



**Centennial Coal**



# **Exploration Activities and Minor Surface Infrastructure Management Plan**

**Springvale Colliery**

**October 2016**

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# 1 BACKGROUND

## 1.1 Introduction

Springvale Mine (Springvale) is an existing underground coal mine producing thermal coal which is supplied to both domestic and international markets. It is located 15 kilometres (km) to the northwest of the regional city of Lithgow and 120 km west-north-west of Sydney in New South Wales (NSW). Springvale is bordered by Angus Place to the north and Clarence Colliery to the south-east. The regional locality of Springvale is shown on **Figure 1**.

Springvale is owned by Centennial Springvale Pty Limited (as to 50%) and Springvale SK Kores Pty Limited (as to 50%) as participants in the Springvale unincorporated joint venture. Springvale is operated by Springvale Coal Pty Limited (Springvale Coal), for and on behalf of the Springvale joint venture participants. Springvale utilise the longwall mining method to extract coal from the Lithgow Seam.

Underground coal mining commenced at Springvale in 1995 following the granting of Springvale's Development Consent (DA 11/92) on 27 July 1992 by the then Minister for Planning, pursuant to Section 101 under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). DA 11/92 and its subsequent modifications authorised the extraction of up to 4.5 million tonnes per annum (Mtpa) of run of mine (ROM) coal.

On 21 September 2015 Development Consent SSD-5594 was approved by the Planning Assessment Commission (under delegation from the Minister of Planning) pursuant to Part 4, Division 4.1 of the EP&A Act. This consent replaces the former Development Consent DA 11/92 which will be surrendered by 21 September 2016 (in accordance with Schedule 2, Condition 10 of SSD-5594).

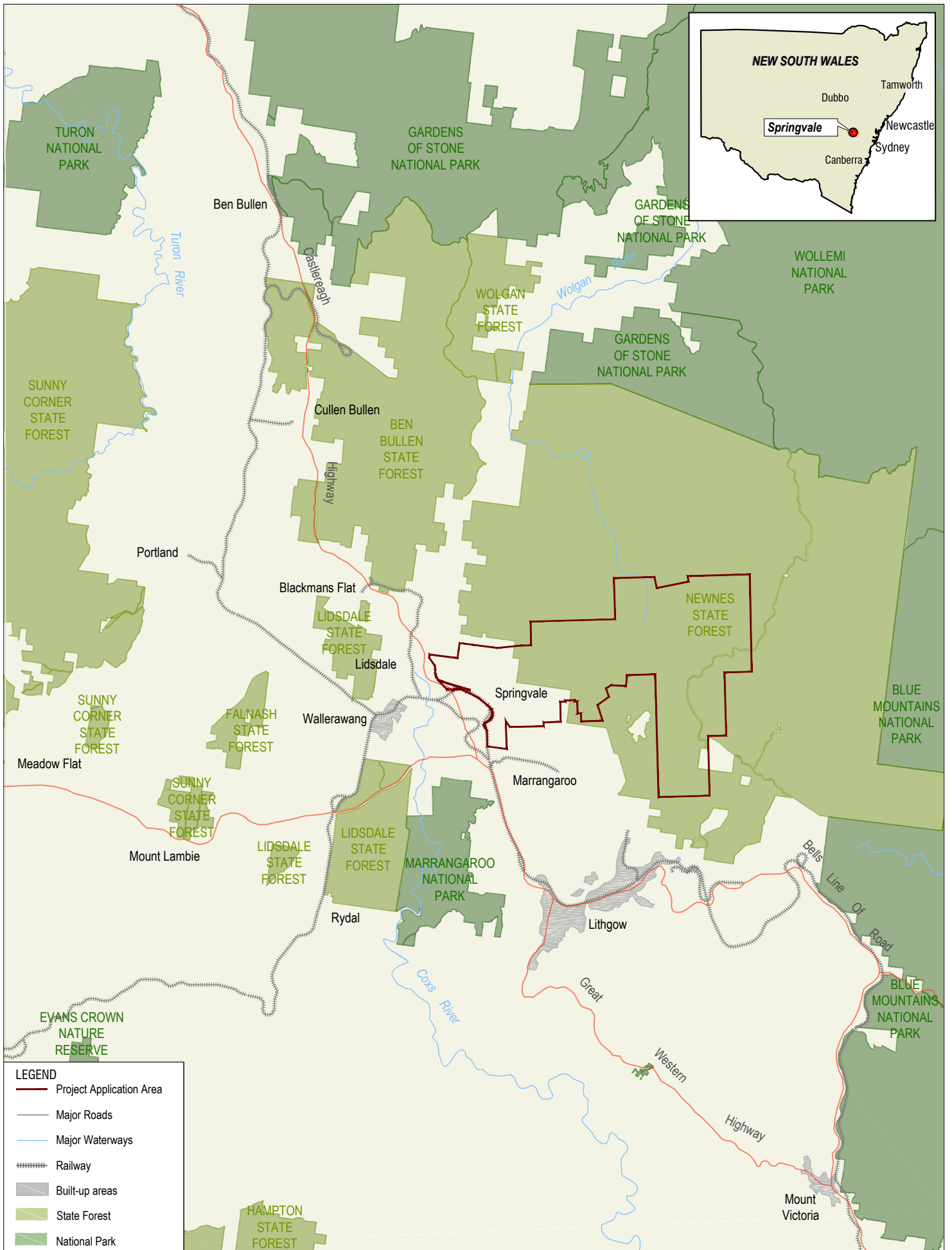
The approval allows for continued underground mining operations using the longwall mining method at existing production rates until 31 December 2028. Springvale will develop and extract longwalls in the existing northern and southern lease areas, comprising Longwalls 418 – 422 (east of the existing workings), Longwalls 424 – 432 (southeast of the existing workings) and Longwalls 501 – 503 (south of the existing workings) (refer **Figure 2**). Development Consent SSD-5594 also allows the construction and operation of the Bore 9 and Bore 10 Dewatering Facilities (with associated infrastructure corridors), and a Mine Services Borehole Compound on the Newnes Plateau. The dewatering bore facilities are required for the management of mine inflows and to reduce operational risk during mining. The Mine Services Borehole Compound is required to convey materials, such as ballast and concrete, to the underground mine via surface to seam boreholes.

To decrease the pressure in the Springvale Delta Water Transfer Scheme (SDWTS) from dewatering bore facilities on the Newnes Plateau two booster pump stations will also be established. The first facility, referred to as Booster Pump Station 1 will be established at the intersection of Sunnyside Ridge Road and Mayinygu Marragu Trail. The second booster pump station (Booster Pump Station 2) will be established at the site of the existing Gravity Tank (refer **Figure 3**). The operation of the second booster pump station will also require provision of power supply and telecommunications which will originate at the existing Borehole Pump Substation (refer **Figure 3**).

Springvale will also continue to undertake exploration activities within Exploration Licence (EL) 6974 and Authorisation (AUTH) 460. Exploration is undertaken to obtain specific geological information regarding coal seam quality and thickness, through logging and testing of cores. Information obtained is used for the ongoing refinement of Springvale's existing geological model which allows for detailed mine planning. Following the drilling of exploration bores, the bores may also be used to

install piezometers in the aquifers of interest for ongoing groundwater monitoring. Specific details regarding the drilling process have been provided in **Section 2.3.1**.

In accordance with the requirements of Schedule 4, Condition 28 of Development Consent SSD-5594 this Exploration Activities and Minor Surface Infrastructure Management Plan has been prepared to outline measures that will be implemented by Springvale to mitigate potential environmental impacts during the construction and operation of surface infrastructure (including the Bore 9 and Bore 10 Dewatering Facilities, Mine Services Borehole Compound, booster pump stations and associated infrastructure corridors), the operation of existing surface infrastructure, and approved exploration and/or groundwater monitoring activities. Rehabilitation of existing/proposed surface infrastructure, approved exploration and/or groundwater monitoring activities within Newnes State Forest will be undertaken in accordance with the Mining Operations Plan/Rehabilitation Management Plan (Springvale 2015). This Plan has also been prepared to address the requirements of a Construction Environmental Management Plan (CEMP) and a Construction Traffic Management Plan (CTMP), required by the Statement of Commitments (Commitments 2 and 8 respectively).

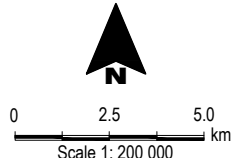


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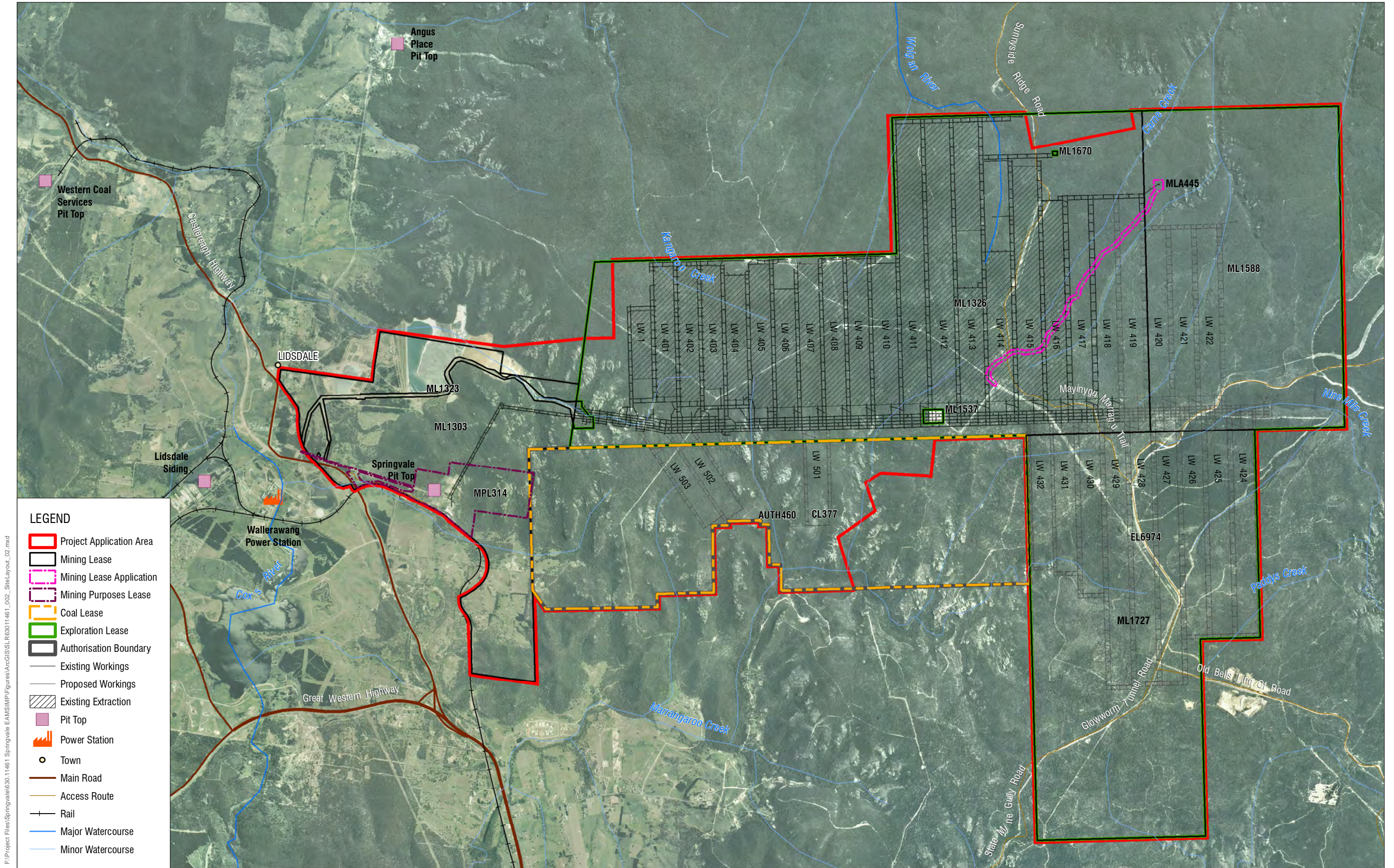


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**Locality Plan**

FIGURE 1





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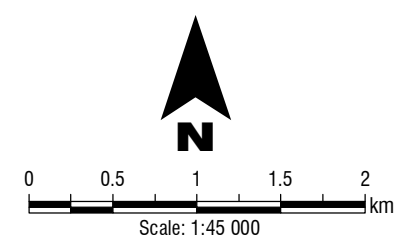
- Project Application Area
- Mining Lease
- Mining Lease Application
- Mining Purposes Lease
- Coal Lease
- Exploration Lease
- Authorisation Boundary
- Existing Workings
- Proposed Workings
- Existing Extraction
- Pit Top
- Power Station
- Town
- Main Road
- Access Route
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- Major Watercourse
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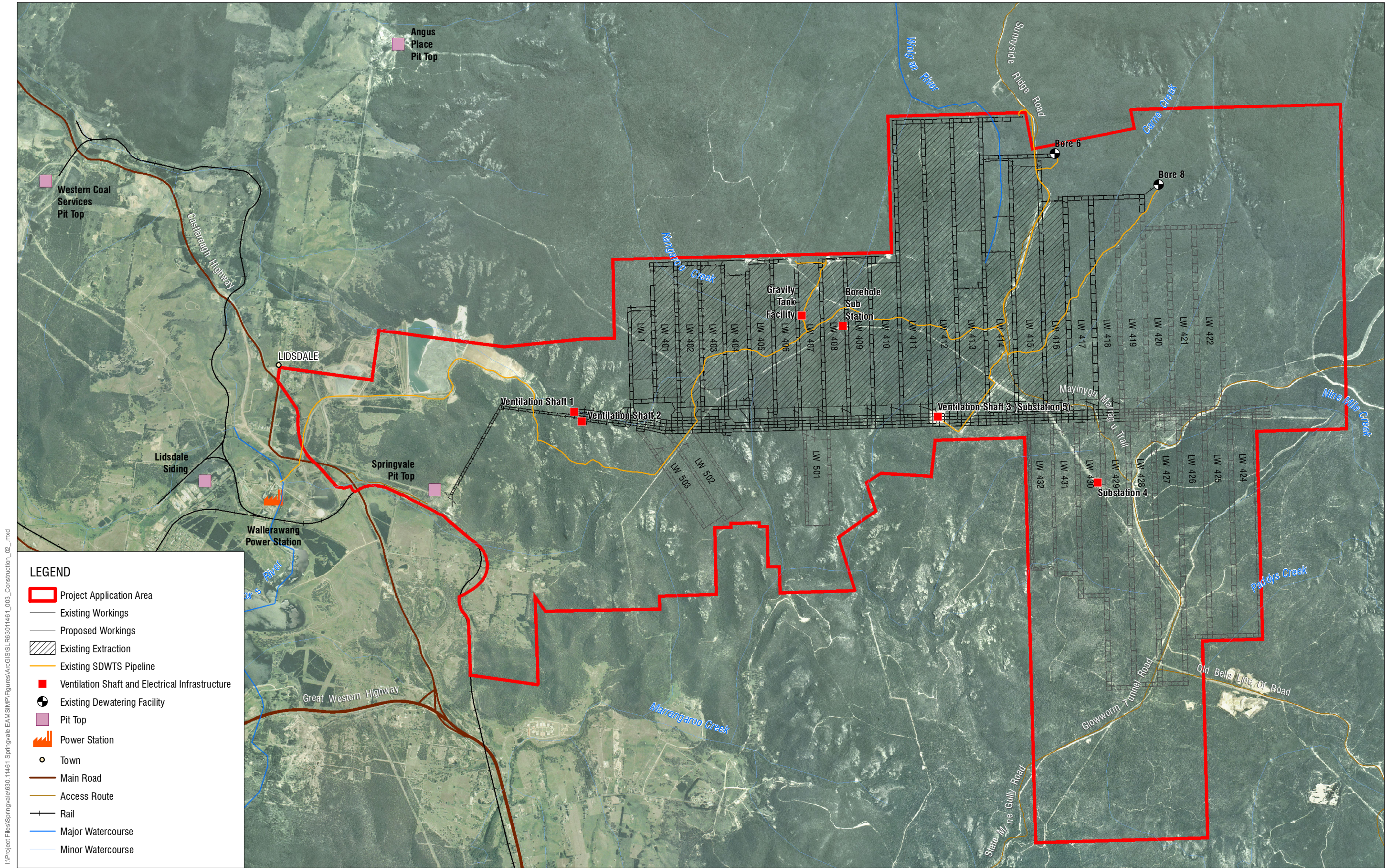


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**Site Layout**

FIGURE 2





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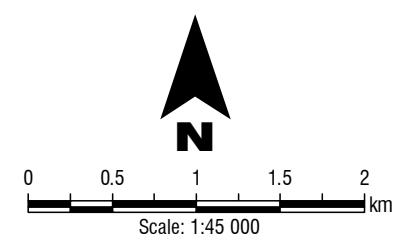
- Project Application Area
- Existing Workings
- Proposed Workings
- Existing Extraction
- Existing SDWTS Pipeline
- Ventilation Shaft and Electrical Infrastructure
- ⊕ Existing Dewatering Facility
- Pit Top
- ⚡ Power Station
- Town
- Main Road
- Access Route
- Rail
- Major Watercourse
- Minor Watercourse

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Existing Newnes Plateau Infrastructure

FIGURE 3



## 1.2 Proposed Exploration and Construction Activities

### 1.2.1 Exploration

Springvale continues to complete exploration bores as required to obtain specific geological information, allowing further refinement of the mine's geological model. This enables Springvale to undertake detailed mine planning. The exploration programme also allows the installation of piezometers in the aquifers of interest for ongoing groundwater monitoring.

