

ASSESSMENT REPORT

ANGUS PLACE COLLIERY

Ventilation Facilities and Trial Mining Modification (06_0021 MOD 2)

1 BACKGROUND

Centennial Angus Place Pty Ltd (Centennial) operates the Angus Place Colliery, 5 kilometres (km) northeast of the village of Lidsdale and 15 km north of Lithgow (see Figure 1).

Angus Place Colliery comprises an underground longwall mine and a range of surface infrastructure, mainly located at the pit top (see Figure 2). The area overlying the colliery forms part of the Newnes Plateau. Vegetation across the Plateau is generally woodland dominated by Eucalypt species. Much of the Plateau is managed by Forests NSW for timber production, both from native forests and pine plantations. Angus Place Colliery is adjacent to the underground workings of several former mines, such as Kerosene Vale and Vale of Clywdd, as well as operating mines, such as Springvale.



Figure 1: Location Plan

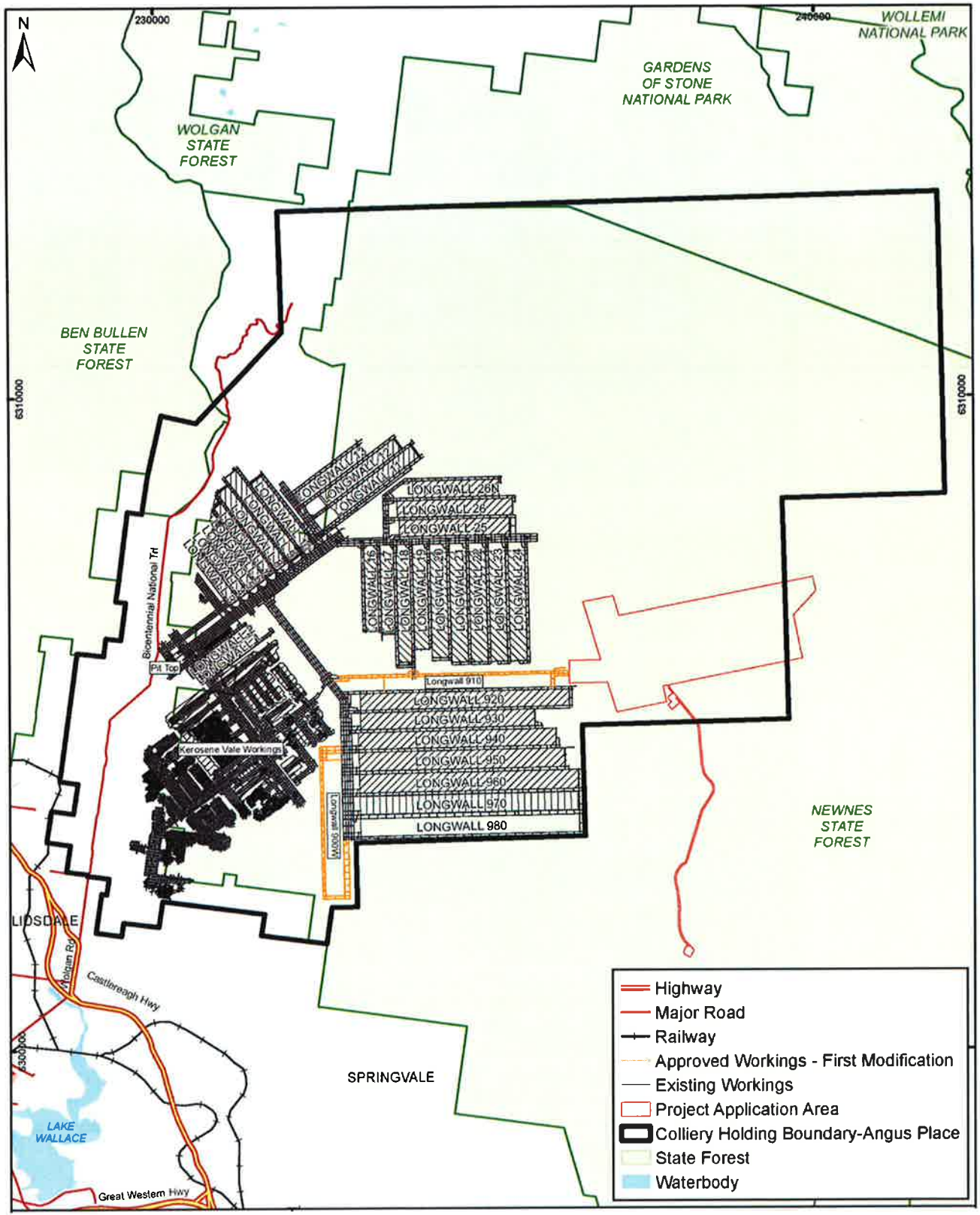


Figure 2: Existing / Approved Mine Layout and Proposed Modification Application Area

