

- Spotted-tailed Quoll (*Dasyurus maculatus*).
- Long-nosed Potoroo (*Potorous tridactylus*).
- Common Planigale (*Planigale maculata*).



Survey and database records of the Spotted-tailed Quoll and Long-nosed Potoroo exist within 5 km of the Program site (OEH, 2011; AMBS, 2011). No record of the Common Planigale exists within 10 km of the Program site (AMBS, 2011).

The Program site consists primarily of cleared land with smaller areas of dry sclerophyll forest, degraded riparian forest and plantings. These forested areas provide potential habitat for these threatened ground mammal species (AMBS, 2012).

There was no predicted habitat for the Long-nosed Potoroo mapped within the Program site by AMBS (2012), however it is noted that this species occurs within dry sclerophyll forests (OEH, 2014a), which is present in the Project site.

**(a) *In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.***

No threatened ground mammal species have been recorded within the Program site.

The threatened ground mammal species listed in the dot points above may all use habitats associated with the Program site (AMBS, 2012). Exploration boreholes and associated access tracks would disturb a total of approximately 1.5 ha of potential habitat (native vegetation) for these species.

The Program is unlikely to adversely impact these threatened ground mammal species because the Program would impact small areas of potential habitat (approximately 1.5 ha) and similar habitat exists adjacent to the Program site.

The Program would not have an adverse effect on the lifecycle of these threatened ground mammal species such that a viable local population of these species (should one exist) is likely to be placed at risk of extinction for the reasons above.

**(b) *In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the lifecycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.***

There are no endangered populations of the Spotted-tailed Quoll, Common Planigale or Long-nosed Potoroo listed under the TSC Act.

**(c) *In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:***

- (i) *is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction; or***
- (ii) *is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.***

Not applicable.

- (d) In relation to the habitat of a threatened species, population or ecological community:**
- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed;**
  - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action; and**
  - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

The Program would result in minimal disturbance of potential habitat (1.5 ha native vegetation) as it is mostly confined to areas of cleared land (approximately 2.0 ha). Further, similar vegetation exists adjacent to the Program site (Figures 3 and 4).

It is considered that the Program would not remove, modify, fragment or isolate habitat important for the long-term survival for the Spotted-tailed Quoll, Common Planigale or Long-nosed Potoroo due to minimal potential habitat disturbance.

- (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).**

No critical habitat for these threatened ground mammal species has been listed on the Critical Habitat Register (OEH, 2014b).

- (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.**

There is no recovery plan listed for the Spotted-tailed Quoll, Common Planigale or Long-nosed Potoroo (OEH, 2014a). The relevant activities to assist these species, as listed on the respective threatened species profiles, include objectives associated with bushfire, fencing and control of cattle, habitat protection and control of feral animals (OEH, 2014a).

The Program would involve a number of refinements and management measures consistent with actions/objectives for the abovementioned species. These include the following:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of cleared areas wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable).
- All waste products including packaging for equipment or waste generated by Program personnel would be appropriately stored or removed from each site at the end of each shift to avoid the attraction of feral animals.
- Vehicle movements to and from each site would be restricted to defined tracks, where possible.

**(g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.**

Key threatening processes considered relevant to these threatened ground mammal species are as follows (OEH, 2014a):

- Clearing of native vegetation.
- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition.
- Predation by the European Red Fox (*Vulpes vulpes*).
- Predation by the Feral Cat (*Felis catus*).

Disturbance associated with the Program is relevant to the first dot point listed above. However, disturbance is of a small scale and is primarily located in cleared land, including approximately 2.0 ha of cleared land, 1.5 ha of native vegetation.

In addition, no threatened ground mammal species have been recorded within the Program site (Figure 6). Given the above, it is unlikely that the Program would increase the impact of a key threatening process such that it would result in a significant impact to these threatened ground mammal species.

For the remaining key threatened processes mentioned above, predation and high-frequency fire, the Program is unlikely to result in the operation of, or increase the impact of, this key threatening process.

## **2.7 BATS**

The following threatened bat species, all listed as Vulnerable under the TSC Act, are considered in this assessment:

- Grey-headed Flying-fox (*Pteropus poliocephalus*).
- Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*).
- Eastern Freetail-bat (*Mormopterus norfolkensis*).
- Little Bentwing-bat (*Miniopterus australis*).
- Eastern Bentwing-bat (*Miniopterus schreibersii oceanensis*).
- Large-eared Pied Bat (*Chalinolobus dwyeri*).
- Eastern False Pipistrelle (*Falsistrellus tasmaniensis*).
- Southern Myotis (*Myotis macropus*).
- Greater Broad-nosed Bat (*Scoteanax rueppellii*).
- Eastern Cave Bat (*Vespadelus troughtoni*).

The Little Bentwing-bat has been recorded by fauna surveys within the Program site, and the Eastern Freetail-bat was recorded adjacent to the southern boundary of the Program site (EcoBiological, 2011a) (Figure 7).

Database records of the Grey-headed Flying-fox, Eastern Bentwing-bat, Large-eared Pied Bat, Southern Myotis, Greater Broad-nosed Bat, Eastern Cave Bat exist within 10 km of the Program site (AMBS, 2012). The Yellow-bellied Sheathtail-bat has been recorded in the region on a single occasion and the Eastern False Pipistrelle was possibly detected during a previous survey by an Anabat (AMBS, 2012).

There are no caves and no suitable man-made structures within the Program site which could provide roosting habitat for cave-dwelling bats (OEH, 2014a). However, some forested vegetation provides potential roosting and/or foraging habitat for a number of threatened bat species (AMBS, 2012). There is no known Grey-headed Flying-fox campsite or colony located within the Program site or surrounds (AMBS, 2012).

**(a) *In the case of a threatened species, whether the action proposed is likely to have an adverse effect on the lifecycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.***

Only one threatened bat species has been recorded within the Program site, the Little Bentwing-bat. The Eastern Freetail-bat was recorded adjacent to the southern boundary of the Program site (EcoBiological, 2011a) (Figure 7).

The threatened bat species listed in the dot points above may all use habitats associated with the Program site (AMBS, 2012). Exploration boreholes and associated access tracks would disturb a total of approximately 1.5 ha of potential habitat for these species. No riparian vegetation associated with Dog Trap Creek (potential foraging habitat for the Southern Myotis) would be impacted.

The Program is unlikely to adversely impact these threatened bat species because:

- Trees with hollows, which provide potential roosting habitat, would be avoided where practicable;
- The Program would impact small areas of potential habitat (approximately 1.5 ha) and similar habitat exists in the surrounds.

The Program would not have an adverse effect on the lifecycle of these threatened bat species such that a viable local population of these threatened bat species (should one exist) is likely to be placed at risk of extinction for the reasons above.

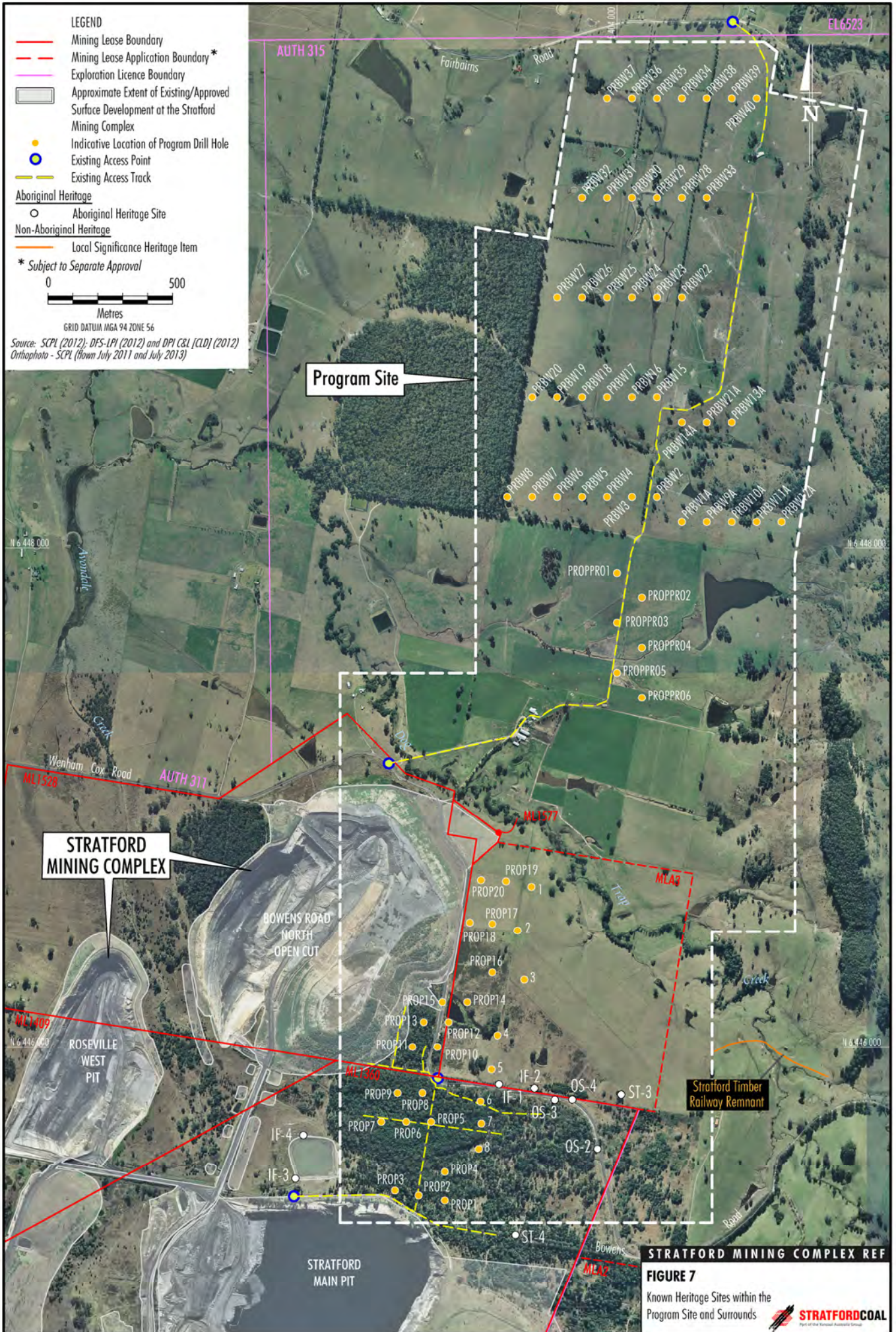
**(b) *In the case of an endangered population, whether the action proposed is likely to have an adverse effect on the lifecycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.***

There are no endangered population of the Grey-headed Flying-fox, Yellow-bellied Sheathtail-bat, Eastern Freetail-bat, Little Bentwing-bat, Eastern Bentwing-bat, Large-eared Pied Bat, Eastern False Pipistrelle, Southern Myotis, Greater Broad-nosed Bat and Eastern Cave Bat listed under the TSC Act.

**(c) *In the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:***

- is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction; or***
- is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.***

Not applicable.



**STRATFORD MINING COMPLEX REF**

**FIGURE 7**  
Known Heritage Sites within the Program Site and Surrounds

**STRATFORD COAL**  
Part of the Kinross Acacia Group

- (d) In relation to the habitat of a threatened species, population or ecological community:**
- (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed;**
  - (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action; and**
  - (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.**

The Program would result in minimal disturbance of potential foraging or roosting habitat (1.5 ha native vegetation) as it is mostly confined to areas of cleared land (approximately 2.0 ha). Further, similar vegetation exists adjacent to, and in the surrounds of, the Program site (Figures 3 and 4).

It is considered that the Program would not remove, modify, fragment or isolate habitat important for the long-term survival for the Grey-headed Flying-fox, Yellow-bellied Sheath-tail-bat, Eastern Freetail-bat, Little Bentwing-bat, Eastern Bentwing-bat, Large-eared Pied Bat, Eastern False Pipistrelle, Southern Myotis, Greater Broad-nosed Bat and Eastern Cave Bat due to minimal potential habitat disturbance.

- (e) Whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).**

No critical habitat for these threatened bat species has been listed on the Critical Habitat Register (OEH, 2014b).

- (f) Whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.**

There is no recovery plan listed for the Grey-headed Flying-fox, Yellow-bellied Sheath-tail-bat, Eastern Freetail-bat, Little Bentwing-bat, Eastern Bentwing-bat, Eastern False Pipistrelle, Southern Myotis, Greater Broad-nosed Bat and Eastern Cave Bat (OEH, 2014a).

The relevant activities to assist these threatened bat species, as listed on the respective threatened species profiles, include objectives associated with disturbance, maternity roosts and roosting habitat, feral animals and pesticides (OEH, 2014a). The objectives listed in the national recovery plan listed for the Large-eared Pied Bat (Department of Environment and Resource Management, 2011) are similar.

The Program would involve a number of refinements and management measures consistent with actions/objectives for the abovementioned threatened bat species. These include the following:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of cleared areas wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable).
- Avoidance of potential roost sites, such as hollow-bearing trees, where practicable.
- All waste products including packaging for equipment or waste generated by Program personnel would be appropriately stored or removed from each site at the end of each shift to avoid the attraction of feral animals.
- Vehicle movements to and from each site would be restricted to defined tracks, where possible.
- Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds.

**(g) Whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.**

Key threatening processes considered relevant to these threatened bat species are as follows (OEH, 2014a):

- Clearing of native vegetation.
- Loss of hollow-bearing trees.
- Removal of dead wood and dead trees.
- Predation by the European Red Fox (*Vulpes vulpes*).
- Predation by the Feral Cat (*Felis catus*).