Exploration activities will be located within EL 6974 and AUTH 460, and will generally focus upon future mining areas (refer **Figure 2**). All exploration activities will be carried out within EL 6974 and AUTH 460 in accordance with the requirements of the *Mining Act 1992* and this Exploration and Minor Surface Infrastructure Management Plan. Springvale will continue to utilise area-based assessment procedures for the management of exploration activities to ensure that they are conducted in an environmentally responsible manner and with due consideration to the community. This will include a risk-based process for the selection, assessment and environmental management of proposed drill pad sites and access tracks based on environmental, geological, logistical and other operational constraints.

Some minor surface clearing is likely to be required prior to establishing drilling sites (drill site footprint) and for the clearing/maintenance of access tracks required to reach drilling locations, if access does not already exist. Where possible and practicable, drill sites will be selected as close as possible to existing access tracks. This will reduce the requirement for new access tracks to be created and will minimise clearing requirements and surface disturbance for drill site establishment. The proposed drill site footprint will require a maximum disturbance area of approximately 35 m x 25 m. Where possible, drill sites may also be selected within existing cleared areas.

The drill site footprint will be required for the drill rig, sumps (above-ground sumps or in-ground sumps, depending upon site suitability), a rod skid, a core handling/storage area and space for parking of light and heavy vehicles.

### 1.2.2 Mine Services Borehole Compound

Additional mine services boreholes will be required to service the new mining areas to the east and southeast of the existing workings. These boreholes will be located within the Mine Services Borehole Compound to be located on Newnes Plateau (refer **Figure 4**). The construction of this facility will commence in 2017 and will lead to a reduction in the number of underground vehicle movements and associated diesel use.

The Mine Services Borehole Compound will accommodate up to four 500 millimetre (mm) diameter surface to seam boreholes to convey materials such as ballast and concrete underground. The construction footprint will be approximately 90 m x 100 m and will include a permanent dirty water capture pond to be used following the completion of borehole drilling at the site.

A shed, housing a telephone and concreting equipment, will be permanently installed within the compound. The compound will be fenced and locked at all times to ensure public safety and security.

### 1.2.3 Dewatering Bore Facilities

The management of mine water inflows underground is required to reduce operational risk during mining. At an active dewatering bore facility, the mine inflows pumped out from underground works

are discharged into a network of water pipelines (known as the SDWTS) for discharge from Licenced Discharge Point (LDP) 009.

To effectively manage mine inflows during future mining, two new dewatering facilities will be established by Springvale on Newnes Plateau. The Bore 9 Dewatering Facility and the Bore 10 Dewatering Facility will be established in 2017 and 2018, respectively. These dewatering facilities will manage mine water inflows from longwall mining areas. However, timing of construction and operation of the Bore 9 and Bore 10 Dewatering Facilities will be contingent upon the progression of underground workings. The location of the approved Bore 9 and Bore 10 Dewatering Facilities is shown on **Figure 4**.

The construction footprint of each dewatering facility will be approximately 90 m x 110 m while the final constructed footprint will be 50 m x 70 m. Drilling of the boreholes, will be undertaken as described in **Section 2.3.3**.

Each site will include up to four boreholes founded on concrete pads and equipped with submersible pumps. The bores will extend from the surface to below the Lithgow Seam. The bore sites will maintain a sump and house ancillary surface equipment.

In addition to the four dewatering boreholes that will be installed at the Bore 10 Dewatering Facility, an additional downcast ventilation borehole will also be constructed at the site.

#### **1.2.4 Booster Pump Stations**

To decrease the pressure in the SDWTS from dewatering bore facilities on the Newnes Plateau two new booster pump stations will be established. A facility referred to as Booster Pump Station 1 will be established at the intersection of Sunnyside Ridge Road and Mayinygu Marragu Trail (refer **Figure 4**). This facility will be approximately 60 m x 60 m and will consist of a water storage tank, 11 kV/415 V transformer, motor and pump set, associated pipe work and controls, motor control centre for pump operation/automation. Additionally the facility will include an 11 kV distribution board to distribute power supply for the Bore 8 Dewatering Borehole Facility, Bore 9 Dewatering Facility and Booster Pump Station 1. The facility is scheduled for construction in late 2016.

The existing Gravity Tank will also be upgraded to establish a second facility referred to as Booster Pump Station 2 (refer **Figure 4**). This facility will be established to decrease pressure in the SDWTS and will include the existing water storage tank, an 11 kV/415 V transformer, motor and pump, associated pipe work and controls, and a motor control centre for pump operation/automation. The facility is scheduled to be constructed in late 2016.

#### **1.2.5 Infrastructure Corridors and Access Tracks**

Existing forest access tracks will be used where available to access the Mine Services Borehole Compound and the Bore 9 and Bore 10 Dewatering Facilities. Where existing access tracks are not available, new 5 m wide sections of tracks will be established. Ancillary 10 m wide infrastructure corridors will be constructed adjacent to existing tracks and new sections of tracks (refer **Figure 4**).

Infrastructure corridors will be established to provide for the extension of existing trenched water pipelines from the Bore 9 and Bore 10 Dewatering Facilities to manage mine inflows during future mining. The extensions of the SDWTS to both dewatering facilities will involve installation of approximately 6.5 km of pipeline within the infrastructure corridors. The new pipelines will connect to the existing network. The locations of the existing SDWTS pipeline and proposed infrastructure corridor are shown on **Figure 4**.



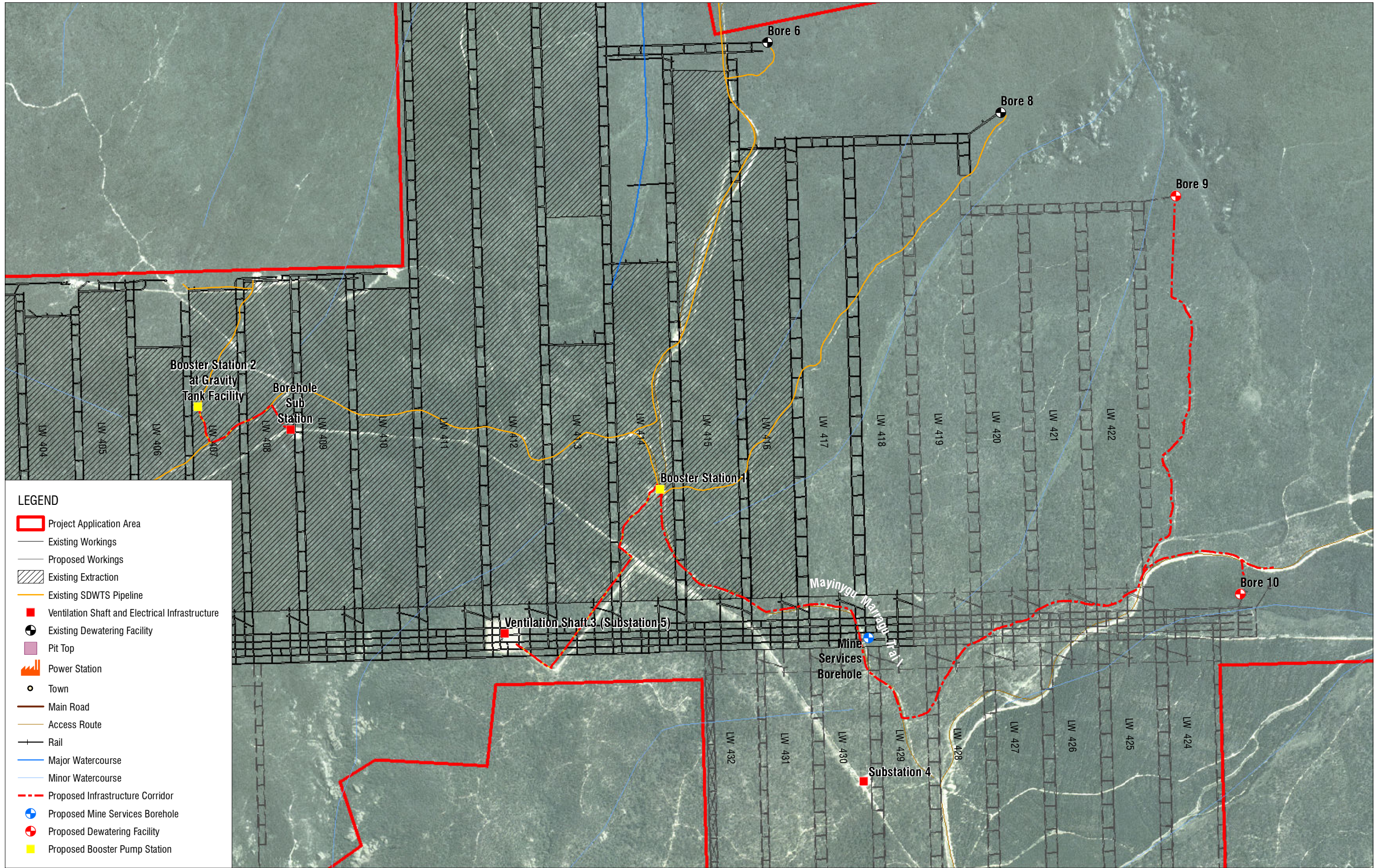
The infrastructure corridor will also be used for the trenching of approximately 6.5 km of 11 kV power cables and fibre optic cables from Substation 5 to the Mine Services Borehole Compound and the Bore 9 and Bore 10 Dewatering Facilities. An additional infrastructure corridor will be established to provide power supply and telecommunications from the existing Borehole Pump Substation to Booster Pump Station 2. These works will be undertaken within a 5 m corridor and will involve the trenching of approximately 800 m of 11 kV power cables and fibre optic cables. These works will be undertaken within existing tracks to minimise clearing requirements. All new electrical power cables will be trenched to avoid the potential for overhead lines to trigger bushfires or be destroyed by bushfires. The location of these infrastructure corridors has been shown on **Figure 4**.

Following the trenching of water pipelines, 11 kV power cables and fibre optic cables, infrastructure corridors will be rehabilitated to create 5 m wide access tracks which will be retained in the final landform for use by Forestry Corporation of New South Wales (FCNSW).

Substation 4 supplies power to Substation 5 located at the Ventilation Shaft 3 Facility via overhead powerlines. Substation 5 supplies power to the main ventilation fan, air compressors, and is the main underground production and auxiliary supply at the Ventilation Shaft 3 Facility. Power supply and communications for the Bore 9 and Bore 10 Dewatering Facilities will be via Substation 5 and an 11 kV Distribution Board that will be installed at Booster Pump Station 1 (refer **Figure 4**).



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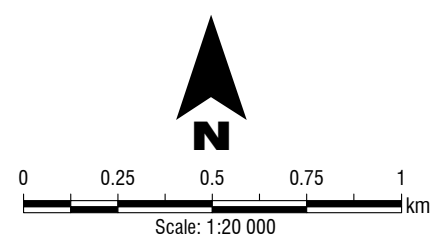
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- Project Application Area
- Existing Workings
- Proposed Workings
- Existing Extraction
- Existing SDWTS Pipeline
- Ventilation Shaft and Electrical Infrastructure
- ⊕ Existing Dewatering Facility
- Pit Top
- Power Station
- Town
- Main Road
- Access Route
- Rail
- Major Watercourse
- Minor Watercourse
- Proposed Infrastructure Corridor
- ⊕ Proposed Mine Services Borehole
- ⊕ Proposed Dewatering Facility
- Proposed Booster Pump Station

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Construction Works

FIGURE 4



## 1.3 Traffic

### 1.3.1 Traffic Access Routes

Access to existing and proposed infrastructure on the Newnes Plateau is available via two routes which cater for both heavy and light vehicle access (refer **Figure 5**). The routes used to access existing/proposed surface infrastructure, approved exploration and/or groundwater monitoring activities within Newnes State Forest are as follows:

- Heavy vehicle access route: Heavy vehicles have restricted access to the Newnes Plateau via Chifley Road and Old Bells Line of Road at the town of Clarence. It connects to the *all access* vehicle route at the 'T' intersection with Glowworm Tunnel Road; and
- Light vehicle access route: Light vehicles can also access infrastructure on the Newnes Plateau via the heavy vehicle route, alternatively, light vehicles can gain access via State Mine Gully Road, north of Lithgow, followed by Glowworm Tunnel Road, and Mayinygu Marragu Trail.

The access routes are used by other vehicles associated with the adjacent Angus Place Colliery, FCNSW and recreational vehicles. These access tracks are largely well-formed gravel, all weather roads providing for two-way traffic.

### 1.3.2 Vehicle Generation

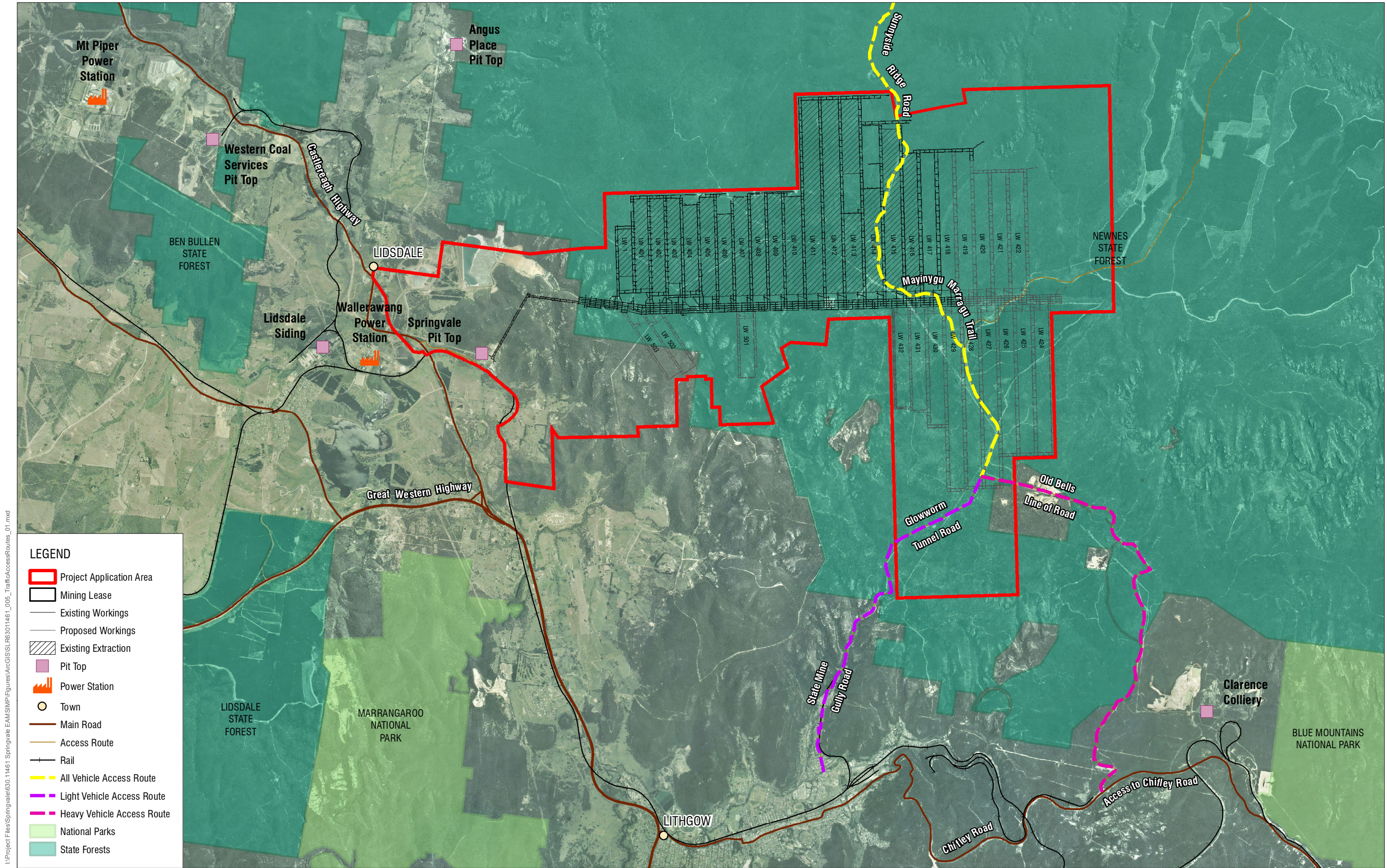
Access to existing/proposed surface infrastructure (refer **Figure 4**), approved exploration and/or groundwater monitoring sites on the Newnes Plateau will continue to occur via existing roads and tracks as shown on **Figure 5**.

Construction vehicles will travel across two shifts (6:00 am to 6:00 pm and 6:00 pm to 6:00 am), seven days a week, however heavy vehicle trips will only be undertaken during daylight hours (6:00 am to 6:00 pm). All vehicle movements associated with approved exploration and/or groundwater monitoring activities will travel across a shift between 6:00 am to 6:00 pm. Peak light vehicle movements will occur in relatively short periods around shift changes with construction staff travelling in groups to and from construction sites. The construction of surface infrastructure will be progressive. Construction of each bore site (and associated access tracks and infrastructure corridors) is estimated to occur over a six month period.

Peak construction periods for the Mine Services Borehole Compound, the Bore 9 and Bore 10 Dewatering Facilities, and booster pump stations will occur for a period of approximately four weeks for each site. During these periods, construction flows of up to 16 vehicle trips per day (vtpd) will be generated. For the construction of the Mine Services Borehole Compound, an average of 8 heavy vtpd would be generated on Old Bells Line of Road, and an average of 8 light vtpd would be generated on State Mine Gully Road. A total of 16 vtpd would subsequently be generated on Glowworm Tunnel Road and Mayinygu Marragu Trail to the Mine Services Borehole Compound.