The mine operates under the Angus Place Colliery project approval (MP 06_0021), which was granted by the then Minister for Planning on 13 September 2006 and then modified in 2011 to permit the extraction of two additional longwall panels. The modified approval permits:

- extraction of up to 4.0 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal using longwall mining methods; and
- transport of coal to the nearby Wallerawang and Mt Piper power stations via private haul roads.

Longwall mining involves extracting up to 3.25 metres (m) of coal from the Lithgow Seam over longwall panels of up to 3,000 m in length at a depth below the surface (ie depth of cover) of between 300 and 350 m. The project approval is due to expire on 18 August 2024 and a copy of the modified project approval is provided in **Appendix A**.

Centennial is currently extracting Longwall 980 (LW 980), with extraction of LW 900W to follow (see Figure 2). While first workings are being developed for LW 910, the approved extraction of this panel would be delayed by many years if Centennial gains approval to extend longwall mining operations into the northeastern portion of its Colliery Holding. Extraction of LW 980 and 900W would be completed in about 20-22 months' time.

Director-General's requirements for the Angus Place Extension Project were issued in November 2012. The Department expects to receive and exhibit a development application and Environmental Impact Statement (EIS) for this proposal later this year. This project involves establishing longwall mining operations to the northeast of current and former underground mine workings. The new mining domain would be separated from the footprint of existing workings, in large part, by the incised valley of the Wolgan River. The proposal is based on connecting existing mine workings to the proposed mine area east of the Wolgan River by one set of headings to enable proposed longwall coal extraction operations to be serviced by much of Angus Place's existing surface and ancillary infrastructure. These headings also include the northern gateroads for the proposed LW 910, and it is for this reason that LW 910 could not be extracted until the proposed mining in the northeastern domain is completed.

2 PROPOSED MODIFICATION

Centennial has lodged a modification application (06_0021 MOD 2) seeking approval to construct and operate a ventilation facility and associated supply boreholes and supporting infrastructure, including electricity supply infrastructure. Approval is also sought to undertake trial mining to better understand constraints to future longwall mining in the area. The proposed modification is summarised in Table 1, depicted in Figures 3 and 4, and described in full in the *Angus Place Colliery, Ventilation Facility Project: Modification 2 of Project Approval 06_0021 Environmental Assessment* (the EA, see **Appendix B**), prepared by RPS and dated October 2012.

Table 1: Summary of Angus Place Colliery Modification 2

Aspect	Description
<i>Project Summary</i>	The proposed ventilation facilities and trial mining modification includes: <ul style="list-style-type: none"> installing and operating two additional ventilation shafts; installing and operating nine service boreholes; provision of a buried electricity supply to the ventilation facilities; and undertaking trial mining operations.
<i>Surface Infrastructure</i>	The modification includes installing and operating: <ul style="list-style-type: none"> an upcast and downcast ventilation shaft and ventilation fans; buried electricity supply, switchyard and substation; 9 service boreholes (including compressed air, soluble oil, electricity power cables, communications cables, gas monitoring, ballast and concrete delivery); and upgraded access road.
<i>Mining & Reserves</i>	The proposed modification seeks to extract up to 710,000 tonnes of ROM coal.
<i>Mine Area</i>	Any trial mining would be within the existing Colliery Holding.
<i>Project Life</i>	Unchanged. The project is approved to 2024 but currently approved mining is expected to be completed by 2015.
<i>Coal Production</i>	Unchanged, at 4.0 Mtpa of ROM coal.
<i>Coal Processing</i>	Unchanged.
<i>Coal Transport</i>	Unchanged.
<i>Mine Water Management</i>	Up to 0.5 megalitres (ML) of additional minewater would need to be managed each day in the mine's existing water management system. Centennial is required by the EPA to cease minewater discharges to Kangaroo Creek by June 2013.
<i>Biodiversity</i>	15.3 hectares (ha) of native vegetation would be cleared, which would affect over 1200 stems of the threatened plant <i>Persoonia hindii</i> .
<i>Employment</i>	Unchanged, at up to 225 full-time employees and 75 contractors.
<i>Hours of Operation</i>	Unchanged. Mining operations are permitted 24 hours per day 7 days per week.
<i>Capital Investment</i>	\$63.5 million.