The Program is unlikely to result in the operation of, or increase the impact of, a key threatening process relevant to these threatened bat species.

Disturbance associated with the Program is relevant to the first three dot points listed above. However, disturbance is of a small scale and is primarily located in cleared land, including approximately 2.0 ha of cleared land, 1.5 ha of native vegetation. Should they be present, any roost or nursery sites within the Program site would be undisturbed. The selection of cleared areas would be undertaken wherever possible to avoid clearing trees. Where clearance of trees cannot be avoided, clearance would be limited to avoid habitat features such as hollow-bearing trees (where practicable). In addition only two threatened bat species have been recorded within the Program site (Little Bentwing-bat and Eastern Freetail-bat) (Figure 7). Given the above, it is unlikely that the Program would increase the impact of a key threatening process such that it would result in a significant impact to these threatened bat species.

For the remaining key threatened processes mentioned above, predation and high-frequency fire, the Program is unlikely to result in the operation of, or increase the impact of, this key threatening process.

## **2.8 THREATENED POPULATIONS**

No threatened populations listed under the TSC Act are considered to have the potential to occur within the Program site and, as such, are not assessed in this document.

### **3 CONCLUSION**

The Program would predominantly involve the construction of drill hole sites and associated infrastructure (e.g. access tracks).

Some land clearance associated with this construction would be necessary. The Program would result in the temporary disturbance of approximately 1.5 ha of native vegetation and approximately 2.0 ha of cleared land. Drill hole sites would be rehabilitated as soon as practicable upon completion of the exploration activity.

The Program is not likely to have a significant adverse impact on any species, populations or ecological communities or their habitats listed under the TSC Act.



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APPENDIX C  
AGRICULTURAL IMPACT STATEMENT

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## 1 INTRODUCTION

The Stratford Mining Complex (consisting of the Stratford Coal Mine and Bowens Road North Open Cut) is an open cut coal operation located approximately 100 kilometres (km) north of Newcastle, New South Wales (NSW) in the Gloucester Basin (Figure 1). The Stratford Mining Complex operations are undertaken on Mining Lease (ML) 1360, ML 1447, ML 1521, ML 1528, ML 1538 and ML 1577 (Figure 2). Stratford Coal Pty Ltd (SCPL) is the owner and operator of the Stratford Mining Complex. SCPL is a wholly owned subsidiary of Yancoal Australia Limited (Yancoal).

Authorisation (AUTH) 315 is located adjacent the Stratford Mining Complex (Figures 1 and 2) and is held by Gloucester Coal Ltd<sup>1</sup> (GCL) and CIM Stratford Pty Ltd. SCPL manages exploration activities in AUTH 315 on behalf of GCL and CIM Stratford Pty Ltd.

SCPL prepared the *Stratford Extension Project Environmental Impact Statement* (SCPL, 2012a) to support a Development Application for the Stratford Extension Project (SSD-4966) under the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act). The general arrangement of the proposed Stratford Extension Project is shown on Figure 2. An Agricultural Assessment (SCPL, 2012b) was prepared for the Stratford Extension Project and is referred to where relevant in this Agricultural Impact Statement (AIS).

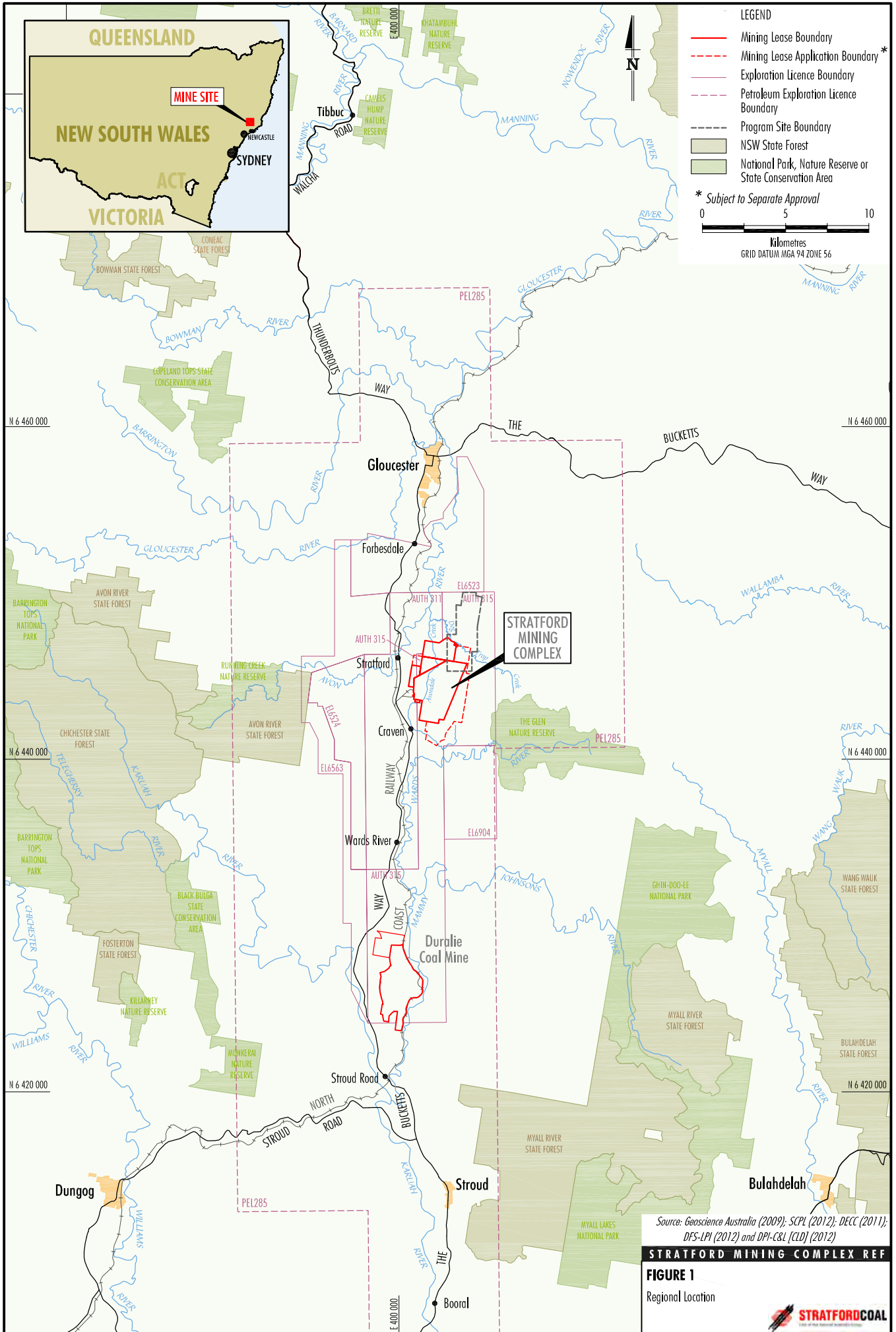
This AIS has been prepared to assess potential impacts to agricultural resources and enterprises as a result of the proposed exploration program (the Program) within ML 1360, ML 1528, ML 1577 and AUTH 315.

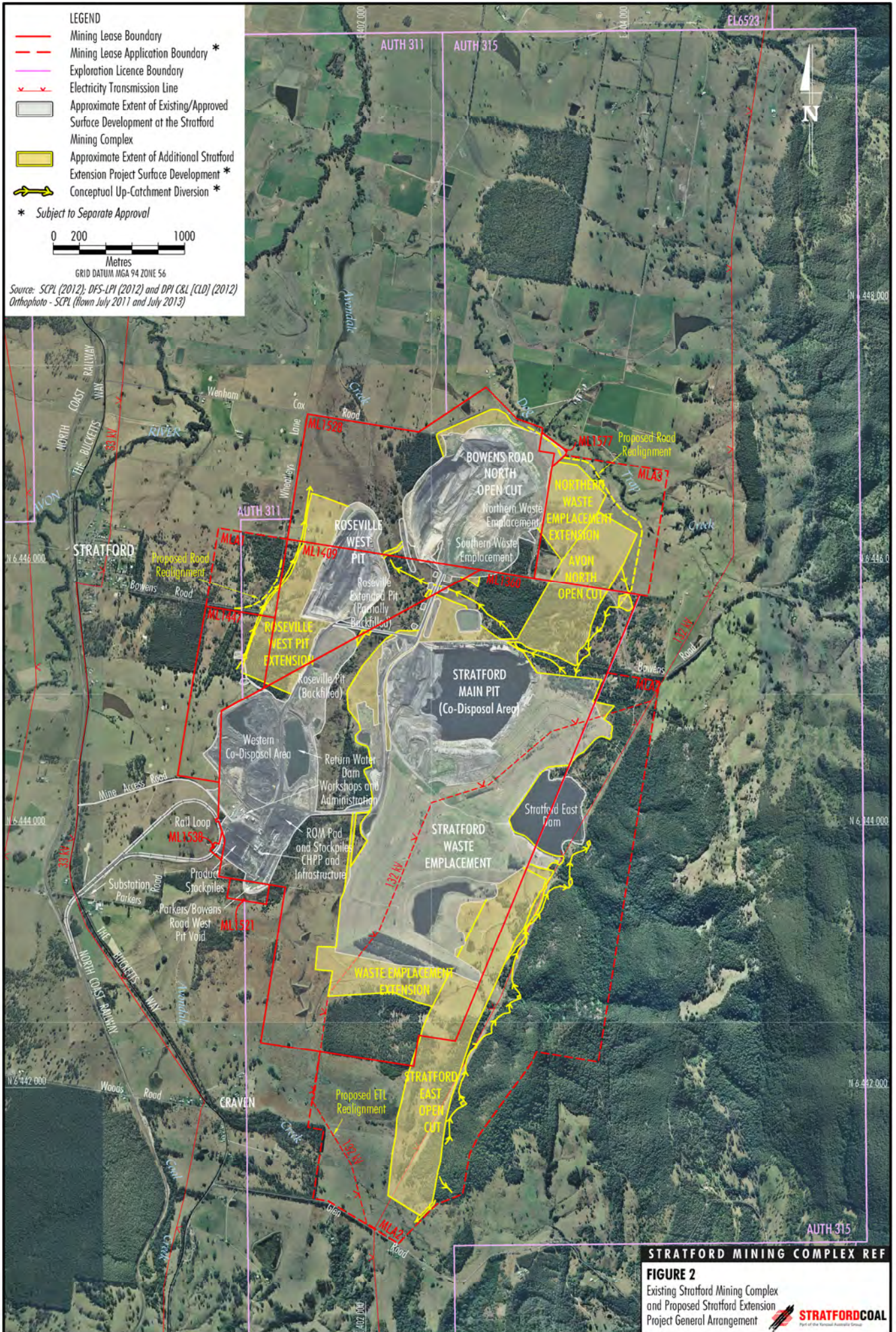
A Review of Environmental Factors (REF) document has been prepared by SCPL to allow the Division of Resources and Energy (DRE) within the NSW Department of Trade, Investment, Regional Infrastructure and Services to assess the Program.

This AIS has been developed in accordance with the *Guideline for Agricultural Impact Statements at the Exploration Stage* prepared by the NSW Government (2012a). This AIS presents a focussed cumulative assessment of potential impacts to agricultural resources and industries as a result of the Program.

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<sup>1</sup> Yancoal Australia Limited merged with Gloucester Coal Ltd (GCL) in 2012. SCPL is now a wholly owned subsidiary of Yancoal Australia Limited.







## 2 THE PROPOSED ACTIVITY

### 2.1 SUMMARY OF THE ACTIVITY

SCPL is seeking approval to undertake Category 1, 2 and 3 exploration activities (drilling and downhole geophysical surveys) within ML 1360, ML 1528, ML 1577 and AUTH 315. The Program would include drilling approximately 74 drill holes and associated downhole geophysical surveys for the purposes of coal exploration.

An overview of the Program is provided in Table 1 and indicative drill hole locations are shown on Figure 3.

**Table 1  
Summary of the Activity**

Title numbers	ML 1360, ML 1528, ML 1577 and AUTH 315.
Titleholders	Gloucester Coal Ltd and CIM Stratford Pty Ltd.
Operator	Stratford Coal Pty Ltd.
Activity type	Category 1, 2 and 3 exploration activities.
Activity scope	Drilling of approximately 74 exploration drill holes. Downhole geophysical surveys.
Activity location	Within ML 1360, ML 1528, ML 1577 and AUTH 315.
Activity duration	Approximately 2.5 years from commencement of Program activities.
Type of approval being sought	Approval is being sought for Category 1, 2 and 3 exploration activities.

All land proposed within the Program site is owned by SCPL with the exception of an area in the north-western extent of the Program site which is owned by AGL Upstream Investments Pty Limited (AGL) (Figure 4). SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge this REF. SCPL will provide AGL with a copy of this REF.

### 2.2 LOCATION

The Program site is located approximately 100 km north of Newcastle, NSW in the Gloucester Basin (Figures 1 and 3).