During the construction of the Mine Services Borehole Compound, the Bore 9 and Bore 10 Dewatering Facilities, and booster pump stations an average of 8 heavy vtpd would be generated on Old Bells Line of Road, and an average of 8 light vtpd would be generated on State Mine Gully Road. A total of 16 vtpd would then be generated on Glowworm Tunnel Road to the relevant access tracks. This traffic generation is very minor and when combined with the existing traffic flows for the key vehicle access routes of Glowworm Tunnel Road, Old Bells Line of Road and sections of Mayinygu Marragu Trail, there is sufficient existing capacity (Golder Associates, 2014).



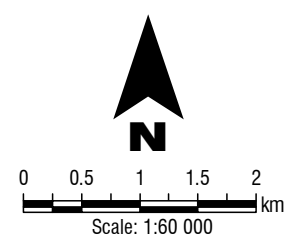


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**Traffic Access Routes**

FIGURE 5



During the operation of the Mine Services Borehole Compound, the Bore 9 and Bore 10 Dewatering Facilities, and booster pump stations no more than 10 vehicles per week would be generated on Old Bells Line of Road, State Mine Gully Road, Glowworm Tunnel Road and Mayinygu Marragu Trail.

Parking for both light and heavy vehicles on Newnes Plateau will be provided within fenced compounds (temporary or permanent fencing) at each of the existing/proposed surface infrastructure compounds, approved exploration and/or groundwater monitoring sites.

### 1.3.3 Proposed Plant and Equipment

**Table 1** provides a summary of the plant and equipment that will be required to undertake the proposed construction works, approved exploration and/or groundwater monitoring activities.

**Table 1 – Plant and Equipment**

Construction Works	Exploration and/or Groundwater Monitoring Activities
<ul style="list-style-type: none"> <li>• Dozer;</li> <li>• Excavator;</li> <li>• Grader;</li> <li>• Water Cart;</li> <li>• Truck;</li> <li>• Light vehicles;</li> <li>• All Terrain Forklift;</li> <li>• Trench Digger</li> <li>• Drill Rig*; and</li> <li>• Crane.</li> </ul>	<ul style="list-style-type: none"> <li>• Dozer;</li> <li>• Excavator;</li> <li>• Water Cart;</li> <li>• Truck;</li> <li>• Light vehicles;</li> <li>• All Terrain Forklift;</li> <li>• Drill Rig; and</li> <li>• Crane.</li> </ul>

*\*Drill rigs will not be required for Booster Pump Station 1 and Booster Pump Station 2 construction.*

### 1.4 Schedule of Works

The proposed construction, approved exploration and/or groundwater monitoring activities are expected to be undertaken as per the schedule provided in **Table 2**. It is noted that these works are contingent upon the progression of underground workings.

Construction activities will operate 24 hours a day, seven days a week, 52 weeks per year. Standard exploration and/or groundwater monitoring drilling activities will be undertaken between 7:00 am and 6:00 pm, Monday to Friday. If and when required, incidental works may also be undertaken on Saturday between 8:00 am and 1:00 pm.

**Table 2 – Indicative Schedule of Works**

Year	Proposed Works
2016	<ul style="list-style-type: none"> <li>• Booster Pump Station 1 and 2;</li> <li>• Associated infrastructure corridors and access tracks;</li> <li>• Approved exploration activities; and</li> <li>• Approved drilling for groundwater monitoring installations.</li> </ul>
2017	<ul style="list-style-type: none"> <li>• Mine Services Borehole Compound;</li> <li>• Bore 9 Dewatering Facility;</li> <li>• Associated infrastructure corridors and access tracks;</li> <li>• Continued construction associated with the Booster Pump Station 1 and 2, associated infrastructure corridors and access tracks if incomplete;</li> <li>• Approved exploration activities; and</li> <li>• Approved drilling for groundwater monitoring installations.</li> </ul>

Year	Proposed Works
2018	<ul style="list-style-type: none"> <li>• Bore 10 Dewatering Facility;</li> <li>• Associated infrastructure corridor and access track;</li> <li>• Approved exploration activities; and</li> <li>• Approved drilling for groundwater monitoring installations.</li> </ul>
Ongoing	<ul style="list-style-type: none"> <li>• Approved exploration activities as required; and</li> <li>• Approved drilling for groundwater monitoring installations.</li> </ul>

## 1.5 Objectives

The objectives of this Exploration Activities and Minor Surface Infrastructure Management Plan are to:

- Describe the measures that would be implemented to manage potential environmental impacts resulting from approved exploration activities and construction/operation of minor surface infrastructure; and
- Satisfy the requirements of Development Consent SSD-5594.

## 1.6 Regulatory Requirements

This Plan has been prepared in accordance with the requirements of Schedule 4, Condition 28 of Development Consent SSD-5594 to manage the construction and operation of surface infrastructure (including the Bore 9 and Bore 10 Dewatering Facilities, Mine Services Borehole Compound, booster pump stations and associated infrastructure corridors), the operation of existing surface infrastructure, and approved exploration and/or groundwater monitoring activities. This condition allows for adjustments to be made during the detailed design phase without the need for modifications to the Development Consent.

During the detailed design phase, Springvale identified a requirement to reduce the risk of failure of dewatering infrastructure resulting from excessive water pressure within the SDWTS. This risk is able to be mitigated by establishing two booster pump stations that will decrease the pressure in the SDWTS from dewatering bore facilities on the Newnes Plateau. This approach is consistent with Schedule 6, Condition 8 of Development Consent SSD-5594 which requires Springvale to consider adaptive management, by adopting a risk based approach to ensure compliance with the criteria and/or performance measures in Schedules 3 and 4.

The construction and operation of surface infrastructure, the operation of existing surface infrastructure, and approved exploration and/or groundwater monitoring activities, as outlined within this Plan, will be undertaken within the limits of Development Consent SSD-5594.

### 1.6.1 Development Consent SSD-5594

Development Consent SSD-5594 conditions provide detail of the matters which should be included in this document. These matters are set out in **Table 3**, together with the notation of the section of this document in which each matter is addressed.

**Table 3 – Relevant Development Consent Conditions**

Condition	Condition Requirement	Section Addressed
Schedule 4, Condition 28	The Applicant shall prepare and implement an Exploration Activities and Minor Surface Infrastructure Management Plan for the Development to the Satisfaction of the Secretary*. This Plan must:	This Document
	(a) Be prepared by suitable qualified and experienced person/s whose appointment has been endorsed by the Secretary;	Section 2.1
	(b) Be prepared in consultation with DRE and the Forestry Commission of NSW;	Section 2.1
	(c) Be submitted to the secretary for approval within 6 months of the date of this consent, or prior to carrying out exploration activities causing surface disturbance or constructing surface infrastructure (whichever is the earlier), unless the Secretary agrees otherwise;	Section 2.1
	(d) Include a description of the measures that would be implemented for:	Section 2.4
	• managing exploration activities;	Section 2.4
	• managing construction and operation of minor surface infrastructure (including mine water drainage bores, service boreholes and infrastructure corridors) and associated access tracks;	Section 2.4
	• consulting with and compensating affected landowners;	Section 2.1.2
	• avoiding threatened species, populations or their habitats and EECs;	Section 2.2.1
	• minimising clearance and disturbance of native vegetation;	Section 2.4.5
• minimising erosion and sedimentation;	Section 2.4.1	
• achieving applicable standards and goals; and	Section 1.6.7	
• rehabilitating disturbed areas	Section 2.5	

*\*As noted in Schedule 4, Condition 28 of SSD-5594 this condition does not apply to the construction of approved surface infrastructure in the Springvale pit top area.*

### 1.6.2 Statement of Commitments

Relevant commitments from the Springvale Mine Extension Project Environmental Impact Statement (EIS) (as appended to SSD-5594) have been reproduced in **Table 4**.

**Table 4 – Relevant Statements of Commitment**

Commitment	Commitment Requirement	Section Addressed
Statement of Commitments 1	As the required exploration drill holes are determined, Springvale Coal will undertake a series of due diligence assessments to consider the key impacts as relevant. The general approach of the due diligence assessments will be to conduct site investigations to ensure that significant impacts are avoided.	Section 2.3.1, Appendices 3 to 6
Statement of Commitments 2	Prior to Construction of Surface Facilities on the Newnes Plateau, a Construction Environmental Management Plan will be developed in consultation with the Forestry Corporation of NSW. This plan will include noise management in accordance with the Project Specific Noise Criteria detailed in Section 10.6.3 of the EIS. A copy of the Construction Environmental Plan will be provided to Lithgow City Council for their consideration.	This Document Sections 2.1 and 2.4.8

Commitment	Commitment Requirement	Section Addressed
Statement of Commitments 3	Proposed exploration activities will be notified to DRE and where applicable to the Forestry Corporation of NSW. All required approvals will be obtained prior to the commencement of any exploration activities. Copies of any due diligence assessments will also be provided to DRE and Forestry Corporation (where applicable).	Section 2.3.1, Appendices 5 to 6
Statement of Commitments 8	Prior to the commencement of construction activities, a Construction Traffic Management Plan will be developed and implemented. The Plan will be developed in consultation with Lithgow City Council and Forestry Corporation of NSW.	Sections 2.1 and 2.6

### 1.6.3 Mining Tenements

The Springvale holding includes Mining Lease (ML) 1303, ML 1323, ML 1326, ML 1424, ML 1537, ML 1588, ML 1670, ML 1727, one Coal Lease (CL) (CL 377) and one Mining Purposes Lease (MPL) (MPL 314) (refer **Figure 2**). Springvale also undertake exploration activities in accordance with EL 6974 and AUTH 460. On 29 October 2012, 15 May 2013 and 2 June 2015 Centennial Springvale Pty Limited submitted Mining Lease Application (MLA) 445 and MLA 497, respectively. MLA 445 is associated with the Bore 8 dewatering facility (and the associated infrastructure corridor) and MLA 497 is associated with Licenced Discharge Point (LDP) 009.

Springvale mining tenements include specific conditions relating to the requirements for construction and exploration activities on Newnes Plateau. A summary of relevant conditions, together with the notation of the section of this document in which each matter is addressed has been provided as **Appendix 1**.

### 1.6.4 Environment Protection Licence

Springvale currently operates under Environmental Protection Licence (EPL) 3607, issued under the *Protection of the Environment Operations Act 1997* (POEO Act).

### 1.6.5 Water Licences

Springvale currently holds four groundwater extraction licences as outlined in **Table 5**. Additionally Springvale holds licences for groundwater monitoring bores issued under Section 115 of the Water Act 1912. Springvale will continue to liaise with the Department of Primary Industries – Water (DPI Water) with regard to the site’s future licensing requirements.

**Table 5 – Water Licences**

Licence	Date of Issue	Expiry
Groundwater Licence 10WA118719 (WAL 36383)	5 August 2013	Perpetuity
Groundwater Licence 10BL603519 (WAL 36383)	25 February 2010	Perpetuity
Groundwater Licence 10BL602017 (WAL 36443)	4 September 2007	Perpetuity
Groundwater Licence 10BL601863 (WAL 36446)	4 September 2007	Perpetuity

### 1.6.6 Occupation Permit

The Newnes State Forest is located above the majority of the Springvale underground workings (refer **Figure 5**). Springvale has established a Level 3 Occupation Permit with the FCNSW to operate under the forest and to build surface infrastructure and other surface facilities (refer **Table 6**). The permit allows for infrastructure construction and ongoing surface maintenance to support below ground operations, including ventilation, dewatering and electricity supply infrastructure.



Level 2 Occupation permits will be discussed with the FCNSW with regards to short term duration activities such as exploration drilling.

Occupation Permits include details of fees/compensation to be paid to the FCNSW during the term of the permit.

**Table 6 – Occupation Permit**

Permit	Date of Issue	Expiry	Details
Level 3 Occupation Permit – Infrastructure	17 December 2012	1 February 2018	Approval from FCNSW allowing to operate and build surface infrastructure/facilities on the surface within the Newnes State Forest to support below ground operations.

### 1.6.7 Relevant Guidelines and Standards

This document has been prepared in accordance with the following guidelines and standards:

- *Additional Access Conditions for Oversize and Overmass Heavy Vehicles and Loads (RMS, 2015);*
- *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW, 2010);*
- *Guideline for community consultation requirements for exploration (DRE, 2012a);*
- *Guideline for Community Consultation Reporting – Coal and Petroleum Exploration (DRE 2012b);*
- *EDG01: Borehole Sealing Requirements on Land: Coal Exploration (Department of Industry – Division of Resources and Energy (DRE), 2012c);*
- *Exploration Code of Practice: Rehabilitation (DRE, 2015a);*
- *Exploration Code of Practice: Environmental Management (DRE, 2015b);*
- *Managing Urban Stormwater; Soils and Construction (The Blue Book) Volume 1 (Landcom, 2004);*
- *Managing Urban Stormwater; Soils and Construction Volume 2A, Installation of Services (Department of Environment and Climate Change (DECC), 2008a);*
- *Managing Urban Stormwater; Soils and Construction Volume 2C, Unsealed Roads (DECC, 2008b);*
- *Managing Urban Stormwater; Soils and Construction Volume 2E, Mines and Quarries (DECC, 2008c);*
- *Minimum Construction Requirements for Water Bores in Australia: Edition 2 (Land and Water Biodiversity Committee, 2003); and*
- *Waste Classification Guidelines (DECCW, 2009).*

## 2 IMPLEMENTATION

### 2.1 Consultation

#### 2.1.1 Government Consultation

This Exploration Activities and Minor Surface Infrastructure Management Plan has been prepared by SLR Consulting. In accordance with the requirements of Schedule 4, Condition 28 (a) of Development Consent SSD-5594, SLR Consulting have been endorsed by the Department of Planning and Environment (DP&E) as suitably qualified and suitable persons. A copy of this endorsement has been provided as **Appendix 2**.

To satisfy the requirements of Development Consent SSD-5594 Springvale has consulted with relevant stakeholders during the preparation of this Plan. A copy of the Plan was provided to the DRE, DP&E, FCNSW and Lithgow City Council (Council) for review on 16 March 2016. Feedback received by these stakeholders has been appropriately considered prior to submitting a copy of the final Plan to the DP&E for approval.

Springvale regularly engages with various government and other agencies to report on its environmental performance. This is facilitated through a number of means including:

- Council representation on the Community Consultative Committee (CCC);
- CCC report and Annual Review to the DP&E;
- Liaison with the NSW Environment Protection Authority (EPA) regarding EPL conditions;
- Provision of the Annual Review to DRE and other relevant Government agencies;
- Provision of the Annual Licence Return to EPA; and
- Provision of the National Pollutant Inventory (NPI) to the Commonwealth Department of the Environment (DoE) via the Office of Environment and Heritage (OEH).

During the preparation of the Springvale Mine Extension Project EIS, consultation was also undertaken with Commonwealth, State and Local government agencies including:

- DoE;
- OEH;
- EPA;
- DRE;
- Department of Primary Industries (including the DPI Water, FCNSW, NSW Agriculture, Fisheries NSW, and Catchments and Lands (Crown Lands Division));
- Roads and Maritime Services (RMS);
- NSW Health;
- Sydney Catchment Authority (SCA);
- Hawkesbury-Nepean Catchment Management Authority; and
- Lithgow City Council.

Prior to the commencement of construction works for the Mine Services Borehole Compound, Bore 9 Dewatering Facility and Bore 10 Dewatering Facility, Springvale will notify FCNSW. Springvale will submit bore construction details and applications for groundwater extraction licences to DPI Water.

Springvale will undertake an assessment of the risk of blowouts prior to the commencement of any drilling associated with the Mine Services Borehole Compound, Bore 9 Dewatering Facility and Bore 10 Dewatering Facility. Details of this assessment will be provided to the DRE at least seven days prior to the proposed commencement of drilling.

As a component of the Bore 10 Dewatering Bore Facility, Springvale will be constructing a ventilation shaft. As this shaft will have a diameter >500 mm this is classified as a 'high risk activity' under the *Works Health and Safety (Mines and Petroleum Sites) Regulation 2014*. Accordingly, Springvale will notify the DRE three months prior to commencement of drilling for this shaft.

Prior to the commencement of construction works for Booster Pump Station 1, Booster Pump Station 2 and the infrastructure corridor between the Borehole Substation and Booster Pump Station 2, Springvale will seek approval to undertake the operations within an 'exempted area' from the Minister for Industry, Resources and Energy. Additionally, Springvale will provide copies of any due diligence assessments to DP&E, DRE and FCNSW (where applicable). Springvale will also notify FCNSW of their intention to commence works.

Due diligence assessments will be prepared using the Ecological and Heritage Dues Diligence Assessment Templates (refer **Appendix 3** and **4**, respectively). Copies of completed ecological and heritage due diligence assessments will be appended to this Plan (refer **Appendix 5** and **6**, respectively).

Springvale will also notify stakeholders prior to the commencement of exploration drilling and/or groundwater monitoring activities as follows:

- At least 28 days prior to the commencement of exploration drilling and/or groundwater monitoring activities Springvale will notify the DP&E Regional Hydrogeologist;
- At least 28 days prior to commencing any exploration drilling and/or groundwater monitoring activities which will involve disturbance to the surface of any area under the control of the Sydney Catchment Authority, the licence holder must notify the Authority's General Manager, Catchment Operations of the intention to do so and will supply information required to determine the location of the proposed operations;
- Prior to the commencement of exploration drilling and/or groundwater monitoring activities Springvale will provide copies of any due diligence assessments to DP&E, DRE and FCNSW (where applicable);
- Prior to the commencement of exploration drilling and/or groundwater monitoring activities Springvale will provide a Rehabilitation Cost Estimate (RCE) which covers the activities to the DRE;
- Prior to the commencement of exploration drilling and/or groundwater monitoring activities within the Newnes State Forest, Springvale will seek approval to undertake the operations within an 'exempted area' from the Minister for Industry, Resources and Energy;
- The licence holder will notify DRE and FCNSW (where applicable) at least seven days prior to the proposed commencement of any exploration drilling and/or groundwater monitoring activities;
- Springvale will undertake an assessment of the risk of blowouts prior to the commencement of any drilling. Details of this assessment will be provided to the DRE at least seven days prior to the proposed commencement of any exploration drilling and/or groundwater monitoring activities;
- If Springvale propose to leave an exploration drill hole in an open condition for future groundwater monitoring purposes they will notify the DRE; and
- Springvale will consult with DPI Water regarding licences for groundwater monitoring bores issued under Section 115 of the *Water Act 1912*, as required.