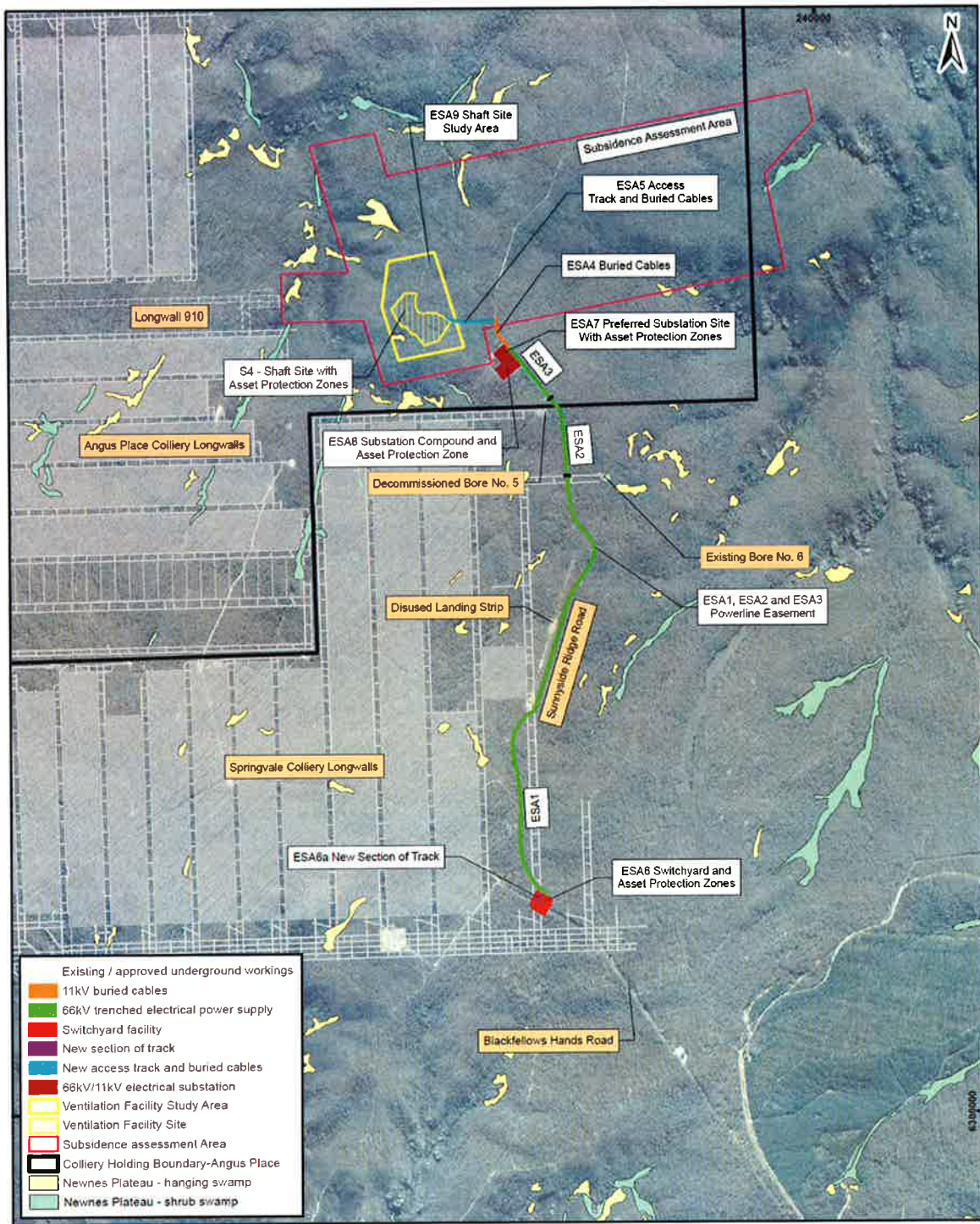


Figure 3: Proposed Modification (including power supply)

The proposed new infrastructure would offer only limited benefits in supporting existing mining operations. The essential purpose of the new ventilation facilities and other associated infrastructure is to support the proposed Angus Place Extension Project. It would be difficult to develop even the early stages of a new northeastern longwall mining layout without additional ventilation facilities, given the distances from existing ventilation shafts. The proposed modification would enable Centennial to efficiently transfer mining operations from its existing approved areas to its proposed northeastern operations. However, given that it has not yet received approval for that transfer and the capital investment of \$63.5 million, the proposed modification carries a high commercial risk for Centennial.