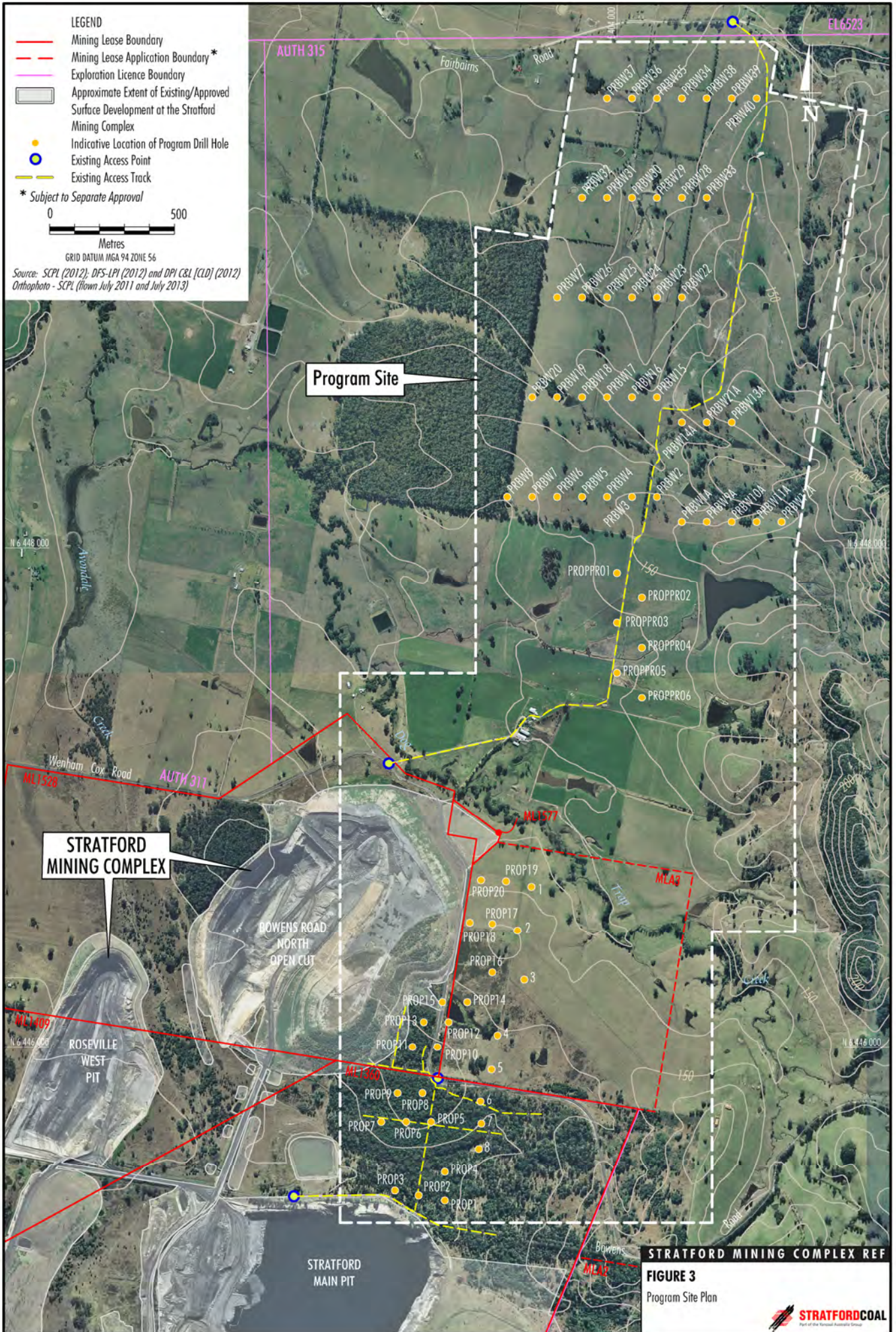
The Program site covers an area of approximately 690 hectares (ha) entirely within the Gloucester Local Government Area (LGA).

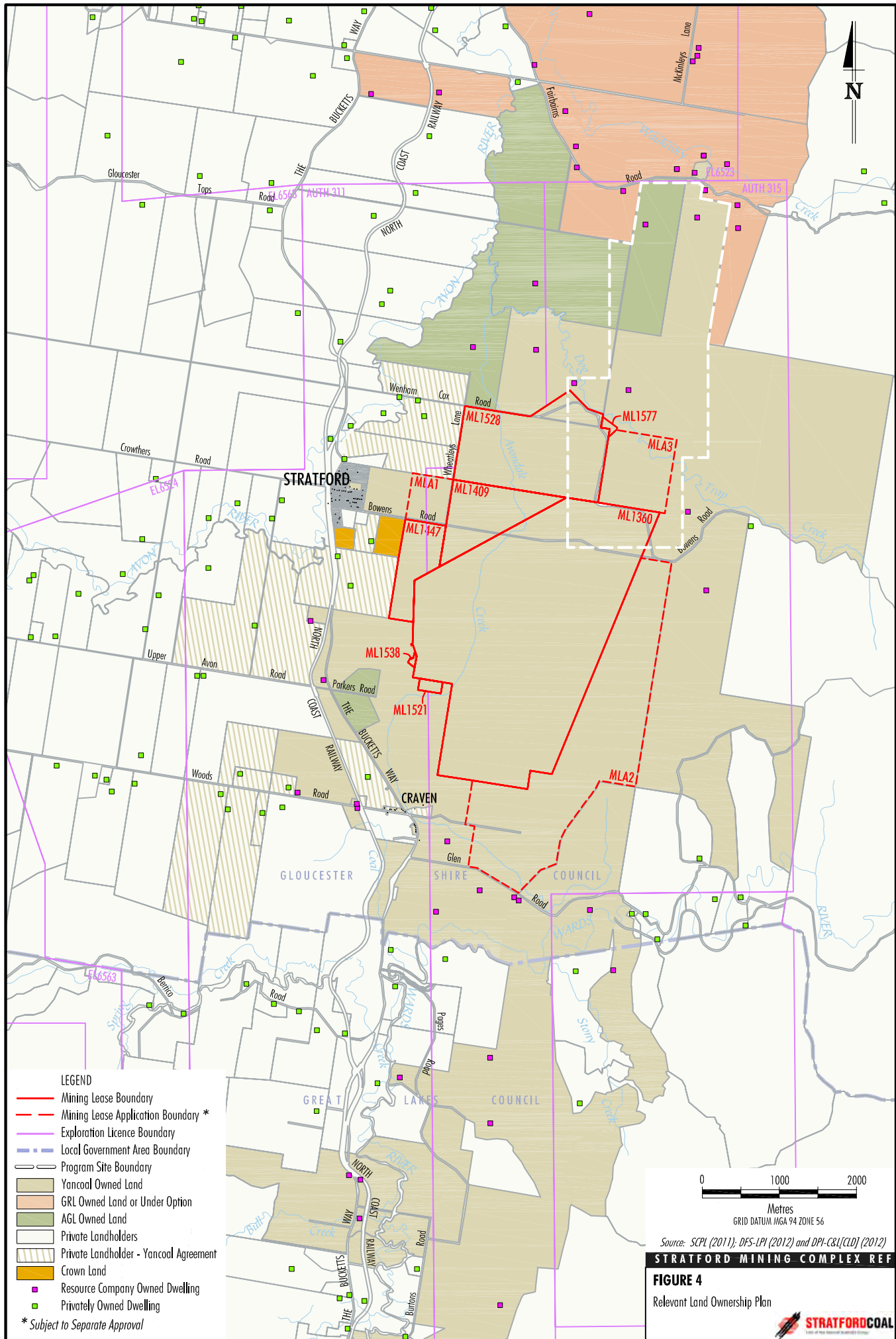
Gloucester is the major centre of the Gloucester Valley, located approximately 15 km north of the Program site. There is a well-developed road and rail transport network throughout the Gloucester Valley, with The Bucketts Way and North Coast Railway passing to the west of the Program site.

### 2.3 JUSTIFICATION OF THE ACTIVITY

The purpose of the Program is to allow coal exploration within ML 1360, ML 1528, ML 1577 and AUTH 315.

Under the conditions of AUTH 315, SCPL is obliged to complete the work program nominated in the application for AUTH 315 (which includes exploration drilling and downhole geophysical surveys).





- LEGEND**
- Mining Lease Boundary
  - - - Mining Lease Application Boundary \*
  - Exploration Licence Boundary
  - - - Local Government Area Boundary
  - Program Site Boundary
  - Yellow Box Yancoal Owned Land
  - Orange Box GRL Owned Land or Under Option
  - Green Box AGL Owned Land
  - White Box Private Landholders
  - Hatched Box Private Landholder - Yancoal Agreement
  - Orange Box Crown Land
  - Purple Square Resource Company Owned Dwelling
  - Green Square Privately Owned Dwelling
- \* Subject to Separate Approval

0 1000 2000  
Metres  
GRID DATUM MGA 94 ZONE 56

Source: SCPL (2011); DFS-LPI (2012) and DPI-C&L(CLD) (2012)  
**STRATFORD MINING COMPLEX REF**  
**FIGURE 4**  
Relevant Land Ownership Plan



The Program can be justified using the following principles of ecologically sustainable development.

### ***The Precautionary Principle***

Exploration drilling is common practice in the coal industry. Whilst exploration activities can result in impacts on the local environment, all environmental risks would be identified through a site selection process before activities commence. These risks would be analysed, avoided where required and controls put in place to mitigate any damage to the environment.

### ***Inter-generational Equity***

The intention of the Program is to conduct coal exploration and then rehabilitate the Program site to its condition prior to Program activities. This would allow for the environment to be maintained for the benefit of future generations.

### ***Conservation of Biological Diversity and Ecological Integrity***

The impacts on the biological and ecological elements of the area have been assessed before the Program commences (refer to REF). Final drill hole and access track locations would be selected to avoid serious or irreversible damage to the environment. The commissioning, operation and decommissioning of each drill hole site would be managed to protect the biological and ecological aspects of the area.

### ***Improved Valuation, Pricing and Incentive Mechanisms***

All containment, avoidance and abatement of pollution (including waste, noise, air emissions) associated with the Program would be paid for by SCPL.

## **2.4 DESCRIPTION OF THE ACTIVITY**

### **2.4.1 Site Access**

Access to the Program site would be from the Stratford Mining Complex, Wenham Cox Road, Bowens Road and Fairbairns Road (Figure 3).

The Program site predominately consists of cleared land and already contains access tracks (Figure 3). These existing access tracks would be used where possible. New access tracks would however be required where proposed drill holes cannot be accessed using existing access tracks.

The location of access tracks would be selected based on the access track selection process outlined in Section 5.2. If required, new access tracks would be approximately 3 to 4 metres (m) wide. Construction of access tracks would involve grading/side cutting of a suitable profile on slopes and limited importation of select gravels for stabilisation. New access tracks would be rehabilitated when no longer required.

The design, construction and maintenance of access tracks would be conducted in general accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (NSW Department of Environment and Climate Change [DECC], 2007).

In addition, if the development of new access tracks requires a new crossing of an ephemeral stream within the Program site, SCPL would construct a bed level crossing in accordance with the *Controlled Activities on Waterfront Land: Guidelines for Watercourse Crossings on Waterfront Land* (NSW Office of Water [NOW], 2012a).

Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds (Section 5.3).

#### **2.4.2 Drill Hole Locations**

The location of the drill holes would be selected based on the drill site selection process outlined in Section 5.2. Drill holes would be located in previously disturbed or grassland areas, wherever possible. However there would be occasions when clearance of trees cannot be avoided.

Where clearance of trees cannot be avoided, clearance would be limited (based on the advice of a suitably qualified person) to minimise any significant impacts on any threatened fauna species listed under the *NSW Threatened Species Conservation Act, 1995* (TSC Act) or the *Commonwealth Environment Protection and Biodiversity Conservation Act, 1999* (EPBC Act).

The proposed drill holes locations shown on Figure 3 are indicative only, with the final locations within the Program site to be determined through the drill site selection process (Section 5.2).

#### **2.4.3 Drill Hole Site Establishment**

Commissioning of each drill hole site would involve the development of a site area up to approximately 250 square metres (m<sup>2</sup>) (10 m × 25 m).

Site preparation would involve the slashing of grass, with generally minor ground preparation potentially required to provide a stable and level drilling platform. In steeper areas, excavators, graders or dozers may be used in site preparation.

Any soil excavated to prepare the drill hole site would be stockpiled adjacent to the disturbance area for use in the rehabilitation of the area once drilling has ceased. Any disturbed topsoil would be stockpiled separately from the subsoil with erosion protection measures in place.

Appropriate erosion and sediment control measures would be implemented at each drill hole site.

#### **2.4.4 Drilling**

Drilling would be conducted in accordance with AUTH 315.

The drill rigs used would be typical of those used for coal exploration drilling in the Gloucester Basin. The drill rigs would include equipment to raise and lower rods, drive gear for rotary drilling, wireline equipment for recovery of core tubes and down hole devices such as magnets for recovery of broken drill bits.

The drill holes would be drilled utilising circulation fluid and water. During drilling some excess water may be produced. This water would be stored in above ground tanks. No petroleum based circulation fluids or additives would be used. Some petroleum based lubricants may be used. On completion of drilling operations, all drill cuttings and water would be removed to the Stratford Mining Complex.

Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.

#### **2.4.5 On-site Employees**

The number of drill rigs operating within the Program site at any one time would vary but is expected to be no more than four. It is estimated that there would usually be approximately 12 contractors on-site at any one time.

#### **2.4.6 Hours of Operation**

Based on estimated set-up and set down times, drilling rates, downhole geophysical surveys, sealing drill holes and rehabilitation, the average time required for each of the drill sites would be approximately 4 days.

Rehabilitation monitoring of the drill sites would continue for six months following complete decommissioning in order to ensure the successful rehabilitation of each site.