### 2.1.2 Community Consultation

A significant amount of consultation was undertaken during the preparation of the Springvale Mine Extension Project EIS (Golder Associates, 2014). This consultation was completed in accordance with

the Springvale Stakeholder Engagement Plan. Regional community consultation was undertaken for the Springvale Mine Extension Project EIS (which included the approval for construction of the Mine Services Borehole Compound and the Bore 9 and 10 Dewatering Facilities) in conjunction with other regional Centennial Coal projects. This comprised:

- Advertisements in local and regional newspapers (Lithgow Mercury and the Mudgee Guardian) to make the community aware of the Springvale Mine Extension Project;
- Holding face-to-face consultations and site inspections;
- Holding public information and 'question and answer' sessions;
- Preparing letter/newsletter/information flyer drop-offs in the local community;
- Providing updates regarding the Springvale Mine Extension Project on the Centennial Coal website.

Springvale will undertake consultation for exploration drilling and/or groundwater monitoring purposes in accordance with the *Guideline for Community Consultation Requirements for Exploration* (DRE, 2012b).

All construction of minor surface infrastructure and the majority of exploration and/or groundwater monitoring activities will be undertaken within the Newnes State Forest (which is owned and managed by the FCNSW). In the event that exploration and/or groundwater activities were to be undertaken on private land, an Access Agreement will be prepared with the landowners. The Access Agreement will include details regarding consultation and compensation.

An annual report outlining community consultation undertaken in accordance with the guideline (DRE, 2012b) will be submitted annually to DRE in accordance mining tenement requirements as agreed with Centennial Coal. This report will include evidence that consultation was undertaken in accordance with the guideline.

## 2.2 Existing Environment

The proposed construction, exploration and groundwater monitoring activities are located within land used for commercial forestry in the Newnes State Forest. The Newnes State Forest comprises approximately 25,000 ha of pine plantation and native hardwood forest that is selectively logged under the FCNSW tenure and management. In addition to the timber industry, the Newnes State Forest supports a number of recreational land uses. Public access is permitted in the Newnes State Forest with common recreation activities consisting of motorcycle riding, four wheel driving, bushwalking, camping, mountain bike riding, canyoning, photography, bird watching and other recreational and adventure activities.

### 2.2.1 Ecology

Environmental avoidance mapping has been undertaken by RPS (2014a, 2015) to determine the optimum site for the Mine Services Borehole Compound, Bore 9 and Bore 10 Dewatering Facilities, booster pump stations, infrastructure corridors and access tracks. There are four EECs recorded within the Springvale Project Application Area by RPS (2014a, 2015), the locations of which are shown on **Figure 6**:

- Temperate Highland Peat Swamps on Sandstone. This ECC is listed under the EPBC Act, and vegetation communities recorded within the area that correspond to this EEC are:
  - MU50 – Newnes Plateau Shrub Swamp;
  - MU51 – Newnes Plateau Hanging Swamp; and
  - MU52 – Newnes Plateau Rush – Sedge Snow Gum Hollow Wooded Heath;

- Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion (Newnes Plateau Shrub Swamp). This EEC is listed under the *Threatened Species Conservation Act 1995* (TSC Act), and the one vegetation community recorded within the area that corresponds to this EEC is:
  - MU50 – Newnes Plateau Shrub Swamp;
- Montane Peatlands and Swamps of the Sydney Basin Bioregion (Montane Peatlands and Swamps). This EEC is listed under the TSC Act, with the following vegetation community forming part of this EEC:
  - MU 52 – Newnes Plateau Rush – Sedge Snow Gum Hollow Wooded Heath; and
- Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions (Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland). ). This EEC is listed under the TSC Act, and vegetation communities recorded in the area which correspond to this EEC are:
  - MU11 – Tableland Gully Snow Gum – Ribbon Gum Montane Grassy Forest; and
  - MU15 – Tableland Hollows Black Gum – Black Sally Open Forest.

Threatened plant species identified from literature reviews and database searches that were also assessed as potentially occurring within the disturbance area of the Springvale Mine Extension Project EIS included:

- *Acacia bynoeana* (Bynoe's Wattle);
- *Boronia deanei subsp. Deanei* (Deane's Boronia);
- *Caesia parviflora var. minor* (Small Pale Grass-lily);
- *Eucalyptus aggregata* (Black Gum);
- *Eucalyptus pulverulenta* (Silver-leafed Gum);
- *Genoplesium superbum* (Superb Midge Orchid);
- *Lastreopsis hispida* (Bristly Shield Fern);
- *Persoonia acerosa* (Needle Geebung);
- *Persoonia hindii*;
- *Prasophyllum fuscum* (Tawny Leek Orchid);
- *Prostanthera cryptandroides subsp. cryptandroides* (Wollemi Mintbush);
- *Thesium austral* (Austral Toadflax); and
- *Veronica blakelyi syn. Derwentia blakelyi*.

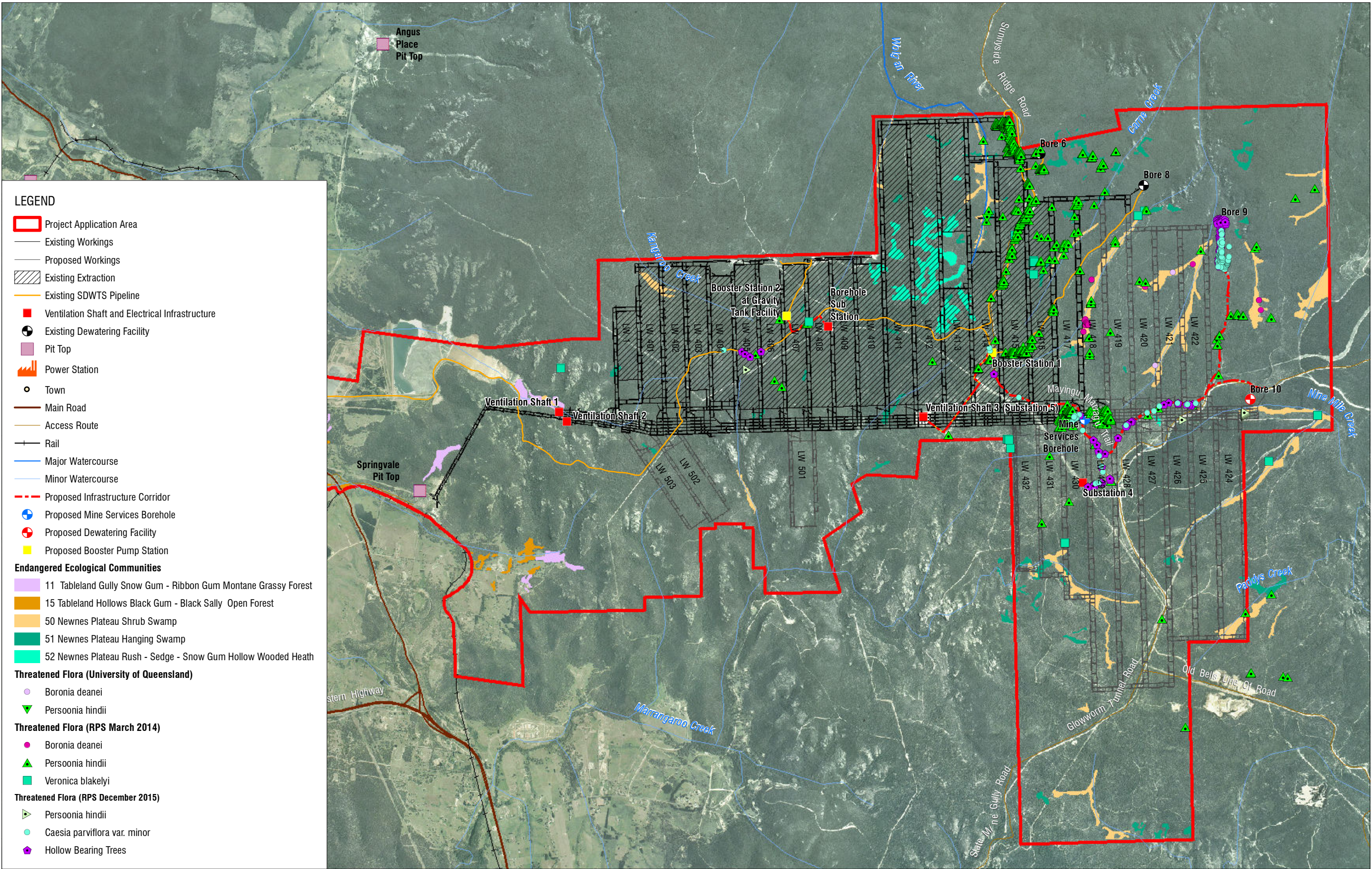
Avoidance mapping has been undertaken by RPS (2014a, 2015) to identify significant ecological features within the proposed construction footprint. This enabled Springvale to effectively identify and avoid ecological constraints, as required. The approved location of the Mine Services Borehole Compound, Bore 9 and Bore 10 Dewatering Facilities, booster pump stations, infrastructure corridors and access tracks have been selected to mitigate impacts to threatened flora and EECs (refer **Figure 6**).

### 2.2.2 Aboriginal Heritage

The Cultural Heritage Impact Assessment prepared by RPS (2014b) to support the Springvale Mine Extension Project EIS outlined that there are 22 previously registered and newly identified Aboriginal heritage sites within the Project Application Area. None of the identified Aboriginal heritage sites are located within the proposed disturbance footprint for the Mine Services Borehole Compound, Bore 9 and Bore 10 Dewatering Facilities, infrastructure corridors and access roads. The location of identified Aboriginal heritage sites within the Project Application Area has been shown on **Figure 7**.



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**LEGEND**

- Project Application Area
- Existing Workings
- Proposed Workings
- Existing Extraction
- Existing SDWTS Pipeline
- Ventilation Shaft and Electrical Infrastructure
- Existing Dewatering Facility
- Pit Top
- Power Station
- Town
- Main Road
- Access Route
- Rail
- Major Watercourse
- Minor Watercourse
- Proposed Infrastructure Corridor
- Proposed Mine Services Borehole
- Proposed Dewatering Facility
- Proposed Booster Pump Station

**Endangered Ecological Communities**

- 11 Tableland Gully Snow Gum - Ribbon Gum Montane Grassy Forest
- 15 Tableland Hollows Black Gum - Black Sally Open Forest
- 50 Newnes Plateau Shrub Swamp
- 51 Newnes Plateau Hanging Swamp
- 52 Newnes Plateau Rush - Sedge - Snow Gum Hollow Wooded Heath

**Threatened Flora (University of Queensland)**

- Boronia deanei
- Persoonia hindii

**Threatened Flora (RPS March 2014)**

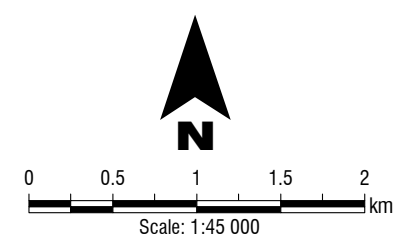
- Boronia deanei
- Persoonia hindii
- Veronica blakelyi

**Threatened Flora (RPS December 2015)**

- Persoonia hindii
- Caesia parviflora var. minor
- Hollow Bearing Trees

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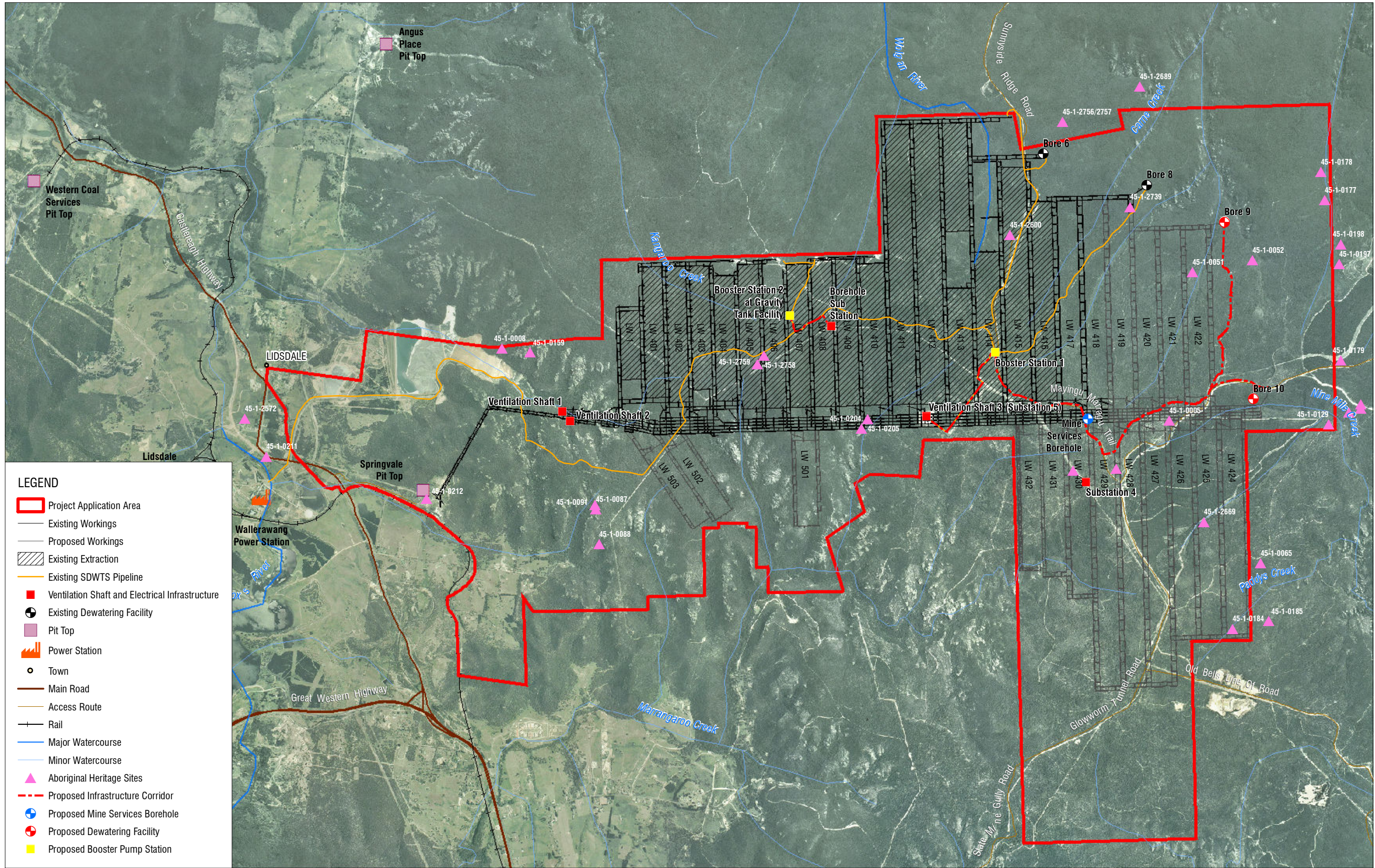
**Threatened Flora and  
Endangered Ecological Communities**

FIGURE 6

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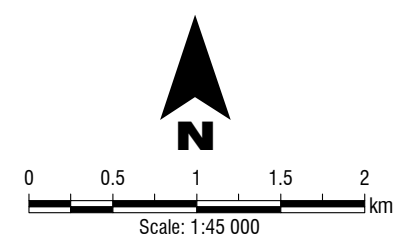
**LEGEND**

- Project Application Area
- Existing Workings
- Proposed Workings
- Existing Extraction
- Existing SDWTS Pipeline
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- Pit Top
- Power Station
- Town
- Main Road
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- Minor Watercourse
- Aboriginal Heritage Sites
- Proposed Infrastructure Corridor
- Proposed Mine Services Borehole
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- Proposed Booster Pump Station

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**CENTENNIAL SPRINGVALE PTY LTD**

**Aboriginal Heritage Sites**

FIGURE 7



## 2.3 Construction Methodology

### 2.3.1 Exploration

As outlined in **Section 1.2.1**, all exploration and/or groundwater monitoring activities are undertaken within EL 6974 and AUTH 460 in accordance with the requirements of the *Mining Act 1992* and this Exploration and Minor Surface Infrastructure Management Plan.

Due-diligence field inspections and targeted surveys of the proposed drill sites and associated access tracks will be undertaken by appropriately qualified ecologist and heritage specialists prior to commencement of works. This is to ensure the potential for localised impacts and risks are minimised and, where necessary, appropriately managed. Noise assessments will be undertaken when proposed drill sites are in proximity to sensitive receptors. The combination of environmental sensitivity risk mapping and targeted due-diligence surveys of potential drill sites will provide greater flexibility in selecting the most suitable final drill site locations with minimal impact on the local environment. Copies of any due diligence assessments will be provided to DP&E, DRE and FCNSW (where applicable). Additionally copies of the due diligence assessments will be included as **Appendices 5 and 6**.

At least seven days prior to the proposed commencement of any exploration drilling and/or groundwater monitoring activities, Springvale will notify DRE and FCNSW (where applicable). Before commencing any exploration and/or groundwater monitoring drilling, Springvale will carry out an assessment of the risk of blowouts. Details of the assessment will be notified to the DRE at least seven days prior to the proposed commencement of drilling. If this assessment indicates that there is potential for a blowout to occur, blowout prevention equipment will be installed, in accordance with the *Schedule of Onshore Petroleum Exploration and Production Safety Requirements (DMR 1992)*.