Nonetheless, Centennial considers the risks of not proceeding with the modification application to be higher. The time needed to construct the ventilation shafts is of the order of 18-24 months. If the application for their approval was delayed until the Extension Project application is determined, then

the mine would almost certainly have to cease longwall operations for a period of at least one and possibly two years. Centennial would also be unable to retain its trained and experienced workforce and incur substantial costs in retrenching and re-establishing the workforce and placing much of its infrastructure on care and maintenance.

The proposed modification would also allow Centennial to undertake trial mining to investigate and better understand geological and mining conditions in the northeast area. This information would enable future mining operations to be better laid out, and avoid potential difficult mining conditions and consequent delays. The proposed trial mining component of the application has been the most contentious element of the modification proposal (see section 4). Following discussions with the Department, Centennial agreed to substantially reduce the trial mining component so that the mine headings to be developed would only provide access to potential longwall areas, but not define their layout (see section 5).

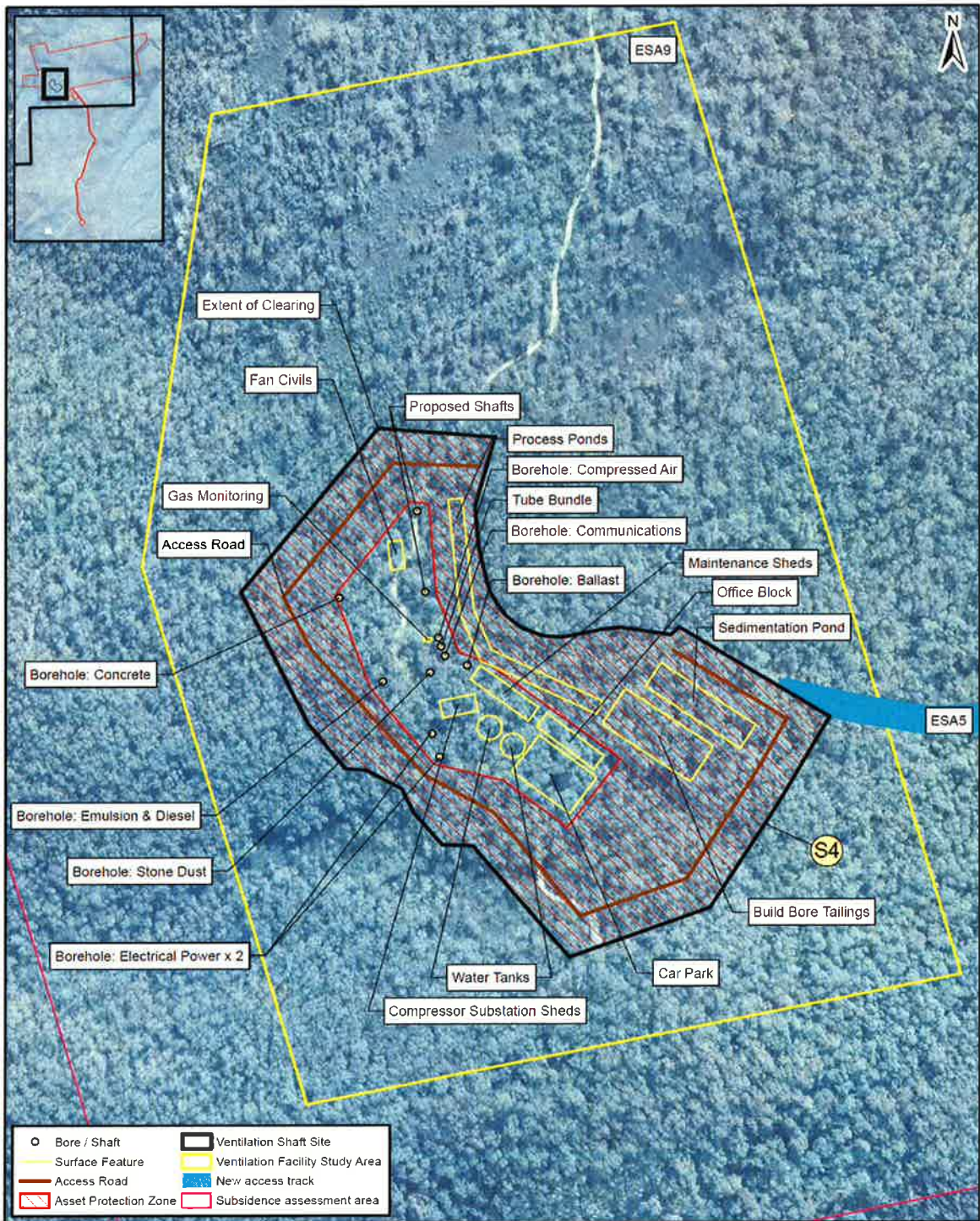


Figure 4: Proposed Ventilation Facility

3 STATUTORY CONTEXT

3.1 Approval Authority

Under section 75W of the *Environmental Planning & Assessment Act 1979* (EP&A Act) the Minister for Planning and Infrastructure is the approval authority for this modification application. However, under the Minister's delegation of 14 September 2011, the Planning Assessment Commission (PAC) must determine the modification application, since Centennial has made reportable political donations.