Hours of operation for the Program would be 7.00 am to 6.00 pm (except for emergencies), Monday to Saturday (subject to the Program noise levels complying with the non-standard hours of operation management level in the *Interim Construction Noise Guideline* [DECC, 2009] at privately owned residences, except with agreement of the affected landholder[s]).

#### **2.4.7 Ancillary Activities**

No new roads (apart from minor access tracks), power lines or pipelines would be required for the Program. Where required, SCPL would implement bushfire hazard reduction measures throughout the duration of the Program.

#### **2.4.8 Decommissioning and Rehabilitation**

Decommissioning of each drill hole site would involve the complete removal of all equipment and fencing and the levelling of any pads. Levelling activities may require limited importation of select gravels in steeper areas.

The rehabilitation stage aims to return the Program site to its condition prior to the Program. Revegetation techniques such as brush matting, seeding and, if necessary, direct planting of seedling stock would be implemented as required. Erosion and sediment controls would remain in place at all sites until the risk of erosion has been reduced to negligible levels through on-site rehabilitation.

All drill holes would be sealed and capped in accordance with the *Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012a) and AUTH 315, except where they may need to be left temporarily open for other approved purposes (e.g. groundwater monitoring).

Rehabilitation monitoring would occur at each drill hole site for at least six months after complete decommissioning to ensure the rehabilitation program has been effective and there are no ongoing erosion and weed risks from the Program. Monitoring would initially involve monthly visual inspections (monitoring frequency may be reduced subject to progression of rehabilitation and/or reduced erosion risk). Additional rehabilitation measures would be implemented as required.

### **2.5 MITIGATION STRATEGY**

The Program would include a number of measures to prevent, manage and mitigate the impact upon the surrounding environment. This incorporates procedural mitigation measures along with a comprehensive site selection process to ensure the drill hole sites and access tracks are within areas of lower impact. Mitigation measures are described in Section 5.

### **3 AGRICULTURAL RESOURCES**

#### **3.1 CLIMATE**

Long-term local meteorological records for the Program area are available from the Stratford Mining Complex on-site meteorological station and from the Commonwealth Bureau of Meteorology (BoM). Meteorological data collected from these stations are summarised in Table 2 and discussed below.

The climate of the Program area is not considered to be a factor of significance for the Program.

##### ***Rainfall***

The long-term average annual rainfall recorded at the Gloucester Post Office (60015), located approximately 14 km north of the Stratford Mining Complex, is 983 millimetres (mm) based on records dating back to 1888 (Table 2).

Closer to the Program site, rainfall records at Craven (Longview [60042]) since 1961 and Gloucester (Hiawatha [60112]) since 1976 indicate the average annual rainfall since these stations were commissioned is 1,057 mm and 1,021 mm, respectively (Table 2).

The months with the highest monthly-average rainfalls at the Gloucester Post Office, Craven (Longview) and Gloucester (Hiawatha) meteorological stations are February and March (121.7 mm and 127.9 mm, 136.8 mm and 133.9 mm, and 131.7 and 124.1 mm, respectively) (Table 2).

For the period 1996 to 2011, the average annual rainfall recorded by the Stratford Mining Complex meteorological station is 924 mm, with maximum monthly rainfall typically occurring during the warmer months from November to March (Table 2).

##### ***Temperature***

The closest BoM meteorological stations to the Program site with recorded temperature data are located at Chichester Dam (61151) and at the Dungog Post Office (61017).

Long-term, monthly-average daily maximum and minimum temperatures from Chichester Dam and Dungog Post Office meteorological stations show that temperatures are warmest from November to February and coolest in the winter months of June, July and August (Table 2).

Monthly-average daily maximum temperatures and daily minimum temperatures for the Dungog Post Office and Chichester Dam meteorological stations are provided in Table 2.

##### ***Evaporation***

Evaporation records are available from the Chichester Dam (61151), Taree Airport AWS (60141) and Paterson (Tocal) (61250) meteorological stations, which have recorded average annual evaporation of approximately 1,059 mm, 1,607 mm and 1,571 mm, respectively (Table 2). The highest monthly-average evaporation is in December (151.9 mm, 201.5 mm and 210.8 mm, respectively) and the lowest monthly-average evaporation is in June (33 mm, 66 mm and 63 mm, respectively) (Table 2).

Based on the available datasets, measured monthly-average evaporation exceeds the measured monthly-average rainfall for most of the year (Table 2).

**Table 2**  
**Meteorological Summary - Average Temperature, Rainfall and Evaporation**

Period of Record	Average Daily Temperature (°C) [Minimum-Maximum]		Average Monthly Rainfall (mm)				Average Monthly Evaporation (mm) <sup>1</sup>		
	Chichester Dam (61151)	Dungog Post Office (61017)	Gloucester Post Office (60015)	Craven (Longview) (60042)	Gloucester (Hiawatha) (60112)	Stratford Mining Complex AWS <sup>2</sup>	Chichester Dam (61151)	Taree Airport AWS (60141)	Paterson [Total] AWS (61250)
	1938 to 1956	1966 to 1975	1888 to 2011	1961 to 2011	1976 to 2011	1996 to 2011	1942 to 2011	1999 to 2011	1967 to 2011
January	13.7-30.1	15.7-34.0	114.8	125.3	113.3	99.6	139.5	201.5	192.2
February	13.8-29.8	15.5-31.1	121.7	136.8	131.7	111.1	110.2	155.4	149.7
March	13.1-26.2	13.1-29.3	127.9	133.9	124.1	107.9	93.0	148.8	130.2
April	2.8-23.3	7.6-27.4	77.3	85.2	83.8	71.1	69.0	105.0	99.0
May	0.8-21.0	6.1-23.6	68.6	88.3	81.4	72.1	46.5	83.7	74.4
June	4.4-17.4	2.6-19.8	68.4	79.2	60.4	79.2	33.0	66.0	63.0
July	4.4-15.9	0.3-20.2	51.4	40.3	39.9	51.0	40.3	74.4	74.4
August	4.9-20.5	3.7-20.8	46.6	44.3	36.1	36.6	58.9	99.2	105.4
September	6.8-21.8	5.9-25.2	51.2	47.4	44.5	42.8	87.0	138.0	132.0
October	7.8-23.9	7.5-28.0	69.2	79.3	68.5	70.6	108.5	158.1	161.2
November	12.3-28.7	10.8-31.4	83.9	91.8	102.4	106.1	123.0	162.0	174.0
December	14.4-30.7	11.2-31.3	104.4	98.5	101.7	78.7	151.9	201.5	210.8
<b>Annual Average</b>	<b>11.0-21.9</b>	<b>10.3-24.8</b>	<b>983</b> <b>[985.4]</b>	<b>1,057</b> <b>[1,050.3]</b>	<b>1,021</b> <b>[987.8]</b>	<b>924</b> <b>[926.8]</b>	<b>1,059</b> <b>[1,060.8]</b>	<b>1,607</b> <b>[1,593.6]</b>	<b>1,571</b> <b>[1,566.3]</b>

Source: SCPL (2012a).

<sup>1</sup> As measured by Class A Evaporation Pan.

<sup>2</sup> Records missing for periods: 12 March 2001 to 31 December 2001; 10 February 2005 to 25 March 2005; 7 November 2005 to 30 November 2005; and 17 January 2008 to 13 February 2008.

AWS = Automatic Weather Station

[ ] Sum of average monthly records.



### 3.2 LAND USE AND AGRICULTURAL ENTERPRISES

The Program site is located in the Gloucester LGA which part of the wider Upper Hunter Region. The NSW Government's *Upper Hunter Strategic Regional Land Use Plan (2012b)* (Upper Hunter SRLUP) (NSW Government, 2012b) describes the wider regional context of agricultural production over an area that comprises an area of some 2.2 million ha and includes the LGAs of Singleton, Muswellbrook, Dungog, Upper Hunter and Gloucester (NSW Government, 2012b). The Upper Hunter SRLUP (NSW Government, 2012b) notes that in the Dungog and Gloucester LGAs extensive beef cattle grazing and crop production remain the mainstay of the local economies.

Land use in the vicinity of the Program site is dominated by agricultural production (primarily grazing for beef production), the Stratford Mining Complex and remnant vegetation generally located along ridgelines, along watercourses and in isolated patches within the cleared landscape.

Agricultural activities known to have been conducted in the vicinity of the Stratford Mining Complex include cattle grazing for beef and dairy products, and small areas were observed to have been used for cultivation for forage crops (SCPL, 2012b).

A number of reserved areas are located in the general vicinity of the Program site including the Glen Nature Reserve (located approximately 2 km to the south-east), Barrington Tops National Park located to the west and south-west, and the Avon River State Forest located to the west (Figure 1).

Settlements located in the vicinity of the Program site include Stratford and Craven (Figure 1).

### 3.3 TOPOGRAPHY

The Program site is situated in the Gloucester Valley which is a linear valley extending approximately 40 km in length and 13 km in width (SCPL, 1998). The Bucketts (546 m Australian Height Datum [AHD]) and Mograni Ranges (480 m AHD) flank the western and eastern sides of Gloucester respectively. Other elevated topographic features include Cut Hill (359 m AHD) (some 7 km north-west of the Program site) and Banks Rocks (460 m AHD) (located some 3 km north-east of the Program site).

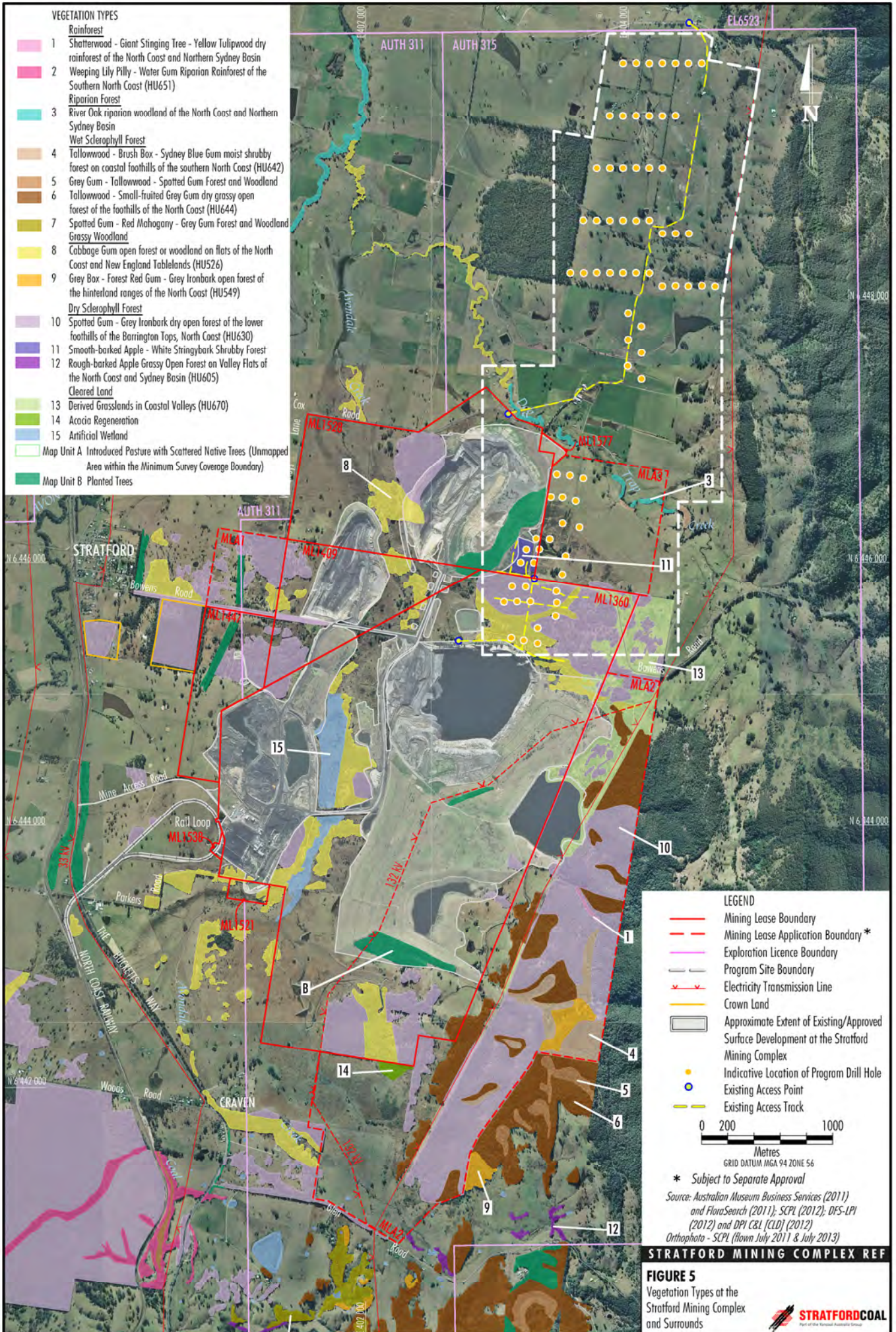
The topography of the area within and immediately surrounding the Program site is characterised by a north-south oriented linear ridgeline to the east, transitioning to undulating lowlands and valley floor floodplains towards the west.

The ridgeline to the east of the Program site rises to approximately 470 m AHD and is moderately to steeply sloping. The elevation of the valley floor within the Program site ranges from approximately 140 m AHD to approximately 115 m AHD.