Following vegetation clearing at the drill hole site, appropriate erosion and sediment controls will be installed and maintained around disturbed areas in accordance with the Blue Book (Landcom, 2004). Felled trees and top soil are stockpiled for use in rehabilitation. The planning, design, construction and maintenance of all access tracks will be generally in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads (DECC 2008b)*.

In accordance with the requirements of EL 6974 and AUTH 460 Springvale will use above-ground sumps or in-ground sumps, where appropriate. In-ground sumps will be lined with an impermeable liner. Where suitable, above ground sumps are used to minimise the disturbance footprint resulting from the prospecting operations. The sump used to store drilling fluid, comprising a mixture of water and mud or a biodegradable polymer, is lined with plastic sheets. Water required for drilling is sourced from one of the dewatering bore facilities and is transported to the drill sites using water trucks.

Exploration bores are generally drilled by open hole drilling method (123 mm and/or 99 mm diameter bit) to 10 m above the Lithgow Seam. The bore is HQ diameter cored from 10 m above the Lithgow Seam roof, to 10 m below the Lithgow Seam Floor.

During drilling, fluid is continuously pumped to the drill head to facilitate the removal of cuttings, stabilise the borehole, cool the cutting head and lubricate the passage of the product pipe. The drilling fluid is generally sent into a reclaimer which removes the drill cuttings and maintains correct viscosity of the fluid. All drilling fluid recovered that cannot be recycled will be vacuum pumped and removed from site following OEH's *Waste Classification Guidelines (DECCW, 2009)* and the use of a licensed waste transporter to a receiving facility or other destination allowable under EPL 3607.



All cored holes will be surveyed and permanently marked in accordance with DRE guidelines so their location can be easily re-identified. Spoils or cuttings generated during drilling will generally be collected, segregated and disposed of in properly constructed containers and removed to a licenced landfill. Occasionally spoils or cuttings may be stockpiled on site for use in rehabilitation including for back-filling drilled holes, in cases where no piezometer installation occurs. Sealing of the drill holes within AUTH 460 will be undertaken in accordance with the requirements of *EDG01: Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012c). Sealing of drill holes within EL 6974 will be undertaken in accordance with the *Exploration Code of Practice: Rehabilitation* (DRE, 2015).

A flowchart summarising the process undertaken prior to, during and post exploration drilling and/or groundwater monitoring at Springvale has been provided as **Figure 8**.

### 2.3.2 Mine Services Borehole Compound

The construction footprint for the Mine Services Borehole Compound will be approximately 90 m x 100 m. Drilling of the boreholes, using the blind boring method, will be undertaken as described in **Section 2.3.1**.

Following vegetation clearing over the entire construction footprint at the Mine Services Borehole Compound drill pad site location, and prior to the mobilisation of the drill rig and other plant required for the construction of the boreholes, erosion and sediment controls will be implemented to mitigate any potential water quality impact on the receiving environment from surface disturbance. The localised erosion and sediment controls (for example, sediment fences, clean and dirty water diversion structures), to be implemented at the drill pad sites will be consistent with the objectives of Springvale Mine's Water Management System and will be carried out in accordance with the industry best practice principles for the region and guidelines for erosion and sediment control (Landcom, 2004). During construction a sediment basin will be installed to capture dirty water runoff from disturbed areas via clean water diversion bunds installed on the perimeter of the site compound.

Cut-and-fill procedures will be undertaken on the cleared land to create an almost topographical level area. All disturbed areas will be stabilised as soon as practical after excavation activities using standard design guidelines (Landcom, 2004). The topsoil and subsoil stripped from the area will be stockpiled separately for subsequent use in rehabilitation. Best practice methodology will be employed during topsoil stripping and transportation to prevent excessive soil deterioration.

A sump will be excavated for the storage and recycling of the drilling fluid during drilling of boreholes. Following the completion of drilling and once the Mine Services Borehole Compound has been established and partially rehabilitated to form a constructed footprint with a 20 m Asset Protection Zone around it, the sump will be retained for operations to capture dirty water runoff from disturbed areas for treatment prior to discharge off site.

The Mine Services Borehole Compound will be installed with permanent erosion and sediment controls, and permanent water management structures to separate dirty water runoff from clean water to minimise pollution of receiving waters.

A flowchart summarising the process undertaken prior to construction, during construction/operation and post operation of surface infrastructure at Springvale has been provided as **Figure 9**.

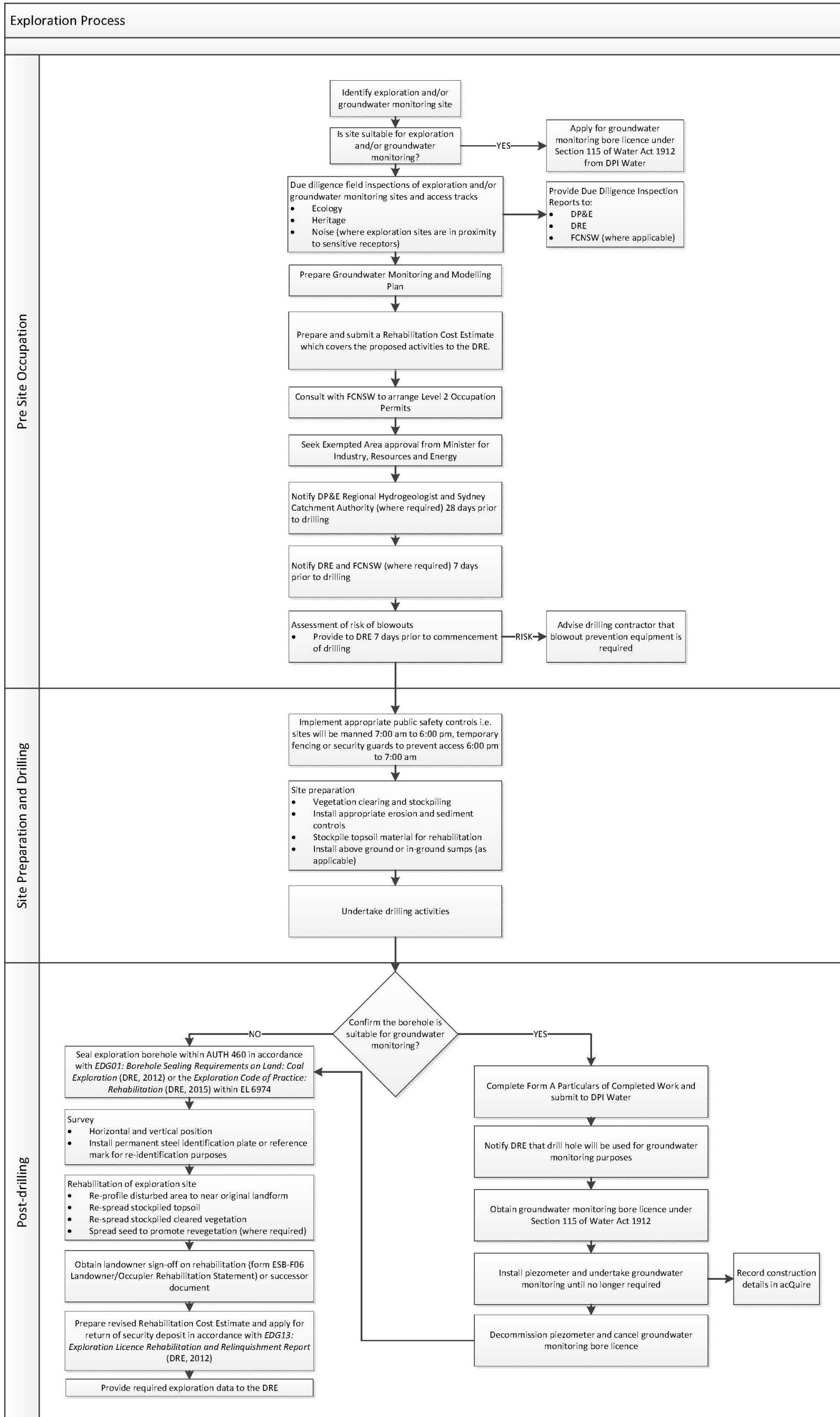


Figure 8 – Process for Exploration and Groundwater Monitoring Activities

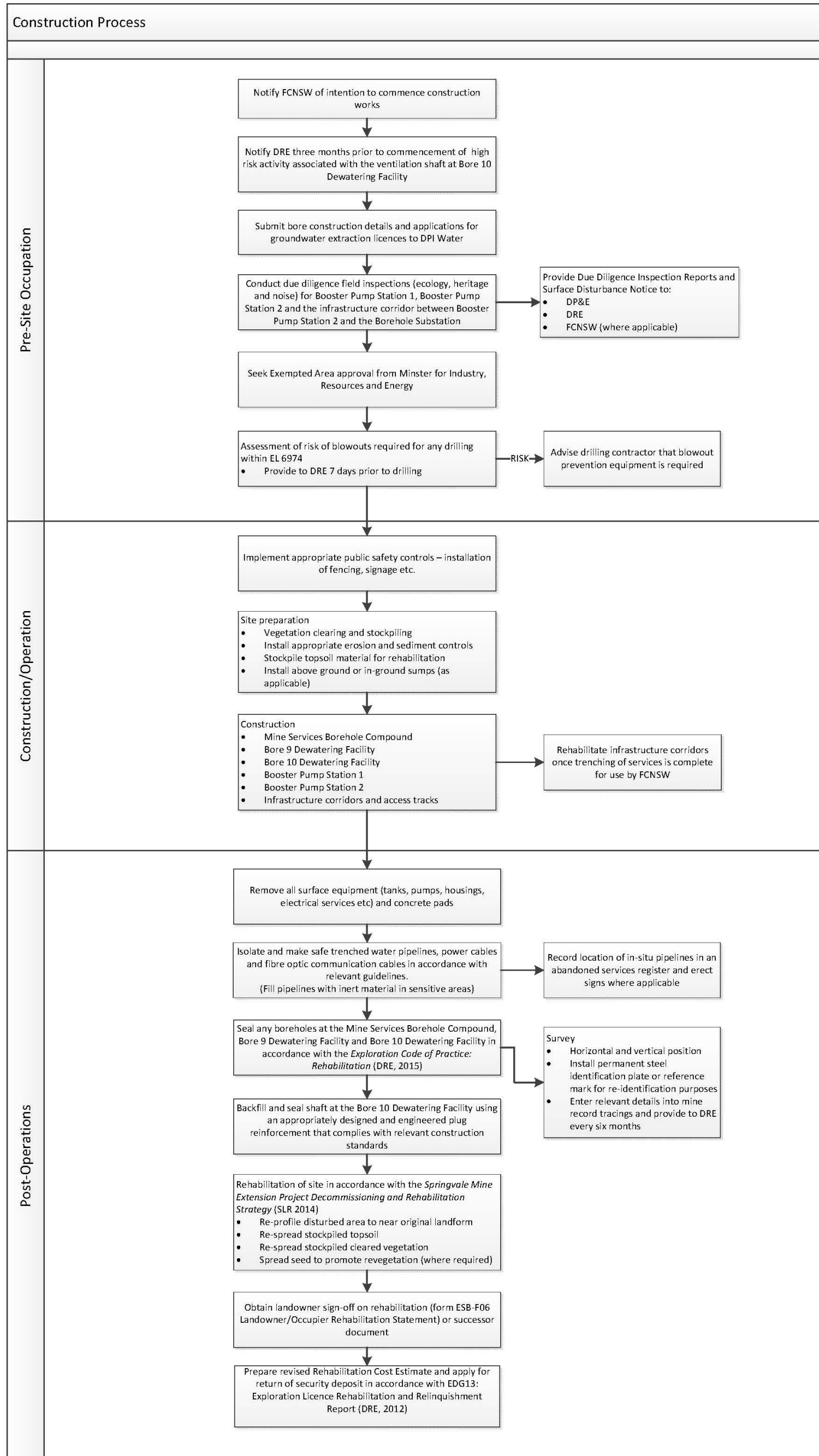


Figure 9 – Process for Construction Activities

### 2.3.3 Dewatering Bore Facilities

The construction footprint of each dewatering bore facility site will be approximately 90 m x 110 m, with the final constructed footprint to be 50 m x 70 m. Drilling of the boreholes and downcast ventilation borehole will be undertaken by rotary percussion drilling. This method is best suited for hard, mainly rocky soils. Drilling is performed by means of a down-the-hole hammer; and a jet of compressed air which is used to flush the debris out of the borehole and keeping its bottom clear from any cuttings. The jet of compressed air is fed into the bottom of the borehole through the drill pipes using three different methods:

1. Dry compressed air: the debris is flushed up to the surface by compressed-air injected at high-speed into the borehole.
2. Water-foam mix: the drill cuttings are lifted by the injected compressed air and flushed out by a mix of water and foam pumped at high-speed into the borehole.
3. Thickened stabilized foam mix: the volume is increased by air and the drill cuttings are lifted by the foam mix resulting in lower energy consumption and a lower air volume.

This drilling method involves lower circulation losses and allows the bottom of the borehole to be quickly and ideally freed from any debris.

The land preparation and the installation or erosion and sediment controls for the establishment of the Bore 9 and Bore 10 Dewatering Facilities will be as described in **Section 2.3.2**. It is noted that the erosion and sediment controls will be temporary, however these will be maintained until after rehabilitation has been completed to ensure that water management structures effectively separate dirty water runoff from clean water to minimise pollution of receiving waters.

A flowchart summarising the process undertaken prior to construction, during construction/operation and post operation of surface infrastructure at Springvale has been provided as **Figure 9**.

### 2.3.4 Booster Pump Stations

The construction footprint of Booster Pump Station 1 will be approximately 60 m x 60 m. Booster Pump Station 2 will be established within the existing disturbance footprint at the gravity tank site and will not require additional clearing. The land preparation for the establishment of Booster Pump Station 1, along with the installation of erosion and sediment controls for the booster pump stations will be as described in **Section 2.3.2**. It is noted that the erosion and sediment controls will be temporary, however these will be maintained until after rehabilitation has been completed to ensure that water management structures effectively separate dirty water runoff from clean water to minimise pollution of receiving waters.

A flowchart summarising the process undertaken prior to construction, during construction/operation and post operation of surface infrastructure at Springvale has been provided as **Figure 9**.

### 2.3.5 Infrastructure Corridors and Access Tracks

As noted in **Section 1.2.5**, the extension of the SDWTS and power supply to the Bore 9 Dewatering Facility and Bore 10 Dewatering Facility will involve the installation of trenched pipelines, 11 kV power cables and fibre optic cables. The trenched power supply and communications cables will also be installed to Booster Pump Station 1. The power supply will originate from the existing Substation 5 and will involve trenching of approximately 6.5 km of 11 kV power cables and fibre optic cables. Approximately 800 m of 11 kV power cables and fibre optic cables will be trenched within a 5 m corridor from the existing Borehole Pump Substation to Booster Pump Station 2. All new electrical

power cables will be trenched to avoid the potential for overhead lines to trigger bushfires or be destroyed by bushfires.

Upgrades and extensions to existing access tracks to Bore 9 and Bore 10 will be undertaken from Glowworm Tunnel Road, as will a short new access track to the Mine Services Borehole Compound from Mayinygu Marragu Trail. The planning, design, construction and maintenance all access tracks will be generally in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 2C, Unsealed Roads* (DECC 2008b).

Vegetation clearing along the existing access tracks will only occur on both sides of the road to create a 10 m wide track which will be partially rehabilitated to a final 5 m track. Sediment and erosion controls will be installed within the infrastructure corridors, encompassing access tracks to the drill pad sites and trenched SDWTS pipelines and power cables. Cross-banks and mitre drains will be constructed along sections of the access tracks at appropriate distances as dictated by topography, in accordance with DECC (2008b) to convey run-off away from the road alignment. The infrastructure corridor will be conducted and graded to a crown to shed water in accordance with Landcom (2004).

The backfilled trench within the infrastructure corridor will be thoroughly compacted to avoid settlement/ subsidence of the fill material and inadvertent channelisation of water. The top 150 mm of fill will subsequently be scarified or roughened (if required) to assist topsoil adhesion and vegetation establishment.

## 2.4 Environmental Management Activities and Controls

### 2.4.1 Erosion and Sediment Control

Management of erosion and sedimentation at Springvale is achieved by implementing the following principles:

- Separating undisturbed, 'clean water' runoff from disturbed, 'dirty water' runoff to minimise and isolate the amount of dirty water to be treated and either reused or discharged off site;
- Directing sediment-laden runoff into designated sediment control retention ponds;
- Diverting 'clean water' runoff unaffected by the operations offsite; and
- Maintaining sediment control structures to ensure that the designed capacities are maintained for optimum settling of sediments.

Measures that will be implemented to manage erosion and sedimentation resulting from construction, approved exploration and/or groundwater monitoring activities on the Newnes Plateau include:

- Undertaking works in accordance with:
  - *Managing Urban Stormwater: Soils and Construction, Volume 1 (The Blue Book)* (Landcom, 2004);
  - *Managing Urban Stormwater: Soils and Construction Volume 2A, Installation of Services* (DECC, 2008a);
  - *Managing Urban Stormwater: Soils and Construction Volume 2C, Unsealed Roads* (DECC, 2008b); and
  - *Managing Urban Stormwater: Soils and Construction Volume 2E, Mines and Quarries* (DECC, 2008c).
- Prior to commencement of construction works, waterways and drainage lines in close proximity to the site will be identified;

- Stormwater will be diverted away from disturbed areas by directing clean water around the site. This may be achieved by installing a silt bag bund or a compacted earthen bund upslope of the work site;
- Sediment build up will be regularly cleaned from behind controls to ensure they work efficiently;
- All erosion and sediment controls will be checked regularly and before and after rainfall events, and maintained as required to ensure they are operating effectively; and
- Unless designed and constructed for wet weather use, Springvale, where practical will restrict the use of unsealed roads and access tracks during wet weather to prevent damage to that track or road.