3.2 Modification

The Department has considered the nature of the proposed modification and is satisfied that it can be characterised as a modification of the original project. In this respect, the Department notes that there would be no change to the approved mining methods, no increase in coal production, no change to processing or transportation systems, and the resulting environmental impacts would be substantially the same as the approved project, albeit that additional impacts have been identified in terms of the threatened species *Persoonia hindii*.

Consequently, the Department is satisfied that the proposed modification is within the scope of section 75W of the EP&A Act.

3.3 Environmental Planning Instruments

Sections 7.4 and 7.5 of the EA include assessments of the application against the relevant State Environmental Planning Policies (SEPPs) and the *Lithgow City Local Environmental Plan 1994* (the LEP). The Department has reviewed Centennial's assessment that the application is consistent with the provisions of the relevant SEPPs and the LEP, and concurs with its assessment.

4 CONSULTATION

The Department exhibited the EA and supporting documentation between 16 October and 7 November 2012. During the exhibition period the Department received 9 submissions on the proposal including:

- 7 from public authorities; and
- 2 from special interest groups (the **Colong Foundation for Wilderness** (CFW) and the **Construction, Mining, Forestry and Energy Union** (CMFEU)).

No submissions were received from the general public.

The submissions received from public authorities comprised submissions from:

- **Office of Environment and Heritage** (OEH), within the Department of Premier and Cabinet;
- **Environment Protection Authority** (EPA), within the Department of Premier and Cabinet;
- **Department of Primary Industries** (DPI); containing submissions from **NSW Office of Water** (NOW) and **Fisheries NSW**;
- **Forests NSW**, also part of DPI;
- **Division of Resources and Energy** (DRE) within the Department of Trade and Investment, Regional Infrastructure and Services,
- **Lithgow City Council** (Council); and
- **Hawkesbury-Nepean Catchment Management Authority** (CMA).

A summary of the issues raised during the consultation process is provided below. A copy of the submissions is provided in **Appendix C**. A copy of Centennial's response to submissions (RTS) report is provided in **Appendix D**. The RTS was also placed on the Department's website.

Many of the issues raised in submissions related to the proposed clearing of approximately 15.3 ha of native vegetation for the ventilation facilities compound and the associated services corridor that contains a vehicle access track and an adjacent easement for a buried electricity powerline. Of particular concern is the proposed destruction of 10% of the known local population of the threatened plant, *Persoonia hindii*, and the control of sediment and nutrient runoff from construction activities.

OEH considered that cumulative impacts would have been more appropriately assessed if the proposed modification had been incorporated into the forthcoming development application for the Angus Place Extension Project. OEH considered that the impact of vegetation clearing for the

proposed modification had been inadequately assessed and that proposed offsets for the destruction of *Persoonia hindii* are inadequate. It supported the use of a regional biodiversity offset proposal to address the impacts of Centennial's current and planned mining proposals in the Western Coalfield.

EPA considered that the proposed modification can be constructed and managed to have negligible environmental impacts in terms of noise, air quality and surface water quality. It highlighted the requirement under Angus Place's existing Environmental Protection Licence (EPL) to cease minewater discharges to Kangaroo Creek by June 2013.

DRE supported the proposed modification, and considered that the proposed trial mining operations would not cause any subsidence impacts to surface lands or facilities. DRE recommended that conditions of approval include requirements for a *Persoonia hindii* management plan and added detail in the existing rehabilitation strategy regarding use of cleared timber and rocks in the final landform.

NOW raised no objection to the application, but recommended that the mine's Water Management Plans is revised and updated prior to the commencement of construction activities.

Forests NSW highlighted that the proposed modification is entirely within State forest lands and that Centennial has commenced negotiations over the terms of an Occupation Permit and Compensation Agreement to access these lands. Forests NSW raised the issue of the high recreational use of Newnes State Forest and that public safety, vandalism and bushfire risks must be considered during the assessment of the proposal.