### 3.4 SOIL CHARACTERISTICS

Soil landscapes in the vicinity of Program site are mapped in the *Soil Landscapes of the Dungog 1:100 000 Sheet (Gresford, Dungog, Stroud, Gloucester)* (Henderson, 2000). Table 3 summarises the key characteristics and the dominant soil materials of each soil landscape within Program site (Figure 5).

Acid sulphate soils are not known to occur within Program site.



**Table 3**  
**Soil Landscapes**

<b>Soil Landscape</b>	<b>Characteristics</b>
Gloucester	<ul style="list-style-type: none"> <li>• Undulating low hills on Permian sediments (sandstone, siltstone, shale, coal and conglomerate).</li> <li>• Brown Sodosols and Grey Kurosols on imperfectly to moderately well-drained sideslopes and crests; Shallow Tenosols on crests and steeper sideslopes.</li> <li>• Highly erodible sodic/dispersive soils, strongly acidic, seasonal waterlogging (lower slopes).</li> </ul>
Craven	<ul style="list-style-type: none"> <li>• Low wide drainage depressions on Quaternary alluvium.</li> <li>• Imperfectly drained Natric Yellow Kurosols.</li> <li>• Highly erodible sodic/dispersive soils, strongly acidic, seasonal waterlogging, dryland salinity.</li> </ul>
Craven Variant A	<ul style="list-style-type: none"> <li>• Low gradient alluvial fans.</li> <li>• Imperfectly drained Natric Yellow Kurosols.</li> <li>• Highly erodible sodic/dispersive soils, strongly acidic, seasonal waterlogging, dryland salinity.</li> </ul>
Wards River	<ul style="list-style-type: none"> <li>• Rolling low hills on sediments of the Gloucester Coal Measures (sandstone, conglomerate, siltstone, shale and coal).</li> <li>• Brown, Yellow and Grey Kurosols with some Tenosols.</li> <li>• Highly erodible, very strongly acidic, seasonal waterlogging (lower slopes), localised shallow and steep soils.</li> </ul>

Source: McKenzie Soil Management (2012).

### 3.5 RURAL LAND CAPABILITY

Rural Land Capability Mapping prepared by the NSW Department of Lands (2009) shows that land within the Program site is Class 4 (Figure 6). Class 4 land is mainly suitable for grazing.

McKenzie Soil Management (2012) assessed the rural land capability of the southern section of the Program site based on a soil survey and concluded that Classes 4 and 5 were present.

### 3.6 AGRICULTURAL SUITABILITY

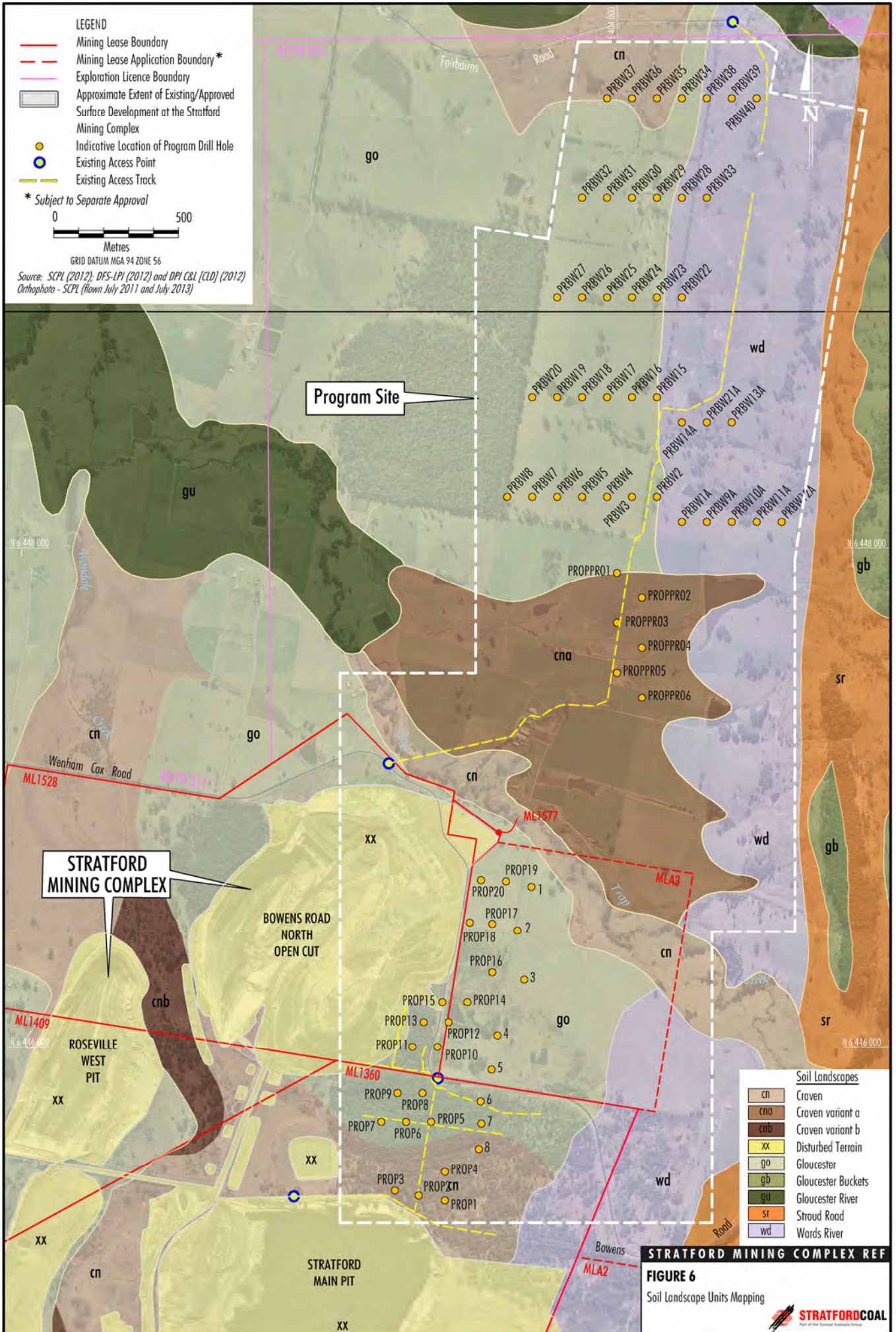
Agricultural Suitability Mapping prepared by the NSW Department of Lands (2009) shows that land within the Program site ranges from Class 3 (land well suited to pasture improvement) to Class 4 (land suitable for grazing but not cultivation). The better quality land being located on the flatter areas in the central and western sections of the Program site (Figure 7).

McKenzie Soil Management (2012) assessed the agricultural suitability of the southern section of the Program site based on a soil survey and concluded that Class 4 was present.

### 3.7 STRATEGIC AGRICULTURAL LAND

The Upper Hunter SRLUP defines and identifies strategic agricultural land in the Upper Hunter Region. Strategic agricultural land includes land with unique natural resource characteristics, known as biophysical strategic agricultural land, and clusters of significant agricultural industries known as critical industry clusters.

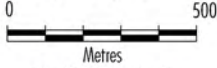
Figure 8 shows the regionally mapped strategic agricultural land in the vicinity of the Program site. The nearest mapped strategic agricultural land is located on the Avon River approximately 4 km to the west of the Program site (Figure 8). The Program would therefore avoid regionally mapped strategic agricultural land.



**LEGEND**

- Mining Lease Boundary
- - - Mining Lease Application Boundary\*
- Exploration Licence Boundary
- Approximate Extent of Existing/Approved Surface Development at the Stratford Mining Complex
- Indicative Location of Program Drill Hole
- Existing Access Point
- Existing Access Track

\* Subject to Separate Approval



Metres

GRID DATUM MGA 94 ZONE 56

Source: SCPL (2012); DFS-LPI (2012) and DPI C&L (CLD) (2012)

Orthophoto - SCPL (from July 2011 and July 2013)

**Soil Landscapes**

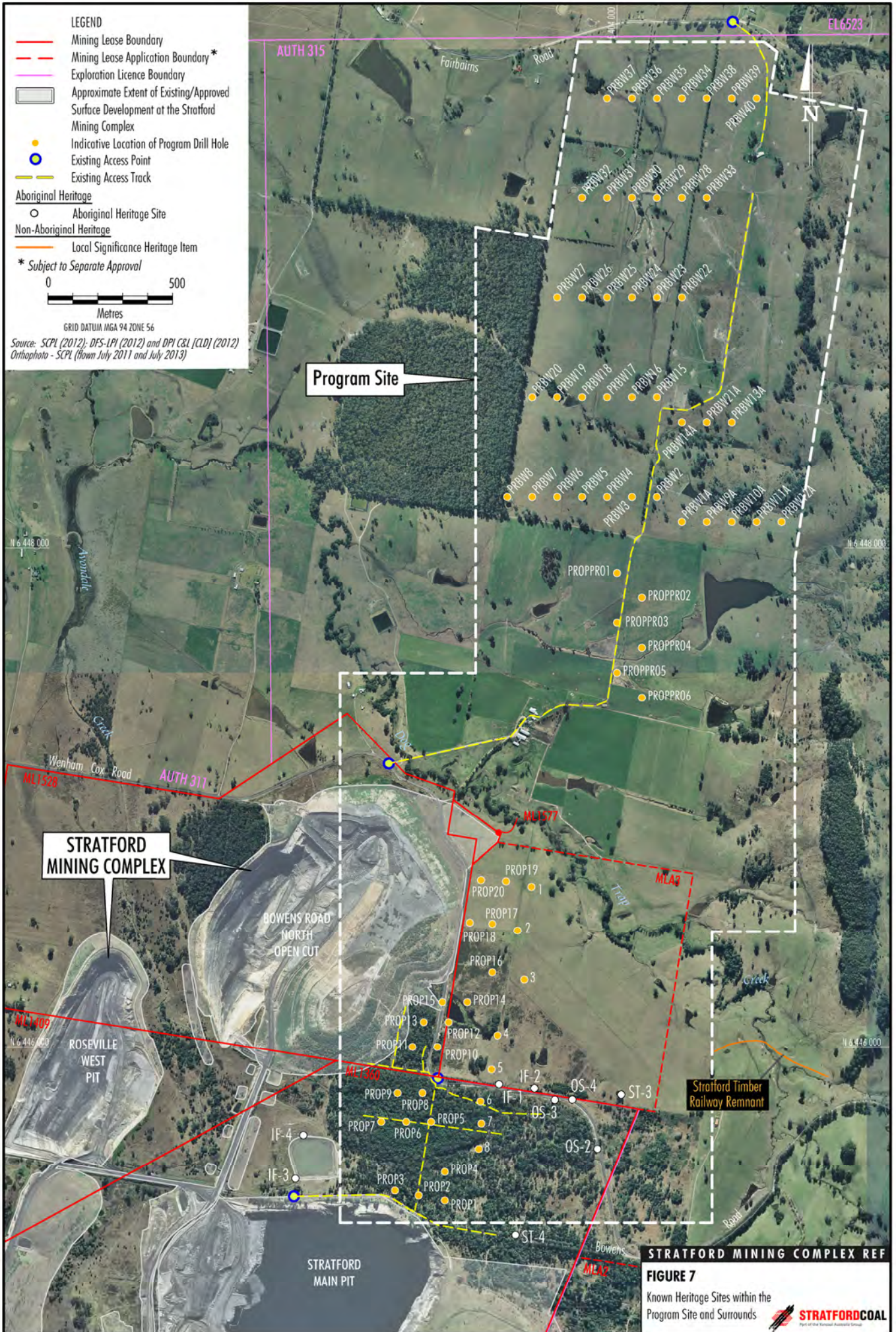
cn	Craven
cna	Craven variant a
cnb	Craven variant b
xx	Disturbed Terrain
go	Gloucester
gb	Gloucester Buckets
gu	Gloucester River
sr	Stroud Road
wd	Wards River