### 2.4.2 Trenching of Services

A progressive trencher will construct the trenches for the water pipelines, 11 kV power cables and fibre optic communications cables, as relevant, within the respective infrastructure corridors. This method results in soil being placed directly adjacent to the trench. The trenched soil will be stockpiled separately as topsoil and subsoil. The advantage of this process is that disturbance is kept to a minimum. The mixing of topsoil and subsoil in the trenched material will be avoided. The ecological value of the topsoil and the likelihood of success of natural regeneration of seedbank contained within the removed topsoil will be dependent upon this occurring.

### 2.4.3 Topsoil Management

Stripping and stockpiling of topsoils followed by re-spreading for revegetation is regarded as best practice rehabilitation in the mining industry. The use of topsoil in this regard has three main advantages: as a source of seeds (seed bank), soil microbial organisms, and as a physical covering for dispersive subsoils. Biologically, the value of stockpiled topsoil is largely determined by the length of time that soil will be stockpiled and the physical shape of the stockpile.

Where soil stripping and transportation is required, Springvale will undertake the operations in accordance with the methodologies outlined within the *Springvale Mine Extension Project Soils and Land Capability Assessment* (SLR 2013a). This assessment identifies the recommended soil stripping depths based upon the identified soil types that will be disturbed during construction works on Newnes Plateau. This detail has been provided as **Table 7**.

**Table 7 - Recommended Soil Stripping Depths**

Soil Type		Stripping Depth (m)	Amelioration	Limitation	Associated Surface Infrastructure
No	Name				
2	Mesotrophic Brown Kandosol	0 – 0.10	None	Strongly sodic subsoil	Dewatering Bore 9 services area, Dewatering Bore 10 services area, Mine services borehole compound
4	Brown-Orthic Tenosol	0 – 0.25	Organic amendments to improve structure required. Lime or gypsum application to improve soil acidity.	Marginally sodic subsoil	Mine services borehole compound

Soil Type		Stripping Depth (m)	Amelioration	Limitation	Associated Surface Infrastructure
No	Name				
5	Mesotrophic Brown Kandosol	0 – 0.15	Organic amendments to improve structure required. Lime or gypsum application to improve soil acidity.	Strongly sodic subsoil	Dewatering Bore 9 services area
6	Mesotrophic Brown Kandosol	0 – 0.40	Organic amendments to improve structure required. Lime or gypsum application to improve soil acidity.	Sodic subsoil	Dewatering Bore 9 services area, Dewatering Bore 10 services area, Mine services borehole compound, Infrastructure corridor
7	Dystrophic Brown Kandosol	0 – 1.10	Lime or gypsum application to improve soil acidity.	Parent Material	Dewatering Bore 10 services area

The following measures will be implemented for managing topsoil as per the Springvale Mine Extension Project EIS:

- Topsoil will be stripped to depths in **Table 7** only when moist and stockpiled a maximum of 3 m high;
- Topsoil stripping will immediately precede construction to minimise the time that bare subsoils are exposed;
- Ameliorants for each soil type will be applied for construction sites as per **Table 7**;
- Topsoil that is to be stockpiled for longer than 3 months will be stabilised;
- Prior to re-spreading stockpiled topsoil at construction sites, weeds will be examined and removed or sprayed with herbicide; and
- An inventory of available soil will be maintained to ensure adequate topsoil materials are kept separate to subsoil materials.

#### 2.4.4 Water Management

The principal objective of surface water management at Springvale is to ensure compliance with the water management performance criteria in Table 6 of SSD-5594.

As the required exploration drill holes are determined, Springvale will undertake a series of due diligence assessments to consider surface water and groundwater impacts as relevant. Future due diligence assessments will be appended to revised versions of this plan and will be uploaded to the Centennial Coal website. The general approach of the due diligence assessments will be to review baseline data and, if this review deems necessary, conduct site investigations to ensure that significant impacts are avoided. In accordance with Condition 12 of EL 6974, Springvale has prepared a Groundwater Monitoring and Modelling Plan to address this requirement.

Additional measures that will be implemented to manage surface water quality during construction, approved exploration and/or groundwater monitoring activities on the Newnes Plateau include:

- Installing the dewatering/services/ventilation bores using blind boring and mud rotary drilling methods. Boreholes will be cased and grouted along their entire lengths to prevent shallow aquifers from draining into deeper aquifers or underground and/or cross contamination of aquifers;



- Machinery, plant, equipment, and chemical storage containers will be checked as part of the drilling contractors regular mechanical and site inspections for leaks and defects. Equipment will not be used if there are signs of leaks and defects;
- All personnel will be trained in incident response and spill management;
- Safety Data Sheets (SDS) will be located on site and will be up to date (less than five years old);
- A Hazardous Substances Chemical Register will be available onsite and in compounds where chemicals are stored or used, and will be kept up to date at all times;
- Personnel shall be advised of the location and contents of the emergency procedures;
- There will be no bulk storage of dangerous goods or hazardous substances at any site. Bulk storage is permitted in controlled and secure compound areas only, and appropriate licences will be obtained where necessary;
- Chemicals will not be stored in or on structures built over water, on bare ground or unsealed surfaces, in areas with no secondary containment (i.e. no bunding), or immediately adjacent to stormwater inlets, drains, and creeks;
- Chemicals will be stored inside a bunded area or impermeable plastic container, on a flat and level surface, covered from rain, and secure from vandalism or theft;
- Areas for handling or storage of flammable and combustible liquids will be:
  - Maintained in a clean condition;
  - Free from potential ignition sources or heating;
  - Appropriately signed;
  - Have appropriate fire protection; and
  - Not stored with products that are incompatible e.g. fuel and pool chlorine.
- Bunded areas or containers will be sized to contain 110% of the largest chemical container stored within;
- When decanting from a smaller container, a temporary bund or collection tray will be used to control any accidental spills;
- Incident reports will be completed for any adverse impacts to water quality (e.g. chemical spill);
- Emergency procedures will be displayed in a prominent position within the site working area; and
- An equipped, labelled, and appropriately sized spill kit will be readily available onsite at all times.

In addition, potential impacts upon Cox's River will be managed in accordance with Cox's River Management Plan.

#### **2.4.5 Vegetation Clearing**

In accordance with the requirements of Development Consent SSD-5594, no more than 8.94 ha of native vegetation will be cleared by Springvale during the life of the project. In addition Springvale must also satisfy the requirements of the State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007. The SEPP exempts development for mine dewatering infrastructure where the construction activities are not within an environmentally sensitive area and are of minimal environmental impact. To meet the minimal impact criteria additional disturbance areas will be less than 0.25 ha (the threshold for biodiversity offsets). If the requirements of Development Consent SSD-5594 and the SEPP could not be met, a modification to the development consent will be required.

The proposed surface infrastructure is expected to encompass a total maximum area of 8.10 ha. A breakdown of the vegetation communities that occur within the proposed surface infrastructure



footprint has been provided in **Table 8**. It is noted that the proposed surface infrastructure footprint has been refined during the development of detailed design for construction, resulting in a decrease to projected clearing from the plans presented within the Springvale Mine Extension Project EIS.

**Table 8 – Vegetation within Proposed Surface Infrastructure Footprint**

Vegetation Community	Proposed Clearing Area (ha)
7 Newnes Plateau Narrow-leaved Peppermint - Mountain Gum - Brown Stringybark Layered Forest	0.86
26 Newnes Plateau Narrow-leaved Peppermint - Silver-top Ash Layered Open Forest	4.11
26a Newnes Plateau Gum Hollows variant: Brittle Gum - Mountain Gum, Scribbly Gum - Snow Gum Shrubby Open Forest	0.96
28 Sandstone Plateau and Ridge Scribbly Gum – Silver-top Ash Shrubby Woodland	2.00
44 Sandstone Plateaux Tea Tree - Dwarf Sheoak - Banksia Rocky Heath	0.07
<b>Sub-total</b>	<b>8.00</b>
59 Non-native Vegetation - Pine plantation / woodlot / shelter	0.05
62 Cleared and Severely Disturbed Lands	0.05
<b>Total</b>	<b>8.10</b>

The area of vegetation cleared will be tracked over the life of the project using a combination of data obtained via surveying and unmanned aerial vehicles (UAVs). Details of vegetation cleared will be reported annually within the Annual Review.

As stated in **Section 2.2.1**, all disturbance has been located where possible to avoid threatened flora species (including the avoidance of all recorded *Persoonia hindii* and *Veronica blakelyi*), hollow bearing trees, EECs, and to minimise clearing (refer **Figure 6**).

As outlined in **Section 1.2.1**, all exploration activities will continue to be undertaken within EL 6974 and AUTH 460 in accordance with the requirements of the *Mining Act 1992* and this Exploration and Minor Surface Infrastructure Management Plan. Due-diligence field inspections and targeted surveys of the proposed drill sites and associated access tracks will be undertaken by appropriately qualified ecologists prior to commencement of works to ensure the potential for localised impacts and risks are minimised and, where necessary, appropriately managed. The due diligence assessments will include a “7 part test” of significance. In the event that threatened flora species, EECs or hollow bearing trees are identified during the due diligence inspections, Booster Stations 1 and 2, access tracks and exploration/groundwater monitoring sites will be relocated to avoid impacts where possible. The combination of environmental sensitivity risk mapping and targeted due-diligence surveys of potential drill sites will provide greater flexibility in selecting the most suitable final drill site locations with minimal impact on the local environment. Copies of completed ecological due diligence assessments will be provided as **Appendix 5**.

Additionally, a range of management measures will be implemented by Springvale to minimise impacts from vegetation clearing on the Newnes Plateau, including:

- Impacts on vegetation will be minimised as much as possible, and constrained to the approved disturbance footprint;
- Prior to clearing the approved disturbance footprint will be clearly demarcated;
- For those areas where hard surfaces are required, undertake stockpiling of soil to enable re-establishment of visible habitat following infrastructure decommissioning;

- During clearing, and where it would not interfere with operations, the removal of vegetation will be limited to above ground parts as much as possible. This will enable any vegetation that is able to re-sprout once works are completed to do so;
- Where possible, clearing activities will avoid hollow-bearing trees. Where this cannot be avoided clearing will be timed where possible to avoid removal of hollow-bearing trees during breeding season of threatened species;
- Employment of best practice methods for felling of hollow-bearing trees;
- Prioritise the retention of hollow-bearing trees within Asset Protection Zones associated with the Mine Services Borehole Compound, Bore 9 Dewatering Facility, Bore 10 Dewatering Facility and Booster Station 1 disturbance sites;
- Placement of hollow logs and felled hollow-bearing trees within adjacent uncleared vegetation to provide additional habitat resources for terrestrial fauna; and
- Any native animals found within the construction footprint will be allowed to leave the area without undue harassment or duress. If relocation is required, appropriate expert assistance will be employed (e.g. Wildlife Information Rescue and Education Service, National Parks and Wildlife Service, specialist consultants, etc.).

#### 2.4.6 Weed Management

Management of weeds associated with construction and exploration on the Newnes Plateau include:

- Weed monitoring will be undertaken to identify potential weed infestations appropriately managed to ensure surrounding communities are protected from invasive species, until the rehabilitation has been signed off by the landowner;
- Any listed noxious weeds infestations identified will be treated. This will include any that are deemed to be deleterious to the revegetation effort, or are likely to spread during the course of the rehabilitation work. Herbicides will be used with due consideration to environmental knock-on effects;
- Any weeds that germinate from the seed bank in the topsoil stockpile will also be treated to prevent outbreaks that pose an ongoing liability; and
- Any noxious weeds removed from site will be transported in sealed bags and disposed of at an appropriate waste facility.

#### 2.4.7 Aboriginal and Non-Aboriginal Heritage

As stated in **Section 2.2.2**, construction sites have been located to avoid impacts on Aboriginal and non-Aboriginal heritage sites. All exploration activities will continue to be undertaken within EL 6974 and AUTH 460 in accordance with the requirements of the *Mining Act 1992* and this Exploration and Minor Surface Infrastructure Management Plan.

Prior to the commencement of any exploration and/or groundwater drilling activities, due-diligence surveys will be undertaken in accordance with the *Western Region Aboriginal Cultural Heritage Management Plan*. Due diligence surveys will be undertaken by appropriately qualified heritage specialists to ensure the potential for localised impacts and risks are minimised and, where necessary, appropriately managed. In the event that Aboriginal heritage sites are identified, Booster Stations 1 and 2, access tracks and exploration/groundwater monitoring sites will be relocated to avoid impacts. The combination of environmental sensitivity risk mapping and targeted due-diligence surveys of potential drill sites will provide greater flexibility in selecting the most suitable final drill site locations with minimal impact on the local environment. Copies of completed heritage due diligence assessments will be provided as **Appendix 6**.

Management of Aboriginal heritage at Springvale is undertaken in accordance with the *Western Region Aboriginal Cultural Heritage Management Plan*. Standard measures noted below will be



applied in the event that any new (i.e. currently unknown) sites are identified or suspected at any stage of the proposed works. These measures are consistent with the OEH protocols.

- All relevant Springvale and contractor staff will be made aware of their statutory obligations for heritage under NSW *National Park and Wildlife Act 1974* and the NSW *Heritage Act 1977*. This will occur through the induction training.
- If during the proposed works any Aboriginal sites are identified in the construction area, then all works in the area will cease, the area cordoned off and contact made with OEH Enviroline 131 555, a suitably qualified archaeologist and the relevant Aboriginal stakeholders, so that it can be adequately assessed and managed.
- In the unlikely event that skeletal remains are identified:
  - Work will cease immediately in the vicinity of the remains and the area will be cordoned off.
  - Springvale will contact the local NSW Police in Lithgow (6352 8399).
  - Police will make an initial assessment of the remains are part of a crime scene or possible Aboriginal remains.
  - If remains are thought to be Aboriginal the local police will contact the OEH to determine if remains are Aboriginal or otherwise.
  - An OEH Officer will determine if the remains are Aboriginal or not.
- If, during the course of development works, significant European cultural heritage material is uncovered, work will cease in that area immediately. The OEH Enviroline 131 555 will be contacted and works only recommence when an appropriate and approved management strategy has been instigated.

#### 2.4.8 Noise

The proposed construction, approved exploration drilling and/or groundwater monitoring activities will be undertaken in accordance with the approved Springvale Noise Management Plan and the Regional Noise Management Plan. There are no residential receptors in the vicinity of the Newnes Plateau sites. The noise sensitive receivers NF1 to NF9 have been identified within Newnes State Forest in locations that are used for recreational purposes.

Construction in Newnes State Forest will be undertaken 24 hours a day, seven days a week. Standard exploration and/or groundwater monitoring drilling activities will be undertaken between 7:00 am and 6:00 pm, Monday to Friday. If and when required, incidental works may also be undertaken on Saturday between 8:00 am and 1:00 pm. The Project Specific Noise Criteria (LAeq(15minute)) for the noise affected Newnes State Forest receivers as noted in the Springvale Mine Extension Project EIS is 60 dBA during construction.

Exploration drilling and/or groundwater monitoring activities must be undertaken in accordance with the requirements of the *NSW Interim Construction Noise Guidelines* (DECC, 2009). To comply with these requirements Springvale must ensure the following (Unless otherwise approved by the Minister for Industry, Resources and Energy):

- Noise levels during standard working hours (7:00 am and 6:00 pm, Monday to Friday) will not exceed the Rating Background Level (RBL) + 10 dB at any sensitive receiver; and
- Noise levels outside of standard working hours (on Saturday between 8:00 am and 1:00 pm) will not exceed the RBL + 5 dB.

In the absence of background noise monitoring, a RBL of 30 dBA has been adopted at the nearest potentially affected receivers during the standard working hours and outside of standard working hours. The *NSW Industrial Noise Policy* (EPA, 2000) provides detailed methodology to determine the RBL and in cases where the RBL is found to be less than 30 dBA states the following: “Where the rating background level is found to be less than 30 dB(A), then it is set to 30 dB(A)”.

Therefore the use of an RBL of 30 dBA will result in the minimum noise criteria applicable for the exploration drilling and/or groundwater monitoring activities. Noise assessments will be undertaken when proposed drill sites are in proximity to sensitive receivers.

The predicted construction noise levels are significantly below the respective construction noise goals at the nearest receivers and any potential construction noise impacts are predicted to be negligible (SLR, 2013b). Notwithstanding, the following noise mitigation controls will be implemented for exploration and construction activities on the Newnes Plateau to ensure compliance with Development Consent SSD-5594:

- Stakeholders will be notified of the work, in accordance with Centennial Coal procedures, prior to construction;
- All contractors will be required to ensure that only vehicles and machinery in good working condition are used;
- Machinery and vehicles will be required to be maintained during works;
- Mobile plant will be operated in a quiet, efficient manner;
- Onsite noise mitigation measures and plant operating procedures will be refined where practical (e.g. orient machinery so that noise emitting sources are situated behind site buildings and/or the exhaust is facing away from receptors);
- Clear signage will be provided including relevant contact numbers for community enquiries; and
- Community complaints relating to noise will be addressed promptly.

#### **2.4.9 Visual Amenity**

Due to the isolated nature of the work sites, visual impacts associated with construction and exploration are expected to be minor. Notwithstanding, the following mitigation measures will be implemented:

- New infrastructure will use non reflective and neutral toned cladding to reduce impacts upon visual amenity;
- Water pipelines and powerlines on the Newnes Plateau will be buried and the cleared infrastructure corridor revegetated as soon as practicable; and
- Newnes Plateau infrastructure will be progressively decommissioned and rehabilitated to woodland commensurate with adjacent remnant vegetation.