Fisheries NSW raised matters in relation to potential subsidence impacts to streams in the proposed trial mining area.

The **CMA** identified that its regulatory role does not extend to State forests. It supported measures to minimise impacts to *Persoonia hindii*, hollow-bearing trees and *Newnes Plateau Shrub Swamps* and *Hanging Swamps*, and measures for the control of sediment and nutrient runoff and the use of native species in rehabilitation of disturbed lands.

Council indicated that it is in negotiation with Centennial over the content of a Voluntary Planning Agreement (VPA) to offset the social impacts of the proposal.

CFW advised its view that Centennial's environmental impact assessments were unreliable and needed to be treated with caution. CFW raised concerns about the:

- presentation and assessment of the trial mining proposal without consideration of the ultimate subsidence impacts of subsequent longwall mining in the area and the loss of flexibility in assessing and approving a mine plan that the proposed trial mining represents;
- need for discharge water quality criteria to reflect and protect the sensitive environments of the receiving waters and their surrounds;
- potential risks to the environment, should Delta Electricity cease to accept minewater from Centennial's operations and emergency discharges be directed into watercourses upstream of the Greater Blue Mountains World Heritage Area; and
- potential impacts to Newnes Plateau swamps and threatened flora and fauna in the area.

The **CMFEU** strongly supported the proposal on the basis of the social benefits of continued employment for 225 workers and the economic benefits of local coal supply to the Wallerawang and Mt Piper power stations.

Departmental consultation

In August 2012, the Department undertook a site inspection of the Angus Place surface facilities and nearby areas of the Newnes Plateau, along with company representatives and representatives of most agencies that provided submissions. Site constraints and potential impacts and potential mitigation measures were discussed and areas of *Persoonia hindii* were inspected.

During its assessment, the Department consulted further with the company and with key agencies to obtain clarification of submissions, Centennial's RTS and other materials, or to explore the feasibility of potential measures to mitigate impacts. The Department met with Centennial several times, with areas of particular interest being ways and means to avoid, reduce or mitigate impacts to *Persoonia hindii* and alteration to the proposed trial mining layout.

5 ASSESSMENT

The Department has reviewed the submissions received during exhibition, the EA and RTS, and considers the key environmental issues requiring assessment are:

- impacts of vegetation clearing;
- provision of an appropriate offset for impacts to *Persoonia hindii*;
- potential surface water and groundwater impacts; and
- consideration of the proposed trial mining operation.

5.1 Flora

Vegetation Clearing

The EA contains a flora and fauna assessment that mapped the vegetation communities on the land potentially affected by the proposed modification (see Figure 5). Most of the 446 ha study area is associated with the trial mining area in the northeastern part of the modification application area. Subsidence caused by the extraction of first workings is less than the quantum that can be reliably measured (ie less than 20 millimetres). Consequently, potential impacts to vegetation (and terrestrial and aquatic fauna) are so small that they would be imperceptible, even with extremely accurate observations and measurements. Accordingly, the Department has not further considered subsidence impacts to vegetation, and faunal habitat, for the lands overlying the proposed trial mining area.

The proposal requires vegetation to be cleared to allow mine support infrastructure to be constructed at the ventilation facilities site and to provide an ongoing bushfire asset protection zone around this infrastructure. Clearing would be required to (see Figures 3 and 4):

- construct the switchyard at the southern end of Sunnyside Ridge Road;
- widen Sunnyside Ridge Road for a buried power supply corridor connecting the switchyard with the shaft site;
- construct a substation about 500 m southeast of the shaft site;
- construct an access road from Sunnyside Ridge Road to the shaft site; and
- construct the ventilation shafts, associated infrastructure and asset protection zone.

Table 2 provides a summary of proposed vegetation clearing for the proposal with the options of locating the power supply to either the east or west of Sunnyside Ridge Road, which is an existing gravel access track.

Table 2: Proposed Vegetation Clearing Summary

Vegetation Community (see Figure 5)	Area (ha) – Eastern Power Supply Corridor	Area (ha) – Western Power Supply Corridor
7 - Newnes Plateau Narrow-leaved Peppermint - Mountain Gum - Brown Stringybark Layered Forest	9.5	9.4
14 - Tableland Mountain Gum - Snow Gum - Daviesia Montane Open Forest	0.7	0.9
26a - Newnes Plateau Gum Hollows variant: Brittle Gum - Mountain Gum, Scribbly Gum - Snow Gum Shrubby Open Forest	4.8	4.6
45 - Newnes Plateau Tea Tree - Banksia - Mallee Heath	0.2	0.2
59 - Non-native Vegetation - Pine plantation / woodlot / shelter	1.6	1.7
Total Native	15.3	15.1
Total Non-native	1.6	1.7
Overall Total	16.9	16.8
<i>Persoonia hindii</i> (number of stems that would be cleared)	1180	1269

None of these vegetation communities are listed under the *Threatened Species Conservation Act 1995* (TSC Act) or the Commonwealth's *Environment Protection and Biodiversity Act 1999* (EPBC Act). As both options would result in the removal of about 15 ha of non-EEC native vegetation, the Department considers that they involve essentially the same general impacts on native vegetation.