**STRATFORD MINING COMPLEX REF**

**FIGURE 6**

Soil Landscape Units Mapping

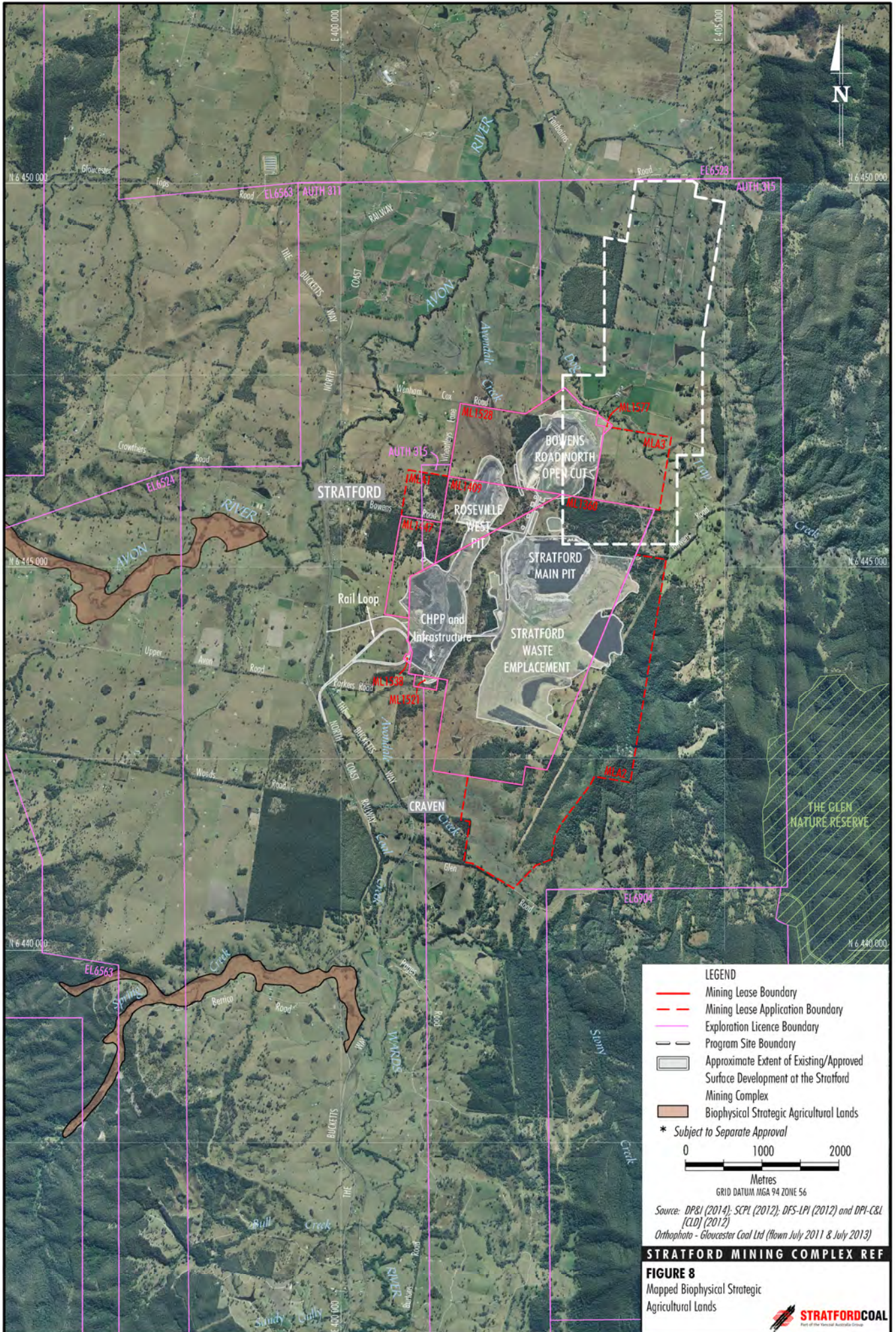




**STRAFORD MINING COMPLEX REF**

**FIGURE 7**  
Known Heritage Sites within the Program Site and Surrounds

**STRATFORD COAL**  
Part of the Kinross Acacia Group



### **3.8 WATER SOURCES**

#### ***Surface Water***

The Program site is located in the Avon River catchment which is an upper catchment of the Manning River system. The Manning River system drains some 8,000 square kilometres and extends from the Great Dividing Range to the sea near Taree (Gilbert and Associates, 2012). Flows in the Avon River are unregulated and therefore water users rely on the natural flow regime for their water supplies.

The Program site is located in the Avondale Creek, Dog Trap Creek and Waukivory Creek sub-catchments of the Avon River.

Water quality of the Avon River is generally characterised by low levels of salinity (i.e. electrical conductivity [EC]). The available data for Dog Trap Creek indicate that the local surface water resources are generally characterised by near neutral pH conditions and recorded EC of local surface water resources was generally low with the exception of the downstream sections of Avondale Creek due to the outcropping/sub-cropping of coal seams within the catchment and associated slow seepage of more saline groundwater into the creek (Gilbert & Associates, 2012).

#### ***Groundwater***

Two groundwater systems are supported in the vicinity of the Program site (Heritage Computing, 2012):

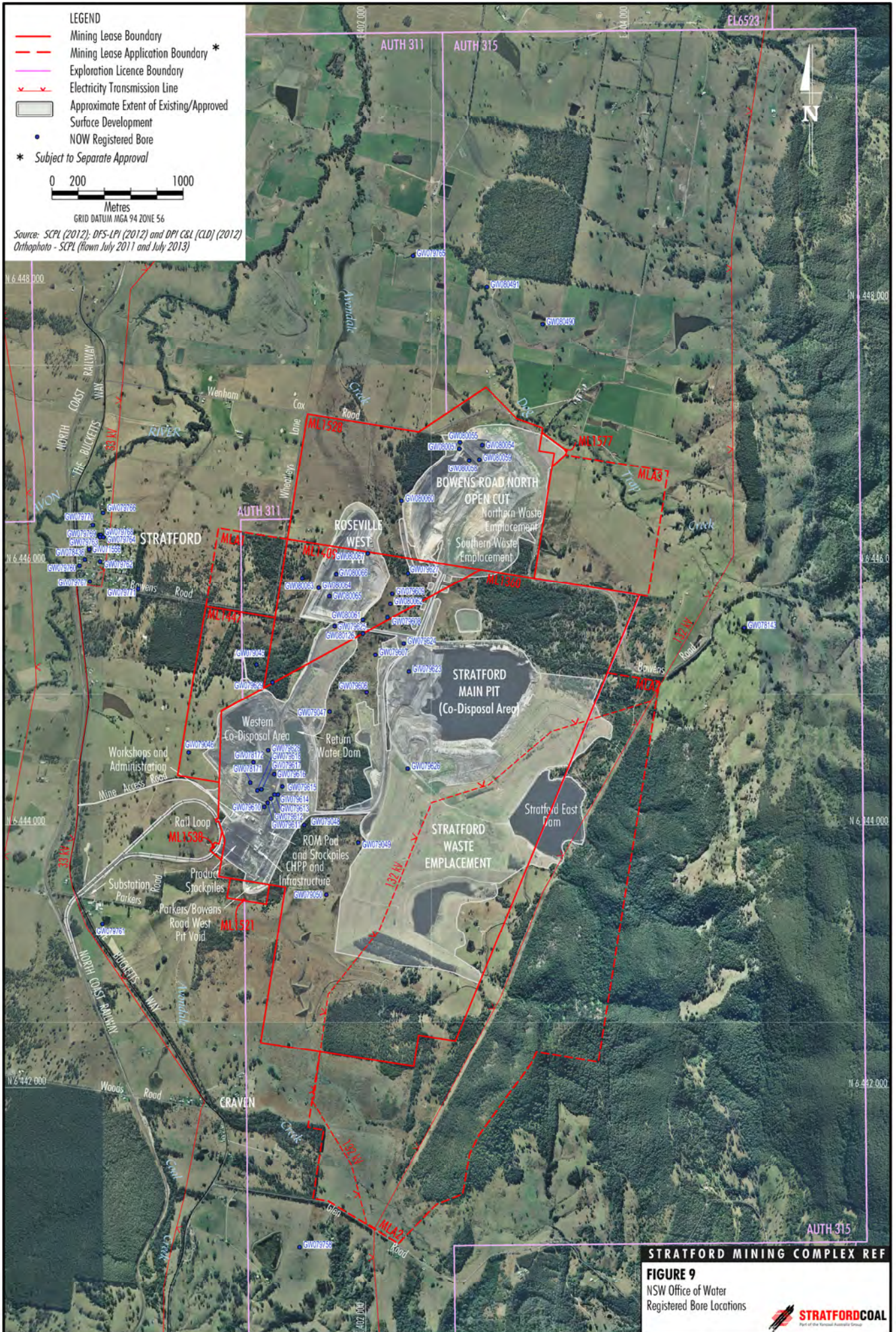
- Fractured Rock Groundwater System – including shallow rock aquifer and the Gloucester Coal Measures and underlying Dewrang Group; and
- Alluvial Groundwater System – including alluvial (narrow channel) sediments associated with Dog Trap Creek, Avondale Creek and the Avon River.

Recharge to the groundwater systems occurs from rainfall and runoff infiltration, lateral groundwater flow and some leakage from surface water storages and streams (e.g. Dog Trap Creek). Although groundwater levels are sustained by rainfall infiltration, they are controlled by topography, geology and surface water levels in local drainages (Heritage Computing, 2012).

The direction of groundwater flow in the vicinity of the Program site is from the south-east to the north-west, and the main groundwater discharge zones are Dog Trap Creek, Avondale Creek and the Avon River (Heritage Computing, 2012).

Groundwater in the coal seams is highly mineralised and hard, with a slightly acidic to neutral pH which is unsuitable for domestic consumption and in some cases unsuitable for stock/irrigation (Heritage Computing, 2012). Groundwater samples taken close to Avondale Creek show generally high salinities in the alluvium, and in sub-cropping coal seams. Intermittent seepage of more saline groundwater from sub-cropping coal seams into Avondale Creek has caused gradually increasing salinity of surface water in the downstream direction. Apart from two private bores, most groundwaters are beyond the limit of potable use but on the basis of salinity are suitable for livestock, irrigation and other general uses (Heritage Computing, 2012).

Locally there is little reliance on groundwater bores as a source of water, as agricultural enterprises predominantly rely on surface water sources. The number of privately held bores in the Program site and surrounds is low due to the high rainfall and subsequent high rates of runoff (Heritage Computing, 2012). A search of the NOW Pinneena Groundwater Works Database identified 62 registered bores and wells within approximately 5 km of the Stratford Mining Complex, the majority of these being bores on land owned by SCPL (Figure 9) (Heritage Computing, 2012).





### ***Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources, 2009***

Under the NSW *Water Management Act, 2000*, the Program site is located within the *Water Sharing Plan for the Lower North Coast Unregulated and Alluvial Water Sources, 2009* (the Water Sharing Plan).

Within the Water Sharing Plan, the Program site is located within the Avon River water source. At the commencement of the Water Sharing Plan there were 1,985 unit shares of unregulated river access licences and 20 unit shares of aquifer access licences in the Avon River Water Source.

The management controls that would be implemented to avoid, minimise or mitigate impacts to water sources are described in Section 5.4.

### **3.9 AGRICULTURAL INDUSTRIES AND SUPPORT INFRASTRUCTURE**

Local rural suppliers and/or equipment suppliers are located in Gloucester, Stroud, Dungog and Booral. The Program site area and surrounds are well serviced for support infrastructure being located adjacent to The Bucketts Way and some 10 km south of Gloucester.

Access to regional road transport routes are readily available from the Program site which is located approximately 1 hour drive from the Pacific Highway at Nahiack (i.e. north-east via Gloucester) or at Twelve Mile Creek (i.e. south via Stroud). Stratford is also located within a two hour drive from the major regional centre of Newcastle.

General agricultural improvements (e.g. stock fences and farm dams) are in place across most of the Program site and surrounds that reflect its historical development for dairying and beef production.

## **4 AGRICULTURAL IMPACT ASSESSMENT**

### **4.1 LAND TO BE TEMPORARILY REMOVED FROM AGRICULTURE**

The Program would be conducted on a progressive basis, with up to four rigs anticipated to be in operation at any one time. Following completion of drilling, grazing could recommence across the drill hole site (with the exception of areas where erosion risks are likely [e.g. immediate drill hole area]). As such, approximately 1,000 m<sup>2</sup> (i.e. 4 x 250 m<sup>2</sup>) of land would temporarily be removed from agricultural activities by the Program at any one time. Rehabilitation of the drill hole site would commence immediately following completion of the drilling activities. It is anticipated that areas where erosion risks are likely (e.g. immediate drill hole area) would be rehabilitated within 3 months.

Previous exploration programs in the vicinity of the Stratford Mining Complex have been conducted with minimal impact on agricultural enterprises and productivity. Drilling has been conducted within paddocks whilst cattle have continued to graze around the drilling site.

Given the method that would be employed to construct the drill pads (Section 2.4.3), disturbance would be limited to slashing (i.e. no removal of plants or soil disturbance) over the majority of the drill hole sites, with direct soil and vegetation disturbance being restricted to the vicinity of the drilling operations where practicable.

As described in Sections 2.4.1, existing access tracks would be used where possible to access drill hole sites. It is anticipated that new access tracks would mainly be required in vegetated areas in the southern section of the Program site where higher quality agricultural areas are less likely to be present. Access tracks that are no longer required would be rehabilitated once Program activities have been completed. As such, potential impacts to agriculture as a result of the construction of access tracks are not anticipated to be significant.

It is anticipated that existing agricultural enterprises would continue to operate with minimal interruption while the Program is conducted.

### **4.2 LAND USE AND PRODUCTIVITY POTENTIAL DURING AND POST-EXPLORATION ACTIVITIES**

Program activities would be scheduled to minimise potential impacts during high intensity agricultural periods.

As described in Section 4.1, cattle grazing could continue to be conducted while Program activities are conducted, as has previously been the case for exploration activities in the vicinity of the Stratford Mining Complex. Stock would be excluded from drill hole sites. The small area associated with exploration drilling that would be temporarily removed from the total grazing area (approximately 1,000 m<sup>2</sup> across Program site at any one time) is not anticipated to have any significant effect on land use or agricultural productivity potential.

Following the completion of drilling activities the drill hole site would be rehabilitated to a condition consistent with the pre-disturbance land use (Section 5.6). Apart from the direct soil disturbance associated with the drill hole, the remainder of the drill hole site would be able to be grazed by cattle immediately following the completion of drilling. It is anticipated that the soil directly disturbed by drilling activities would be rehabilitated within three months.

### 4.3 IMPACT ASSESSMENT

Potential risks associated with the Program could include:

- decreased productivity of agricultural land;
- changes to potential agricultural land uses;
- groundwater drawdown;
- contamination of water and land resources;
- land compaction;
- spread of weeds; and
- limited success of rehabilitation.