#### **2.4.10 Air Quality**

Air quality impacts associated with the exploration and construction works will be managed in accordance with the Springvale Air Quality Management Procedure, which includes the use of a number of emission controls to minimise the impact of the operations on nearby sensitive receivers. The main dust impact from construction, approved exploration and/or groundwater monitoring activities will be from traffic on unsealed roads. The following measures will be implemented by Springvale to mitigate dust impacts from construction, approved exploration activities and/or groundwater monitoring:

- Dust suppression using water carts during construction at the Mine Services Borehole Compound, Bore 9 and Bore 10 Dewatering Facilities, infrastructure corridors and access tracks will occur on an as-needs basis. Visible dust will be assessed during the weekly inspections and will be managed with water sprays if required;
- Regular maintenance of plant and equipment to minimise fuel consumption and exhaust emissions;
- Machinery and vehicles will be required to be maintained during works;
- Plant will not be left running when not in use;



- Energy use will be minimised by reducing excavation volumes, recycling topsoil and turf to reduce transport, disposal and resource use, and ensuring plant and equipment is well maintained and turned off when not in operation; and
- Minimise the generation of dust by stabilising ground progressively, implementing dust suppression as required and consider not working during windy conditions.

Air quality impacts associated with exploration and construction works also will be managed in accordance with the Regional Springvale Air Quality Management Plan.

#### 2.4.11 Public Safety

Public safety is a priority management aspect at Springvale. The mine has an approved Public Safety Management Plan to manage potential subsidence related risks to public safety above all active mining areas on Newnes Plateau. Springvale also implement controls measures including providing, where practical, fencing and warning signage. Caution will also be advised to all road users for when access tracks will be used by increased numbers of heavy vehicles (refer **Section 2.6**).

Public safety mitigation measures that will be undertaken for the construction, approved exploration and/or groundwater monitoring activities are as follows:

- Prior to the commencement of works at the Mine Services Borehole Facility, Bore 9 Dewatering Facility, Bore 10 Dewatering Facility, Booster Pump Station 1 and Booster Pump Station 2, temporary will be installed. Following the completion of construction, permanent security fencing will be installed. Temporary and permanent fencing will be installed to comply with AS 1725-2003;
- Exploration bore sites will be manned during the hours of 7:00 am to 6:00 pm. To prevent public access to the sites during 6:00 pm to 7:00 am, Springvale will utilise temporary security fencing or security guards;
- Signage will be installed to warn the public of the risks associated with unauthorised access, contact with high voltage powerlines and construction vehicle traffic;
- Existing relevant plans will be checked and 'Dial Before You Dig' searches will be undertaken to avoid interception with utilities, including underground pipelines and power cables;
- Plant will be appropriately maintained;
- Storage, handling and transportation of materials will be in accordance with relevant Australian Standards and legislation;
- To protect sites against unauthorised access during construction and operation, there will be regular site based inspections and contractor inspections. Onsite security may be considered if the site is to remain vacant for long periods of time;
- Following the completion of drilling and associated activities, all exploration drill holes in AUTH 460 that are not required for future groundwater monitoring activities will be sealed in accordance with *EDG01: Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012c);
- Following the completion of drilling and associated activities, all exploration drill holes in EL 6974 that are not required for future groundwater monitoring activities will be sealed in accordance with *Exploration Code of Practice: Rehabilitation* (DRE, 2015); and
- Exploration drill holes that are consistent with the requirements of the Centennial Coal groundwater plan/model will be used for groundwater monitoring. All drill holes which are maintained in an open or partially grouted condition will be cased to prevent collapse and will be fitted with a removal cap.

### 2.4.12 Bushfire Management

Springvale operates in accordance with a Bushfire Management Plan. Bushfire management is undertaken in consultation with the Rural Fire Service (RFS) and FCNSW. Fire management and controlled burns within the Newnes State Forest are the responsibility of FCNSW.

Springvale's Bushfire Management Plan and Bushfire Management Procedure have been developed to comply with the provisions stated in *Planning for Bush Fire Protection* (RFS, 2006a), which applies to development applications on land that is classified as Bushfire Prone Land. Given that the Newnes Plateau is classified as Bushfire Prone Land, the objectives of this guideline were consulted and applied when determining appropriate mitigation measures, such as the determination of the appropriate Asset Protection Zones (APZs).

Springvale has reduced the operational risk of bushfire through incorporation of mitigation and avoidance measures during the design of proposed construction works. During the design phase, required APZs for the Mine Services Borehole Compound and the Bore 9 and Bore 10 Dewatering Facilities were incorporated. All new electrical power cables forming part of the infrastructure corridors to the dewatering bore sites and the Mine Services Borehole Compound will be trenched which avoids the potential for overhead lines to trigger bushfires or be destroyed by bushfires.

In accordance with the approved Bushfire Management Procedure, Springvale has committed to ensuring that there is an adequate APZ around all assets identified in the Bushfire Management Procedure, situated on land owned by Springvale and/or land managed/owned by a private or State organisation (i.e. FCNSW). For all assets with personnel working in them on a regular basis, the Bushfire Management Procedure stipulates the fuel load will be reduced down to 10 t/ha or less within 30 m of the asset. For all other assets the fuel load is to be reduced down to 10 t/ha or less within 20 m of the asset.

The following will be implemented for work areas on the Newnes Plateau:

- Fire trails and access tracks are maintained to a suitable standard to allow water tanker access;
- APZs are maintained around infrastructure on Newnes Plateau;
- The APZs of 20 m will be established for the Mine Services Borehole Compound, and the Bore 9 and Bore 10 Dewatering Facilities. The APZs will be maintained in accordance with the Springvale Bushfire Management Procedure which will involve trimming and clearing some vegetation on an as needs basis. Before any works are carried out a hazard reduction certificate will be obtained from the Lithgow Rural Fire Service;
- APZs for Booster Pump Station 1 and Booster Pump Station 2 will be determined prior to the commencement of construction;
- Access tracks to all infrastructure sites will be maintained;
- Dams at the Ventilation Shaft 3 Facility, including the Holding Dam are maintained regularly for the provision of water for fire fighting;
- Entry into Newnes State Forest will be prohibited during severe fire weather. During this period Springvale personnel and contractors are prohibited to undertake work on Newnes State Forest unless authorised in writing by FCNSW;
- Springvale has a hot work management system that needs to be followed to prevent any fires resulting from hot works outside of designated areas. Personnel involved in hot work are professionally trained in emergency response procedures, and effective use of fire prevention methods and fire fighting equipment;
- Minimal fuels, oils and chemicals will be kept on site and will be stored within the site shed or on vehicles at all times;



- Operational procedures and evacuation planning will be prepared prior to the commencement of construction in order to address emergency access/egress;
- Evacuation plans and emergency contacts are provided on site and will be included in the staff inductions, as will the significance of working in bushfire prone land;
- Any pipe cutting/grinding activities are to be closely supervised. Appropriate fire extinguishing equipment to be on site during any pipe cutting or grinding activities;
- The buildings within the Mine Services Borehole Compound, Bore 9 and Bore 10 Dewatering Facilities will not be occupied on a permanent basis. Personnel will only visit the site intermittently for maintenance and inspection purposes;
- The fuel load within the vicinity of dewatering sites and the mine services borehole area will be managed to provide appropriate separation between vegetation and the facility or area;
- Fire extinguishers will be available at all proposed infrastructure sites on Newnes Plateau; and
- All vehicles will be equipped for an emergency response (i.e. mobile phones, satellite phones or two-way radio system).

#### **2.4.13 Waste and Hazardous Materials**

Measures that will be implemented on the Newnes Plateau to manage waste from construction, approved exploration and/or groundwater monitoring activities include the following:

- There will be skip bins on site for general waste;
- General waste will be disposed of to landfill by licensed waste contractors;
- Suitably sized sumps with appropriate erosion and sediment controls will be used/constructed to capture all drilling fluid from borehole drilling activities. The drilling fluid will be reused and on completion of drilling activities will be pumped out by a licensed contractor for disposal at an appropriate facility or other destination allowable under EPL 3607;
- There will be preventative measures to ensure controlled use of fluids during construction. All chemicals including oils and drilling muds will be on self bunded storage pallets. Disposal will follow the appropriate guidelines for the disposal of such wastes; and
- Spill kits will be located at strategic places throughout the site and Springvale surface staff will all receive spill clean-up training.

Where possible, all quantities of waste will be quantified and recorded for benchmarking and continuous improvement purposes as well as reporting in accordance with the National Greenhouse and Energy Reporting Scheme.

#### **2.4.14 Environmental Management System**

All mining operations at Springvale are undertaken in accordance with Environmental Management Plans and environmental procedures which have been developed to achieve compliance with SSD-5594, DA 11/92, EPBC 2011/5949, EPBC 2013/6881, EPL 3607 and SMP Approvals (04/1673, 08/8497 and 11/3964). These management plans are integral to the successful implementation of this Plan and should be read in conjunction with this document. In accordance with the requirements of the Development Consent, relevant Environmental Management Plans are made available on the Centennial Coal website.

Site procedural documents are constantly reviewed and updated to ensure consistency with current operations and relevant approval requirements. As these documents are subject to regular changes, specific details regarding the operational procedural documents have been excluded from this Plan.

## 2.5 Rehabilitation

### 2.5.1 Exploration

Following the completion of drilling and associated activities, all exploration drill holes within AUTH 460 will be undertaken in accordance with the requirements of *EDG01: Borehole Sealing Requirements on Land: Coal Exploration* (DRE, 2012c). Sealing of drill holes within EL 6974 will be undertaken in accordance with the *Exploration Code of Practice: Rehabilitation* (DRE, 2015). All drill holes will be grouted from the total depth to the surface with approved cement mixtures. Records will be kept to demonstrate the method used to seal each drill hole, volume and types of materials used and information on the drill hole such as depth, diameter and casing string(s) left in the hole. All casing that is not cemented in place will be removed from the borehole. Where non-grouted casing cannot be removed, grouting methods will be undertaken as outlined in EDG01 (for AUTH 460) or the *Exploration Code of Practice: Rehabilitation* (for EL 6974). All records relating to the sealing of drill holes will be provided to the DRE together with a declaration confirming that the work was carried out according to the guidelines.

Exploration drill holes that are consistent with the requirements of the Centennial Coal groundwater plan/model will be used for groundwater monitoring. These exploration boreholes will be approved to remain open or be partially grouted to allow access to install groundwater monitoring equipment to subsequently satisfy the commitments as outlined within the Springvale Mine Extension Project EIS (Golder Associates, 2014) and the Response to Submissions (Springvale, 2014).

Following grouting or the installation of piezometers, all boreholes will be surveyed to determine their horizontal and vertical positions and a permanent steel identification plate or reference mark will be placed at the location of each borehole for re-identification purposes.

Rehabilitation of the drill site will commence as soon as practical after completion of drilling activities and follows on from demobilisation of equipment and removal of waste materials. Following re-profiling to near the original landform within the disturbed areas, the stockpiled topsoil will be re-spread onto areas requiring rehabilitation, to a minimum depth of 0.1 – 0.3 m, depending on availability. Stockpiled cleared vegetation will be spread over the re-profiled areas. Erosion and sediment control structures will remain on the rehabilitated site until revegetation has progressed enough to stabilise the soil. Where required, Springvale may spread seed to promote revegetation.

Exploration bore sites which have groundwater piezometers installed will have surrounding surface disturbance rehabilitated, where practical. The groundwater monitoring equipment may be in used for the remaining Life of Mine (LOM). When the groundwater monitoring equipment is no longer required, the infrastructure will be cut off below ground level, grouted and sealed in accordance with DRE requirements. The remaining area will be rehabilitated.

Following the completion of rehabilitation and prior to lease relinquishment by DRE, Springvale must seek confirmation that the landowner is satisfied with the standard of rehabilitation activities. To achieve this Springvale will provide the landowner with a copy of the DRE (2012) form titled *Landowner/Occupier Rehabilitation Statement (ESB-F06)*. Completed forms will be forwarded to DRE as part of an Exploration Rehabilitation and Relinquishment Report.

### 2.5.2 Mine Services Borehole Compound

Decommissioning and rehabilitation of the Mine Services Borehole Compound will be undertaken when no longer required for mining operations. Decommissioning of the site shall include the following:

- Removal of all equipment (pumps, housings, electrical services, etc.);



- Removal of all concrete pads from the site;
- Boreholes will be cut off below ground level, grouted and sealed in accordance with DRE requirements to prevent long term changes to water chemistry and the groundwater aquifers;
- Construction of appropriate drainage infrastructure (if necessary) to manage erosion and sedimentation during rehabilitation of the site; and
- Application of topsoil and revegetation.

The spoil generated from construction will be reused to fill the shaft during decommissioning and rehabilitation. The spoil will be stored and treated as a subsoil stockpile with regard to stockpile design and with appropriate erosion and sediment controls in place. The cuttings will be tested to ensure they are within the required limits of the *National Environment Protection Measure (NEPM) Assessment of Site Contamination (1999) - Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater*, and if required will be either treated prior to use for rehabilitation or disposed of at a licensed facility.

Following decommissioning of the Mine Services Borehole Compound, full rehabilitation of the disturbed area will be undertaken in accordance with the Occupation Permit, and to FCNSW's standard and satisfaction.

Rehabilitation of the site will be undertaken in accordance with the *Springvale Mine Extension Project Decommissioning and Rehabilitation Strategy* (SLR 2014). The proposed rehabilitation works will ensure that the final landform at the site is stable and non-polluting, and mimics the near-original landform for an end land use of open forest.

Adequate erosion and sediment controls will be implemented during all rehabilitation works, to ensure sediment is contained within the disturbed area. These controls will be maintained on an ongoing basis until such time that the success of the revegetation activities has been demonstrated.

Following the completion of rehabilitation and prior to lease relinquishment by DRE, Springvale must seek confirmation that the landowner is satisfied with the standard of rehabilitation activities. To achieve this Springvale will provide the landowner with a copy of the DRE (2012) form titled *Landowner/Occupier Rehabilitation Statement (ESB-F06)*. Completed forms will be forwarded to DRE as part of an Exploration Rehabilitation and Relinquishment Report.

### 2.5.3 Dewatering Bore Facilities

The Bore 9 Dewatering Facility and the Bore 10 Dewatering Facility will be established in 2017 and 2018, respectively. These dewatering facilities will manage mine water inflows from longwall mining areas. The Bore 9 Dewatering Facility will be decommissioned and rehabilitated following the completion of secondary extraction in Longwall 422 and pending mine safety. Bore 10 will be decommissioned and rehabilitated when no longer required for mining operations. Decommissioning of the dewatering bore facilities will be undertaken as outlined in **Section 2.5.2**.

In addition to the dewatering boreholes that will be installed at the dewatering facilities, the Bore 10 Dewatering Facility will also include an additional downcast ventilation borehole. Prior to decommissioning of the ventilation shaft, relevant approvals will be obtained from DRE (or its equivalent at the time of decommissioning), where necessary. The appropriate guidelines and standards will be followed to ensure that the works meet the relevant standards at the time of decommissioning.

Sealing of the shaft is required to ensure that surface runoff does not enter the mine and potentially contaminate groundwater. In addition, sealing of the shafts will improve safety and prevent fugitive gas emissions from the mine. The key decommissioning activities will include:

- Removal of equipment;
- Backfilling the shaft, ensuring appropriate compaction to minimise subsidence. This may require the construction of a bulk head within the mine workings where it is accessible;
- Sealing of shaft openings using an appropriately designed and engineered plug reinforcement that complies with relevant construction standards;
- Construction of the engineered plug will be undertaken by competent personnel under the supervision of a suitably qualified engineer; and
- Construction of appropriate drainage infrastructure on the surface to prevent erosion and ensure runoff does not enter the mine or cause potential groundwater contamination.

Rehabilitation of existing surface infrastructure within Newnes State Forest (e.g. Bore 6 and Bore 8 Dewatering Facilities) will be undertaken in accordance with the Mining Operations Plan/Rehabilitation Management Plan (Springvale 2015).

Prior to lease relinquishment from DRE, Springvale must seek confirmation that the landowner is satisfied with the standard of rehabilitation activities. This will be undertaken as outlined in **Section 2.5.2**.

#### 2.5.4 Booster Pump Stations

Decommissioning and rehabilitation of Booster Pump Station 1 and Booster Pump Station 2 will be undertaken following the decommissioning of the SDWTS. Decommissioning of the sites shall include the following:

- Removal of all equipment (tanks, pumps, housings, electrical services, etc.);
- Removal of all concrete pads from the site;
- Construction of appropriate drainage infrastructure (if necessary) to manage erosion and sedimentation during rehabilitation of the site; and
- Application of topsoil and revegetation.

Prior to lease relinquishment from DRE, Springvale must seek confirmation that the landowner is satisfied with the standard of rehabilitation activities. This will be undertaken as outlined in **Section 2.5.2**.

#### 2.5.5 Infrastructure Corridors and Access Tracks

At the end of mine life, the trenched water pipelines (of the SDWTS), power cables and fibre optic communications cables to the Newnes Plateau facilities will not be removed but will be isolated and made safe in accordance with the relevant guidelines. This is due to the risk of disturbing the re-established vegetation by excavation and removal. The location of pipelines that are to remain in-situ will be recorded in an abandoned services register and signs will be erected where appropriate. Pipelines located in critical locations, for example infrastructure crossings of environmentally sensitive areas zones, will be filled with inert a material (such as concrete) to avoid additional disturbance of the environment.