Persoonia hindii

However, a flowering shrub listed as endangered under the TSC Act, *Persoonia hindii* (a small, flowering Geebung shrub), is present within the area proposed to be cleared (see Plates 1 and 2). The known distribution of *Persoonia hindii* is limited to the Newnes Plateau where it occurs in dry forest

habitats, almost all of which are within the actively-logged Newnes State Forest (see Figure 6). Another 3 threatened flora species were recorded within the broader study area, but not within, or adjacent to, proposed areas of disturbance.

A feature of *Persoonia hindii* is its rhizomatous nature, with much of each plant being located beneath the ground surface, from which stems (botanically termed ramets) are produced that can be observed during surveys. The habit of this plant creates survey difficulties in determining whether individual stems (ie ramets) belong to a single plant or to several. The procedure employed during the flora assessment was to consider stems rather than number of plants.

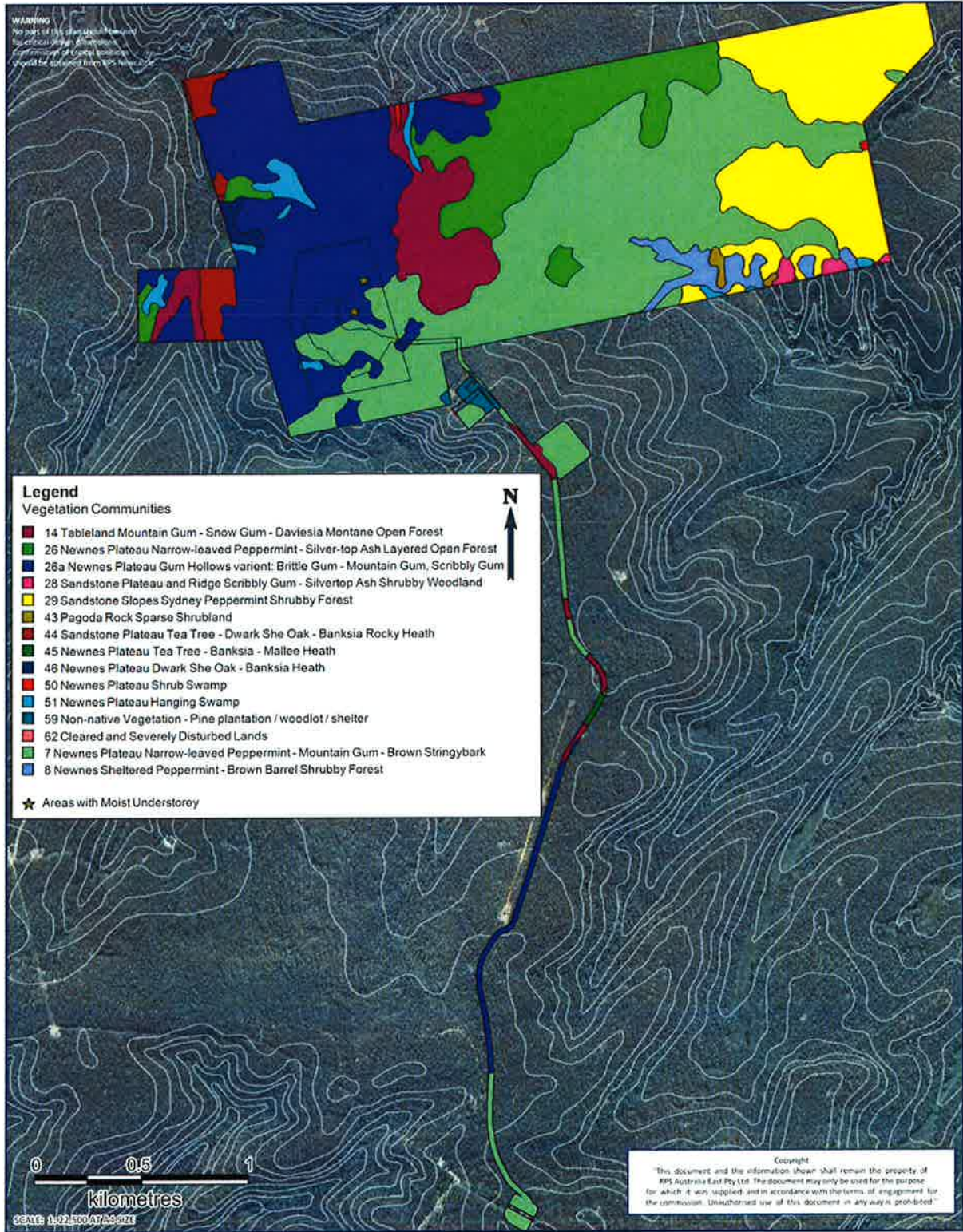


Figure 5: Vegetation Communities

The proposal would require the removal of 1180 stems of *Persoonia hindii* for the eastern power supply option and 1269 stems for the western option (see Table 2). When this impact is combined with the proposed removal of 93 stems for Springvale Colliery's nearby Bore 8 proposal, up to 11% of the known local population of 12,000 stems of *Persoonia hindii* would be affected. The currently known total population of *Persoonia hindii* is slightly in excess of 19,000.

The EA proposes a number of mitigation measures to reduce the final impact on *Persoonia hindii*, including:

- reducing clearing of native vegetation, if possible, by the design of the proposed facilities;
- using a buried power supply rather than poles and wires to connect the shaft site with existing power supply. This greatly reduces the need to clear vegetation in the power supply easement by eliminating the need for a 20 m wide asset protection zone for the aerial powerlines;
- preferentially locating the electricity substation within a portion of exotic pine forest, thus reducing the area of native vegetation to be cleared;
- committing to undertake seed collection, seed banking and translocation of *Persoonia hindii* plants from areas proposed to be cleared. Translocated plants are proposed to be relocated back to their original locations as part of the long-term rehabilitation of the verges of Sunnyside Ridge Road;
- committing to locating, recording and mapping *Persoonia hindii* across the Newnes Plateau; and
- committing to undertake research into the nature and life-cycle of *Persoonia hindii*, particularly its rhizomatous habit.



Plate 1: *Persoonia hindii* (adjacent to forest tree)

The EA concludes that, based on these proposed mitigation measures, the impacts of the proposed modification on *Persoonia hindii* are "acceptable".