An assessment of the above potential risks to agriculture has been conducted in accordance with the Agricultural Impact Risk Ranking described in the *Guideline for Agricultural Impact Statements at the Exploration Stage* (NSW Government, 2012a). Tables 4 and 5 list the probability and consequence descriptors that were used in the Agricultural Impact Risk Ranking, as described by NSW Government (2012a).

The level of risk was assessed according to the risk matrix presented in Table 6 (NSW Government, 2012a). The outcomes of the risk assessment are presented in Table 7.

SCPL considers that the individual potential risks identified above are low when considered in accordance with the Agricultural Impact Risk Ranking. In accordance with Section B of the *Guideline for Agricultural Impact Statements at the Exploration Stage* (NSW Government, 2012a), an assessment of agricultural resources and impacts has been conducted, and is presented in Sections 3 and 4 of this AIS.

**Table 4  
Agricultural Impact Risk Ranking – Probability Descriptors**

<b>Level</b>	<b>Descriptor</b>	<b>Description</b>
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur or it has happened
C	Possible	Could occur or I've heard of it happening
D	Unlikely	Could occur in some circumstances but not likely to occur
E	Rare	Practically impossible or I've never heard of it happening

Source: NSW Government (2012a).

**Table 5  
Agricultural Impact Risk Ranking – Consequence Descriptors**

<b>Level 1</b>	<b>Severe Consequences</b>	<b>Example of Implications</b>
Description	<ul style="list-style-type: none"> <li>Severe and/or permanent damage to agricultural resources, or industries</li> <li>Irreversible</li> <li>Severe impact on the community</li> </ul>	<ul style="list-style-type: none"> <li>Long-term (e.g. 20 years) damage to soil or water resources</li> <li>Long-term impacts (e.g. 20 years) on a cluster of agricultural industries or important agricultural lands</li> </ul>
<b>Level 2</b>	<b>Major Consequences</b>	<b>Example of Implications</b>
Description	<ul style="list-style-type: none"> <li>Significant and/or long-term impact to agricultural resources, or industries</li> <li>Long-term management implications</li> <li>Serious detrimental impact on the community</li> </ul>	<ul style="list-style-type: none"> <li>Water or soil impacted, possibly in the long-term (e.g. 20 years)</li> <li>Long-term (e.g. 20 years) displacement/serious impacts on agricultural industries</li> </ul>
<b>Level 3</b>	<b>Moderate Consequences</b>	<b>Example of Implications</b>
Description	<ul style="list-style-type: none"> <li>Moderate and/or medium-term impact to agricultural resources, or industries</li> <li>Some ongoing management implications</li> <li>Minor damage or impacts but over the long-term</li> </ul>	<ul style="list-style-type: none"> <li>Water or soil known to be affected, probably in the short to medium-term (e.g. 1-5 years)</li> <li>Management could include significant change of management needed for agricultural enterprises to continue</li> </ul>
<b>Level 4</b>	<b>Minor Consequences</b>	<b>Example of Implications</b>
Description	<ul style="list-style-type: none"> <li>Minor damage and/or short-term impact to agricultural resources, or industries</li> <li>Can be effectively managed as part of normal operations</li> </ul>	<ul style="list-style-type: none"> <li>Theoretically could affect the agricultural resource or industry in the short-term, but no impacts demonstrated</li> <li>Minor erosion, compaction or water quality impacts that can be mitigated</li> <li>For example, dust and noise impacts in a 12 month period on extensive grazing enterprises</li> </ul>
<b>Level 5</b>	<b>Negligible Consequences</b>	<b>Example of Implications</b>
Description	<ul style="list-style-type: none"> <li>Very minor damage or impact to agricultural resources, or industries</li> <li>Can be effectively managed as part of normal operation</li> </ul>	<ul style="list-style-type: none"> <li>No measurable or identifiable impact on the agricultural resource or industry</li> </ul>

Source: NSW Government (2012a).

**Table 6  
Agricultural Impact Risk Ranking – Matrix**

	A Almost Certain	B Likely	C Possible	D Unlikely	E Rare
1. Severe and/or permanent damage. Irreversible impacts.	A1	B1	C1	D1	E1
2. Significant and/or long-term damage. Long-term management implications. Impacts difficult or impractical to reverse.	A2	B2	C2	D2	E2
3. Moderate damage and/or medium-term impact to agricultural resources or industries. Some ongoing management implications which may be expensive to implement. Minor damage or impacts over the long-term.	A3	B3	C3	D3	E3
4. Minor damage and/or short-term impact to agricultural resources or industries. Can be managed as part of routine operations.	A4	B4	C4	D4	E4
5. Very minor damage and minor impact to agricultural resources or industries. Can be managed as part of normal operations.	A5	B5	C5	D5	E5

Source: NSW Government (2012a).

	High risk
	Medium risk
	Low risk

**Table 7**  
**Agricultural Impact Risk Assessment – Program**

Risk	Control Measures	Risk Assessment		
		C	P	R
Decreased productivity of agricultural land	Plan and conduct the Program to minimise duration of impact to agricultural activities. Provisions to allow for continued agricultural practices while Program activities are underway. Rehabilitation of disturbed areas to a condition consistent with pre-disturbance land uses.	5	C	Low
Changes to potential agricultural land uses	Rehabilitation of disturbed areas to a condition consistent with pre-disturbance land uses.	4	C	Low
Groundwater drawdown	Any groundwater used for the Program would be appropriately licensed. Drill holes would be sealed and capped in accordance with the <i>EDG01 Borehole Sealing Requirements on Land: Coal Exploration</i> (DRE, 2012a) and AUTH 315.	5	E	Low
Contamination of water and land resources	Low risk of contamination from low-toxic and biodegradable drilling fluids. Chemicals used on-site would be stored in a bunded area to contain any spills. Provision of spill containment equipment at drill hole sites. Development of spill response measures to limit extent of contamination. On completion of drilling operations, all drill cuttings and water would be removed to the Stratford Mining Complex	4	D	Low
Spread of weeds	Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds. Use of formed access tracks where practicable.	4	C	Low
Land compaction	Use of appropriately sized exploration equipment. Ripping of compacted drill hole sites following completion of exploration activities if required.	4	D	Low
Limited success of rehabilitation	Rehabilitation planning and monitoring of rehabilitation success. Implementation of additional rehabilitation measures (e.g. brush matting, tubestock planting) if disturbed areas are not meeting rehabilitation goals.	4	D	Low
<b>Other Considerations (as described in the <i>Guideline for Agricultural Impact Statements at the Exploration Stage</i> [NSW Government, 2012a])</b>				
<b>The Program activities are located on or near BSAL or CIC</b>		<b>5</b>	<b>E</b>	<b>Low</b>

C = Consequence (refer Table 5), P = Probability (refer Table 4), R = Risk (refer Table 6).

#### 4.4 AGRICULTURAL RESOURCES AND ENTERPRISES

As described above, it is anticipated that the Program would have a low risk of impact to agricultural resources.

The area of agricultural land that would be temporarily removed by the Program would be approximately 1,000 m<sup>2</sup> at any one time, and is not anticipated to have any significant impact to the existing agricultural enterprises within the Program site.

#### **4.4.1 Productivity Effects**

The impact of the Program on agricultural productivity would be negligible due to the small disturbance area compared to the size of the paddocks, the temporary nature of the Program activities and the rehabilitation of the disturbance areas to the pre-disturbance land use.

Any soil excavated would be stockpiled adjacent to the disturbance area for use in the rehabilitation. Any disturbed topsoil would be stockpiled separately from the subsoil with erosion protection measures in place. Soil would be replaced consistent with the pre-disturbance soil profile. The exploration and rehabilitation activities are not anticipated to change the existing rural land capability or agricultural suitability within the Program site.

#### **4.4.2 Cumulative Impacts**

Activities that would contribute to cumulative impacts in the region include neighbouring coal mining, coal seam gas extraction and exploration activities and agriculture.

The contribution of the Program to cumulative impacts within the region would be negligible due to the:

- staged nature of the Program;
- short-term duration of disturbance at each drill hole site;
- rehabilitation of drill hole sites to their condition prior to exploration activities;
- localised and temporary noise and air quality impacts would have a negligible contribution to cumulative noise levels in the region; and
- implementation of measures to prevent, manage and mitigate the impact on the surrounding environment.

#### **4.5 STRATEGIC AGRICULTURAL LAND CONSIDERATIONS**

As described in Section 3.6, the nearest mapped strategic agricultural land is located on the Avon River approximately 4 km to the west of the Program site (Figure 8). The Program would therefore avoid regionally mapped strategic agricultural land.

An assessment of potential impacts to critical industries and agricultural productivity has been conducted. The results of the assessment are provided in Tables 8 and 9.

**Table 8  
Potential Impacts to Critical Industries**

<b>Critical Industry Cluster Criteria</b>	<b>Impact on Critical Industry</b>	<b>Comments</b>
Surface disturbance	Negligible	<ul style="list-style-type: none"> <li>No regionally mapped critical industry cluster operations are located in the vicinity of the Program site.</li> <li>Surface disturbance would be temporary and restricted to less than 250 m<sup>2</sup> at any drill site.</li> </ul>
Subsidence	N/A	<ul style="list-style-type: none"> <li>Program activities would not cause subsidence.</li> </ul>
Access to, or impacts on, water and agricultural resources	Negligible	<ul style="list-style-type: none"> <li>No regionally mapped critical industry cluster operations are located in the vicinity of the Program site.</li> <li>Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licensed source as required.</li> <li>The Program would not restrict access to water and agricultural resources.</li> </ul>
Access to support services and infrastructure	Negligible	<ul style="list-style-type: none"> <li>The Program would not restrict access to support services and infrastructure.</li> </ul>
Access to transport routes	Negligible	<ul style="list-style-type: none"> <li>The Program would not restrict access to transport routes.</li> </ul>
Loss of scenic and landscape values	Negligible	<ul style="list-style-type: none"> <li>Temporary activities would not result in a loss of scenic and landscape values. Disturbed areas would be rehabilitated.</li> </ul>

**Table 9  
Potential Impacts to Agricultural Productivity**

<b>BSAL Criteria</b>	<b>Reduction of Agricultural Productivity</b>	<b>Comments</b>
Surface disturbance	Negligible	<ul style="list-style-type: none"> <li>No Program activities within regionally mapped BSAL.</li> <li>Surface disturbance would be temporary and restricted to less than 250 m<sup>2</sup> at any drilling site.</li> </ul>
Subsidence	N/A	<ul style="list-style-type: none"> <li>Program activities would not cause subsidence.</li> </ul>
Soil fertility	Negligible	<ul style="list-style-type: none"> <li>No Program activities within regionally mapped BSAL.</li> <li>Program activities would not alter soil fertility.</li> </ul>
Rooting depths	Negligible	<ul style="list-style-type: none"> <li>No Program activities within regionally mapped BSAL.</li> <li>Compaction would be minimised during exploration, and drill sites would be rehabilitated.</li> </ul>
Soil profile materials and thickness	Negligible	<ul style="list-style-type: none"> <li>No Program activities within regionally mapped BSAL.</li> <li>Any topsoil removed during Program activities would be replaced consistent with the pre-disturbance profile.</li> </ul>
Increase in land surface micro-relief or soil salinity	Negligible	<ul style="list-style-type: none"> <li>No Program activities within regionally mapped BSAL.</li> <li>Program activities would not alter soil salinity, and sites would be rehabilitated consistent with the pre-disturbance soil profile.</li> </ul>
Significant changes to soil pH	Negligible	<ul style="list-style-type: none"> <li>No Program activities within regionally mapped BSAL.</li> <li>Program activities would not alter soil pH.</li> </ul>

#### 4.6 WATER RESOURCES

The Program would have negligible impacts upon watercourses or groundwater within the vicinity of Program site. The Program would be designed to ensure that impacts to surface and groundwater sources are minimised through:

- water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required;
- the implementation of erosion and sediment control strategies to minimise the contamination of surface water from the drill sites or access tracks, particularly in steeper areas;
- the use of above ground tanks to hold drill cuttings and water generated during drilling operations prior to appropriate disposal;
- avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012b);
- the design, construction and maintenance of access tracks would be conducted in general accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC, 2007); and
- the construction of a bed level crossing in accordance with the *Guidelines for Watercourse Crossings on Waterfront Land* (NOW, 2012a), should the development of access tracks require a new crossing of an ephemeral stream.

In accordance with the *Guideline for Agricultural Impact Statements at the Exploration Stage* (NSW Government, 2012a), an assessment of the potential impacts against the minimal impact considerations within the *NSW Aquifer Interference Policy* (NOW, 2012c) has been conducted. Given there is not anticipated to be any impact to groundwater resources, it is not anticipated that the minimal impact considerations would be exceeded for either highly productive groundwater sources, or less productive groundwater sources as a result of the Program.

Water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required.

#### 4.7 AGRICULTURAL INDUSTRIES AND SUPPORT INFRASTRUCTURE

As impacts to the existing agricultural enterprises within the Program site are anticipated to be insignificant as a result of the Program, it follows that impacts to agricultural industries in the region would also be insignificant.

The small workforce and transport requirements associated with the Program would have a negligible impact on regional transport networks used by the agricultural industries, such as The Bucketts Way (Figure 1).

#### 4.8 SOCIO-ECONOMIC IMPACTS

Adverse socio-economic impacts associated with the Program are anticipated to be negligible.

The Program would not significantly impact community services or infrastructure due to the relatively small workforce required. The required workforce would usually be approximately 12 contractors on-site at any one time. In this way, the Program would not present any significant additional pressures on local temporary accommodation requirements.