Following the trenching of water pipelines, power cables and communications cables to the Bore 9 and Bore 10 Dewatering Facilities, the 10 m infrastructure corridor will be rehabilitated to create approximately 5 m wide access tracks to the respective drill pad areas to allow vehicular access during operations. The trenching of power cables and fibre optic communications cables from the Borehole Pump Substation to Booster Pump Station 2 will be undertaken within a 5 m corridor



following the alignment of existing tracks. Following trenching the 5 m corridor will be rehabilitated. Access tracks upgraded or established as part of the proposed construction, approved exploration and/or groundwater monitoring activities on Newnes Plateau will be fully rehabilitated unless agreed with FCNSW to leave open.

Prior to lease relinquishment from DRE, Springvale must seek confirmation that the landowner is satisfied with the standard of rehabilitation activities. This will be undertaken as outlined in **Section 2.5.2**.

### **2.5.6 General Rehabilitation**

Rehabilitation at Springvale will be undertaken in accordance with the Mining Operations Plan/Rehabilitation Management Plan. A summary has been included below.

#### **Decommissioning**

All services, including power, water, data and telephone, will be safely isolated, disconnected and terminated. Generally all underground services will be made safe and left buried in-situ.

#### **Landform Design**

Prior to the commencement of rehabilitation the landform will be established. The primary objective of landform establishment within infrastructure areas will be the stabilisation of batters, road verges, drains, banks, and cleared areas. All disturbed areas will be re-profiled to establish geotechnically stable and self-draining areas. Rehabilitation of infrastructure sites on Newnes Plateau will be undertaken in accordance with the Occupation Permit, and to FCNSW's standard and satisfaction.

All areas will be trimmed, shaped, and the proposed rehabilitation works will ensure that the final landforms at the sites are stable and non-polluting, and mimic the near-original landform for an end land use of open forest.

#### **Topsoil Management**

Where possible, topsoil will be re-spread directly onto cleared/reshaped landforms. Where topsoil resources allow, topsoil will be spread to a nominal minimum depth range of 100 – 300 mm on all areas to be rehabilitated.

Thorough seedbed preparation will be undertaken to optimise establishment and growth of vegetation. All topsoiled areas will be lightly contour-ripped (after topsoil spreading) to create a 'key' between the topsoil and the subsoil. Ripping will be undertaken on the contour and the tynes lifted for approximately 2 m every 200 m to reduce the potential for channelised erosion on slopes greater than 10°. Ripping will be undertaken when soil is moist for best results. The respread topsoil surface will be scarified to reduce runoff and increase infiltration.

#### **Soil Amelioration**

Prior to resspreading soils at construction sites, sampling will be undertaken (either from stockpiles or in-situ soils) to determine appropriate ameliorant application. Ameliorants will be added to soils in accordance with recommendations from a soil specialist, and will be minimised or avoided where possible. Repeat applications of ameliorants may be required to maintain nutrient levels to rapidly establish an effective ground cover and sustain plant growth prior to evidence of nutrient recycling. Ameliorants may include gypsum, lime, fertiliser and biosolids. The use of soil ameliorants is designed to balance pH, prevent surface crusting, increase moisture and organic content, and buffer surface temperatures to improve germination.

## Revegetation

Appropriate revegetation steps and selection criteria for the species mix will be undertaken to ensure a high success revegetation rate. Endemic species mixes will be utilised, and the species selection will focus on those species that will successfully establish on the available growth medium, bind the soil and will result in a variety of structure and food/habitat resources. The woodland seed mix will include a mix of understorey, mid-storey and over-storey species. Whilst every attempt will be made to use species that existed prior to disturbance, additional species may be required to ensure suitable initial groundcover for site stabilisation and minimal soil erosion. This may include the use of short-lived annual exotic non-invasive grass species, however the use of these species will be minimised or avoided where possible. If seed mixes are required to increase the likelihood of initial revegetation success, fertiliser will be applied.

## 2.6 Construction Traffic Management

### 2.6.1 Traffic Impacts

The traffic generated by the construction, approved exploration and/or groundwater monitoring activities would not significantly impact the operation of the existing road network or the access intersections at Clarence and north Lithgow. This is a function of the low traffic generation potential and the available capacity within the road network and at the access intersections (ARC Traffic and Transport, 2013).

However, Centennial Coal will continue to work with FCNSW to satisfy the requirements of existing and future Occupation Permit requirements (which include requirements for road maintenance and access).

### 2.6.2 Management Measures

While traffic associated with approved exploration and/or groundwater monitoring activities and the construction/operation of the infrastructure will not have a significant impact on the roads and intersections, Springvale will implement the following road traffic management and mitigation measures:

- All drivers accessing the site will be briefed with regards to the requirements of this Plan;
- All heavy vehicle trips to and from sites within the Newnes State Forest will be undertaken during daylight hours (6:00 am to 6:00 pm) to maximise safety;
- All light and heavy vehicles travelling to and from sites within Newnes State Forest will not exceed 60 km/hour;
- For the purpose of oversize vehicles entering the site appropriate controls and road traffic requirements will be followed:
  - All loading/delivery will be completed within the site compounds;
  - All construction light vehicles can be parked within the site compounds;
  - No delivery vehicles will be permitted to stand on the external public road network;
- Construction and exploration vehicle access will be provided with consideration of sight distances, gradients and carriageway widths so as to ensure the safety of other road users;
- Centennial Coal will continue to work with FCNSW to satisfy the requirements of existing and future Occupation Permit requirements (which include requirements for road maintenance and access); and
- Warning signs will be installed at appropriate locations on the main access roads to the infrastructure sites, advising public road users of when access tracks will be used by increased numbers of heavy vehicles and other construction traffic. Caution will be advised to all road users.



Sufficient parking at surface infrastructure sites within the Newnes State Forest during construction and operation will be provided within compounds at each site during construction and operation.

### **2.6.3 Oversized Wide Loads**

At times there will be a requirement to carry oversized loads into the construction sites on the Newnes Plateau. A separate permit will be required to carry the oversized loads on public roads as per normal restriction and this permit will be submitted to the RMS for review and approval as required. The conditions of the permit will include the requirement for vehicles to escort the loads etc.

Where possible oversize loads will be timed so as not to coincide with peak hour traffic on the Castlereagh Highway.

An RMS Guideline has been prepared for *Additional Access Conditions for Oversize and Overmass Heavy Vehicles and Loads* (RMS, 2015). Generally loads over 2.5 m wide require a permit but no escort. If loads are 3.5 m or greater an escort will be required.

## 3 MONITORING AND RESPONSE

### 3.1 Environmental Monitoring

This Plan will be implemented in conjunction with the Springvale Environmental Management Strategy. The Environmental Management Strategy provides an overall structure for environmental management at Springvale including the strategic context, statutory requirements and roles and responsibilities of key personnel.

### 3.2 Environmental Inspections

#### 3.2.1 Weekly Inspections and Site Meetings

The Project Manager (or their delegate) will undertake formal weekly inspections of the construction sites and will also attend weekly project meetings where specific environmental issues will be raised and/or discussed. If required, actions will then be assigned to the most appropriate responsible person.

The Project Manager (or their delegate) will also schedule additional site inspections following periods of heavy and/or prolonged rainfall (i.e. >20 mm in 24 hours).

#### 3.2.2 Non-Conformance and Corrective and Preventative Action

Springvale will document in a report any case of non-conformance with this Plan. The Project Manager (or their delegate) will investigate any such non-conformance by a contractor and/or subcontractor with the relevant contractor / subcontractor on a case by case basis.

### 3.3 Contacts, Complaints and Incidents

The contacts for environmental complaints and incidents are presented in **Table 9**.

**Table 9 – Contact Details**

Position	Contact Details
Mine Manager	Jacques Le Roux T: (02) 6350 1613 E: Jacques.Le.Roux@centennialcoal.com.au
Project Manager	Paul Glasson T: (02) 6354 8703 E: Paul.Glasson@centennialcoal.com.au
Environment and Community Coordinator	Catherine Suggate T: (02) 6350 1672 E: Natalie.Gardiner@centennialcoal.com.au

#### 3.3.1 Complaints Management

The Springvale Community Complaints and Enquiries line (02 6350 1640) is made available on the Centennial Coal website. All complaints will be maintained in a register and reported internally to Springvale site and the Project Manager for appropriate action. Any complaints will be reported externally in the Annual Review.



### **3.3.2 Incident Reporting**

The Environment Protection Authority (EPA) will be notified of environmental incidents in accordance with the requirements of EPL 3607. This requires Springvale to contact the EPA's Pollution Line on 131 555 of any incidents causing or threatening material harm to the environment. The Springvale Environmental Management Strategy will be consulted for any additional notification requirements such as internal incident reporting procedures and minor environmental impacts that are not threatening to cause material harm to the environment.

In accordance with the requirements of Schedule 6, Condition 10 of Development Consent SSD-5594, Springvale will immediately notify the DP&E and any other relevant agencies once an incident has been identified.

### **3.3.3 Contingency Planning**

The Springvale Mine Extension Project EIS (Golder Associates, 2014) provides a risk based analysis of environmental impacts resulting from the proposed construction activities. Additionally, potential environmental impacts resulting from exploration activities will be assessed in accordance with the requirements of EL 6974 and AUTH 460, including due diligence surveys involving specialist consultants. Given the location of the sites and potential external influences such as bushfire, climatic and emergency events, it is possible that unpredicted events may occur.

The Project Manager and Environment and Community Coordinator will be contacted in the event of unpredicted environmental impacts being identified to provide guidance on an appropriate course of action, including assessing whether the Springvale incident procedure should be implemented.

Unpredicted impacts will be dealt with on a case by case basis. After appropriate action has been implemented, the need for review of this Plan, based on the unpredicted impact, will be assessed by the Project Manager.

## 4 ENVIRONMENTAL MANAGEMENT

### 4.1 Roles and Responsibilities

Each employee and contactor is responsible for adhering to the Centennial Coal Environmental Policy. Whilst the obligation of complying with the Environmental Policy lies with the entire workforce, further environmental management responsibilities that are considered as a part of the normal functioning of some positions relevant to this Plan are described as follows:-

#### **Project Manager**

The Project Manager (or their delegate) is responsible for overseeing the implementation of this Plan, consulting with the relevant government and public stakeholders as required and providing the relevant information to stakeholders as necessary. During construction, the Project Manager (or their delegate) will be responsible for:

- The overall implementation of this document;
- Maintaining accountability for the management of the construction sites and all employees and contractors entering the sites for the purposes of construction;
- The conveyance of this Plan and its objectives to all contractors entering the construction sites;
- Maintaining accountability for the implementation, maintenance and monitoring of compliance with this Plan;
- Advising the Environment and Community Coordinator regarding potential environmental issues;
- Maintenance of the complaints register, investigating complaints, and taking appropriate action to alleviate the impact of any complaints;
- Ensuring the Mine Manager is informed of all incidents and non-compliance and the corrective actions taken to mitigate any such incidents; and
- Ensuring the correct signage is appropriately located around the Newnes State Forest road network.

#### **Mine Manager**

- Authorisation of this Plan;
- Reporting of significant environmental incidents to external stakeholders as required;
- Delegation of resources to ensure environmental risk mitigation strategies are implemented;
- Delegation of duties during the absence of the Environment and Community Coordinator;
- Providing adequate resources to implement this Plan;
- The maintenance of resources to achieve the main objectives of the document; and
- The ultimate responsibility and accountability for the environmental performance of the works consistent with the existing policies on health, safety, environment and community.

#### **Environment and Community Coordinator**

- Compliance with the Centennial Environmental Policy;
- Reporting of environmental incidents as required to external stakeholders;
- Development and implementation of environmental strategies, plans, and procedures;
- Regulatory and community consultation;
- Registration of community complaints and regulatory liaison in the Environment and Community Database;
- Development and implementation of environmental work procedures;
- Development and implementation of environmental training and inductions;
- Auditing the effectiveness of the document;



- Compliance with all licences and approvals for environmental management of the site;
- Assisting the Project Manager with the overall implementation of this Plan;
- Providing advice on environmental pollution issues;
- Investigating environmental incidents, exceedances, complaints and/or enquiries;
- Coordinating the required monitoring activities and undertaking additional monitoring as required;
- Coordinating training to employees and contractors regarding the requirements of this document;
- Assist the Project Manager to undertake inspections on a regular basis to monitor the environmental performance of the construction phase; and
- Coordinating all reporting (both internally and externally) in relation to this document.

### **Employees and Contractors**

- Compliance with the Centennial Environmental Policy, standards and procedures;
- Immediately reporting environmental incidents and community complaints or enquiries to the Environment and Community Coordinator;
- Conducting operations in compliance with the Centennial environmental management plans and procedures; and
- Identifying and implementing appropriate controls for environmental risks from any risk assessments and job safety analysis and communicating these with responsible staff.
- Undertake training in the content of this Plan during a site induction program; and
- During construction all contractors and employees will be responsible for carrying out actions as directed to ensure compliance with this document.

Delegation of roles or responsibilities may be determined by the Mine Manager at any time.

## **4.2 Reporting**

### **4.2.1 Annual Review**

A summary of construction activities, approved exploration and/or groundwater monitoring activities will be provided in the Annual Review for all years that relevant activities are undertaken by Springvale. As outlined in **Section 2.4.5**, details of vegetation cleared during the reporting period will be provided within the Annual Review. The Annual Review will include a summary of relevant environmental performance, rehabilitation and the results of environmental monitoring will be compared against the impact assessment criteria in the Springvale Mine Extension Project EIS (Golder Associates, 2014) and Development Consent SSD-5594.

The Annual Review will include information on the monitoring conducted during the reporting year, any non-conformances and complaints received. This report is made available on the Centennial Coal website.

### **4.2.2 Environmental Management Report**

An Environmental Management Report will be prepared and provided to DRE to satisfy the requirements of EL 6974 and AUTH 460. This Environmental Management Report will include details regarding disturbance, rehabilitation and environmental performance during approved exploration activities. An Environmental Management Report will be submitted in the following circumstances:

- Within one month of expiry or earlier termination of AUTH 460;
- Where the licence holder is seeking to renew EL 6974, an Environmental Management Report must accompany an EL renewal application;

- Where the licence holder is seeking to cancel or part-cancel the EL, an Environmental Management Report must accompany an EL cancellation application; and
- Where the licence holder is not seeking to renew or cancel the EL, an Environmental Management Report must be submitted prior to the expiry of the licence.

*Note: Where possible, Springvale will address the requirements of an Environmental Management Report as a component of the Annual Review to avoid duplication of reporting.*

### **4.2.3 Community Consultation Report**

As outlined in **Section 2.1.2**, Springvale will undertake consultation for exploration drilling and/or groundwater monitoring purposes in accordance with the *Guideline for Community Consultation Requirements for Exploration* (DRE, 2012b). An annual report will be prepared in accordance with *Guideline for Community Consultation Reporting – Coal and Petroleum Exploration* (DRE, 2012a). This report will provide a summary of the community consultation undertaken in accordance with the *Guideline for Community Consultation Requirements for Exploration* (DRE, 2012b) and will be submitted annually to DRE prior to 10 January. This report will include evidence that consultation was undertaken in accordance with the DRE (2012b) guideline.

### **4.2.4 Exploration Licence Rehabilitation and Relinquishment Report**

Following the completion of rehabilitation and prior to lease relinquishment, Springvale will submit an Exploration Rehabilitation and Relinquishment Report to DRE. This report will include details to demonstrate that rehabilitation has been completed and complies with mining tenement requirements.

### **4.2.5 Exploration Report**

Exploration reports will be prepared in accordance with the requirements of AUTH 460 and the DRE (2016) publication titled *Exploration Reporting: A guide for reporting on exploration and prospecting in New South Wales*. Each report will be submitted biannually within 28 days of 6 June and 6 December. The report will include details of exploration and/or groundwater monitoring activities within AUTH 460 including, but not limited to the following:

- A brief summary of prospecting operations carried out, including expenditure during the six month period;
- The results and conclusions of all surveys and other operations; and
- The proposed exploration to be conducted during the next six month period.

### **4.2.6 Website**

Springvale has formulated a community information and notification strategy that will assist with the conveyance of Project-related information, encourage discussions and dialogue with the community. This notification strategy will provide a clear complaints management procedure for the duration of the construction period. Information on the current construction activities will be made available on Centennial Coal's website. This website will contain project specific information including:

- Approval documents; and
- Information on how to make a complaint including telephone, email and postal addresses.

Additionally, a monitoring report is published on the website to satisfy the requirements under the *Protection of the Environment Legislation Amendment Act 2011* to publish or make pollution monitoring data available to members of the public.



#### **4.2.7 Community Consultative Committee**

The Western Region CCC, comprising Springvale, Western Coal Services and Angus Place meets biannually. Some of the information reported at the CCC includes:

- Progress at the mine — operational issues;
- Monitoring and environmental performance; and
- Community complaints and the response to complaints.

A summary of environmental performance from all construction activities will be presented at the CCC meetings.

### **4.3 Environmental Training**

Springvale will progress implementation of the Environmental Management System (EMS) and the Environmental Policy by training employees and contractors in relevant areas on the EMS. Environmental and community training may include, but need not be limited to:

- Induction training;
- Environmental and community awareness training;
- Toolbox training; and
- Other specific training as required (for example environment spill control and management).

## 5 Review

### 5.1 Document Review

In accordance with the requirements of Schedule 6, Condition 6 of Development Consent SSD-5594, Springvale will review this Plan within three months of the following:

- a) Submission of an incident report;
- b) Submission of an Annual Review;
- c) Submission of an Independent Environmental Audit; or
- d) Any modification to the conditions of SSD-5594.

If required, the proposed management strategies and control measures will be modified to address evolving site conditions, latent conditions and/or changes to the proposed construction sequence. Any changes to the Plan will then be communicated to the relevant site personnel via daily “toolbox talk” training and weekly project meetings.

This management plan is a controlled document and will be reviewed on an as needs basis.

Following amendments a copy of the revised Plan will be provided to the DP&E for approval.



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