There would be a minor increase in traffic on local roads associated with the Program.

SCPL continues to pay community infrastructure contributions to the Gloucester Shire Council (GSC) in accordance with the Development Consents (DA 23-98/99 and DA 39-02-01). SCPL continues to support the local community through sponsorships of community organisations and direct community contribution payments to the GSC. SCPL plays an active role in local communities through financial contributions to regional events and facilities.

The Program would have minimal, temporary impacts upon the visual or scenic landscape of the local area. Where the visibility of drill hole sites is considered to be an issue by landholders, fencing material that would screen the drill hole site from view would be considered by SCPL. Drilling would not occur at night (except of emergencies) and therefore significant night lighting would not be required for the Program.

Upon completion of the Program, the Program site would be fully rehabilitated and no longer present a visual impact.

## 5 MITIGATION MEASURES

The Program would include a number of measures to prevent, minimise and manage adverse impacts on agricultural resources. This incorporates procedural mitigation measures along with a comprehensive site selection process to ensure the exploration sites are within areas of lower impact.

### 5.1 ANALYSIS OF ALTERNATIVES

SCPL would implement a site selection process for drill holes and access tracks to minimise potential impacts on local landholders and the environment (Section 5.2).

There are no practical cost effective alternatives to the Program. Exploration drilling is required to collect data on geology and coal that cannot be obtained by non-ground disturbing surveys alone.

The proposed mitigation and rehabilitation measures are considered best practice and consistent with relevant policies and standards.

### 5.2 ACCESS AGREEMENTS AND SITE SELECTION PROCESS

All land proposed within the Program site is owned by SCPL with the exception of an area in the north-western extent of the Program site which is owned by AGL (Figure 4). SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge this REF.

Access arrangements are being negotiated with AGL. SCPL would not undertake exploration activities on AGL land without a valid access arrangement with AGL in accordance with section 140 of the *Mining Act, 1992*.

The final location of drill hole sites and access tracks within the Program site would be selected based on the following process:

- Compliance with the requirements of any relevant access arrangements with landholders.
- Selection of previously disturbed or grassland areas wherever possible to avoid the clearing of mature trees. Where clearance of mature trees cannot be avoided, clearance would be limited (based on the advice of a suitably qualified ecologist) to minimise any significant impacts on any threatened fauna species listed under the TSC Act or the EPBC Act (e.g. avoiding habitat features such as hollow-bearing trees and feed trees).
- Avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012b).
- Compliance with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* (NSW Minerals Council, 2010) and avoidance of known Aboriginal objects (Sections 3.4 and 4.5).
- Minimisation of impacts on agricultural production and assets (e.g. fences).
- Compliance with the non-standard hours of operation management level in the *Interim Construction Noise Guideline* (DECC, 2009) at privately owned residences, except with agreement of the affected landholder(s).

### 5.3 WEED, PEST AND BIOSECURITY MANAGEMENT

The Program would not significantly increase the risk of introduction of noxious weeds, vermin, biosecurity threats, feral species or genetically modified organisms into the Program site.

Before being used on-site, vehicles and machinery would be inspected and cleaned where required for weeds and seeds. Vehicle movements to and from each site would be restricted to defined tracks, where possible.

Weed contamination and prevention procedures would be discussed during Program induction and pre-start briefs.

Disturbed land and access tracks would be monitored for the presence of weeds as part of the rehabilitation monitoring program (Section 5.7). Management measures (e.g. spraying of weeds) would be employed where necessary and in consultation with landholders to prevent the spread of weeds.

### 5.4 WATER MANAGEMENT

The Program would be designed to ensure that impacts to surface water and groundwater sources are minimised by:

- water required for the Program would be sourced directly from the existing SCPL water supply or another appropriately licenced source as required;
- the implementation of erosion and sediment control strategies to minimise the contamination of surface water from the drill sites or access tracks, particularly in steeper areas;
- the use of above ground tanks to hold drill cuttings/water generated during drilling operations prior to appropriate disposal;
- avoidance of exploration drilling within the 'Vegetated Riparian Zone' defined by the *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land* (NOW, 2012b);
- the design, construction and maintenance of access tracks conducted in general accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC, 2007); and
- construction of a bed level crossing in accordance with the *Controlled Activities on Waterfront Land: Guidelines for Watercourse Crossings on Waterfront Land* (NOW, 2012a), should the development of access tracks require a new crossing of an ephemeral stream.

Upon completion of drilling and downhole geophysical logging, all drill holes would be completely filled with cement grout. The drill holes would be sealed and capped in a manner in accordance with the *EDG01 Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012a) and AUTH 315.

### 5.5 WASTE MANAGEMENT

All waste products including packaging for equipment or waste generated by Program personnel would be removed or stored at the end of each shift.

The geological contractors and/or the drilling contractors would provide their own support facilities within the region. However due to the lack of facilities in the field, mobile toilets may be required. These would be located adjacent to the site area and removed at the end of drilling.

The drill cuttings and water generated during drilling operations would be stored in above ground tanks prior to appropriate disposal (Section 2.4.4).

## **5.6 DECOMMISSIONING AND REHABILITATION**

A description of the Program decommissioning and rehabilitation is provided in Section 2.4.8.

## **5.7 MONITORING**

Rehabilitation monitoring would be conducted at each drill hole site and along access tracks for at least six months after complete decommissioning to ensure the rehabilitation program has been effective and there are no ongoing erosion and weed risks from the Program (Sections 5.3 and 5.4).

## **5.8 OTHER MITIGATION MEASURES**

Other mitigation measures that would be put in place for the Program include:

- Before being used on-site, all machinery would be inspected and cleaned where required to minimise the spread of weeds.
- Dust generation during the Program is expected to be relatively low. However, in the event of excessive dust levels on established roads or new access tracks, appropriate dust suppression measures (e.g. use of a water cart) would be deployed at the site.
- Rehabilitation monitoring would occur for at least six months after complete decommissioning to ensure the rehabilitation program has been effective and there are no ongoing erosion and weed risks from the exploration activities.
- SCPL's standard work procedures and induction processes would address compliance with SCPL's obligations under ML 1360, ML 1528, ML 1577, AUTH 315 and the REF.

## 6 CONSULTATION

The level of consultation undertaken during the preparation of this AIS is considered to be consistent with the scale and potential impacts of the Program.

### ***Community Consultative Committee***

A Community Consultative Committee (CCC) is established and operates in accordance with the Stratford Mining Complex Development Consents (DA 23-98/99 and DA 39-02-01). The CCC meets quarterly and the meeting minutes are available publicly on the SCPL website. Members of the CCC were selected based on nominations from community representatives and other stakeholders and includes local residents, GSC and SCPL representatives.

The Program was discussed at the CCC meeting on 8 May 2014. Queries raised about the Program during the CCC meeting included:

- Proposed method of sealing drill holes.
- Anticipated time period between completion and sealing of each drill hole.

SCPL has addressed these issues in this REF.

### ***Website***

SCPL maintains a website within the Stratford Coal web domain ([www.stratfordcoal.com.au](http://www.stratfordcoal.com.au)) for the general public to keep up to date with the operations at the Stratford Mining Complex. The web domain is a significant source of information regarding current and future operations and exploration.

The website provides information on the environmental management and performance of the Stratford Mining Complex, including:

- environmental management plans;
- independent environmental audits;
- annual reviews;
- environmental monitoring results;
- Stratford Mining Complex CCC meeting minutes; and
- complaints registers.

Information regarding the Program will also be provided on the website.

SCPL maintains a dedicated community hotline (1300 658 239) for residents to contact a SCPL representative with any questions or concerns they may have regarding SCPL operations at the Stratford Mining Complex and its associated exploration activities.

### ***Landholders***

All land proposed within the Program site is owned by SCPL with the exception of an area in the north-western extent of the Program site which is owned by AGL (Figure 4). SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge a REF (including this AIS). SCPL will provide AGL with a copy of the REF (including this AIS).

***Division of Resources and Energy (within the NSW Department of Trade and Investment, Regional Infrastructure and Services)***

SCPL consults with the DRE on a regular basis regarding exploration activities (including the Program). Issues discussed with the DRE during the preparation of this REF included:

- approval pathway;
- requirements of the *ESG2: Environmental Impact Assessment Guidelines* (DRE, 2012b);
- scope of activities included in the REF (Section 2.4); and
- site selection process for the final location of exploration drill holes and access tracks (Section 5.2).

***Aboriginal Stakeholders***

SCPL would comply with the *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects* (NSW Minerals Council, 2010) and avoid known Aboriginal objects (Section 5.2). Where required, consultation with the Aboriginal community would be conducted throughout the Program (Section 3.4).

***Overlapping Tenement Holders***

ML 1360, ML 1528, ML 1577 and AUTH 315 overlap with Petroleum Exploration Licence 285 held by AGL. SCPL has provided AGL with details of the Program and advised of SCPL's intention to lodge this REF. SCPL will provide AGL with a copy of this REF.

***Infrastructure Authorities***

Program activities would be located away from The Bucketts Way and North Coast Railway. Program activities would also be sited to avoid interactions with other existing infrastructure (e.g. buried cables and overhead lines), therefore no further consultation with infrastructure authorities is considered to be required.

***Community Complaints/Conflict Management***

SCPL contact information is available on the Stratford Coal website and provided during stakeholder consultation, enabling community members to contact the SCPL Community and Property Specialist regarding any questions or concerns they may have regarding the Program.

SCPL operates a protocol for the managing and reporting of complaints in accordance with its existing *Environmental Management Strategy* (SCPL, 2012b).

SCPL would ensure that all complaints are appropriately investigated, actioned and that information is fed back to the complainant.

## **7 CONCLUSION**

SCPL has conducted an impact assessment of the potential risks to agricultural resources and enterprises as a result of the Program (Section 4). SCPL considers that the individual potential risks are low when considered in accordance with the Agricultural Impact Risk Ranking (NSW Government, 2012a).

It is anticipated that, with the implementation of the proposed mitigation and monitoring measures (Section 5), impacts to agricultural resources and enterprises would be insignificant as a result of the Program.

## 8 REFERENCES

- Department of Environment and Climate Change (2007) *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads*.
- Department of Environment and Climate Change (2009) *Interim Construction Noise Guideline*.
- Division of Resources and Energy (2012a) *EDG01 Borehole Sealing Requirements on Land: Coal Exploration*.
- Division of Resources and Energy (2012b) *ESG2: Environmental Impact Assessment Guidelines*.
- Gilbert & Associates Pty Ltd (2012) *Stratford Extension Project Surface Water Assessment*. Report prepared for Stratford Coal Pty Ltd.
- Henderson, L.E. (2000) *Soil Landscapes of the Dungog 1:100 000 Sheet*. Prepared for NSW Department of Land & Water Conservation.
- Heritage Computing Pty Ltd (2012) *Groundwater Assessment: A Hydrogeological Assessment in Support of the Stratford Coal Project Environmental Impact Statement*. Report prepared for Stratford Coal Pty Ltd.
- McKenzie Soil Management Pty Ltd (2012) *Agricultural Resource Assessment: "Stratford Extension Project", Gloucester NSW*. Report prepared for Stratford Coal Pty Ltd.
- New South Wales Department of Lands (2009) *Rural Land Capability Mapping*.
- New South Wales Government (2012a) *Strategic Regional Land Use Policy: Guideline for Agricultural Impact Statements at the Exploration Stage*.
- New South Wales Government (2012b) *Upper Hunter Strategic Regional Land Use Plan*.
- New South Wales Minerals Council (2010) *NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects*.
- New South Wales Office of Water (2012a) *Controlled Activities on Waterfront Land: Guidelines for Watercourse Crossings on Waterfront Land*.
- New South Wales Office of Water (2012b) *Controlled Activities on Waterfront Land: Guidelines for Riparian Corridors on Waterfront Land*.
- New South Wales Office of Water (2012c) *Aquifer Interference Policy*.
- Stratford Coal Pty Ltd (1998) *Proposed Modifications to the Stratford Coal Mine Statement of Environmental Effects*.
- Stratford Coal Pty Ltd (2012a) *Stratford Extension Project Environmental Impact Statement*.
- Stratford Coal Pty Ltd (2012b) *Stratford Extension Project – Agricultural Assessment*.



APPENDIX D

ABORIGINAL HERITAGE INFORMATION MANAGEMENT SYSTEM (AHIMS)  
DATABASE SEARCH

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SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
38-1-0077	SEP-OS-04	GDA	56	403821	6445789	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0081	SEP-ST-03	GDA	56	404017	6445809	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0082	SEP-ST-04	GDA	56	403593	6445248	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0083	SEP-IF-01	GDA	56	403527	6445850	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0084	SEP-IF-02	GDA	56	403669	6445834	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0085	SEP-IF-03	GDA	56	402711	6445473	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0086	SEP-IF-04	GDA	56	402743	6445647	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0088	SEP-OS-02	GDA	56	403922	6445592	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>
38-1-0089	SEP-OS-03	GDA	56	403751	6445788	Open site	Valid	Artefact : 1		
	<b>Contact</b>	<b>Recorders</b>				Kayandel Archaeological Services				<b>Permits</b>

Report generated by AHIMS Web Service on 29/04/2014 for Danielle Wallace for the following area at Datum :GDA, Zone : 56, Eastings : 402610 - 404905, Northings : 6445296 - 6450030 with a Buffer of 50 meters. Additional Info : Identify locations of existing sites.. Number of Aboriginal sites and Aboriginal objects found is 9

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