The Department supports all of Centennial's proposed actions. These would, over time, provide detail on the distribution of this plant and just how fragile or resilient it is to impacts such as those associated with this proposal. However, based on the current level of knowledge, the Department remains concerned about the proposed level of impact (up to 11% of the local population, or 7% of the known population) to an endangered plant about which so little is known. The Department has therefore recommended a condition of approval that requires Springvale Coal to produce, implement and fund a

Persoonia hindii Management and Research Program in consultation with OEH and Forests NSW. This program must include:

- surveys and mapping of *Persoonia hindii* across the Newnes Plateau;
- translocation of all stems of *Persoonia hindii* found in the area of disturbance to a nearby area with similar physical and biological habitat features;
- include trials to assess whether translocated stems can be successfully returned to their original locations as a component of the rehabilitation of these areas;
- a study of the rhizomatous habit of *Persoonia hindii* and how this may affect the success of the species in translocation and/or re-colonising disturbed areas;
- a monitoring program for studying the translocated *Persoonia hindii* plants before and after translocation;
- a monitoring program to measure the ability of the residual *Persoonia hindii* population along the disturbed areas of Sunnyside Ridge Road and construction sites to regenerate;
- short and long-term goals to measure the effectiveness of the Program; and
- provision of information obtained from the Program to the Department, OEH and Forests NSW.



Plate 2: *Persoonia hindii* Recolonising Road Verge

The research and mapping program for *Persoonia hindii* would require considerable time and resources to be expended by Centennial and contribute significantly to the knowledge base of this poorly-understood plant. For example, as indicated in Plate 2 and Figure 6, it is possible that this species favours disturbed locations, although this may be an artefact of more concentrated survey effort along access tracks. This potential preference (or survey bias) would benefit from research.

The Department recommended similar conditions to apply to the adjacent Springvale Colliery's Bore 8 proposal (recently approved by the PAC). All *Persoonia hindii* stems likely to be affected by both the current Angus Place modification proposal and the recent Springvale modification are thought to be part of the same local population of (see Figure 6). Consequently, the Department has recommended that the proposed *Persoonia hindii* Management and Research Program is a common requirement in both these modification approvals.

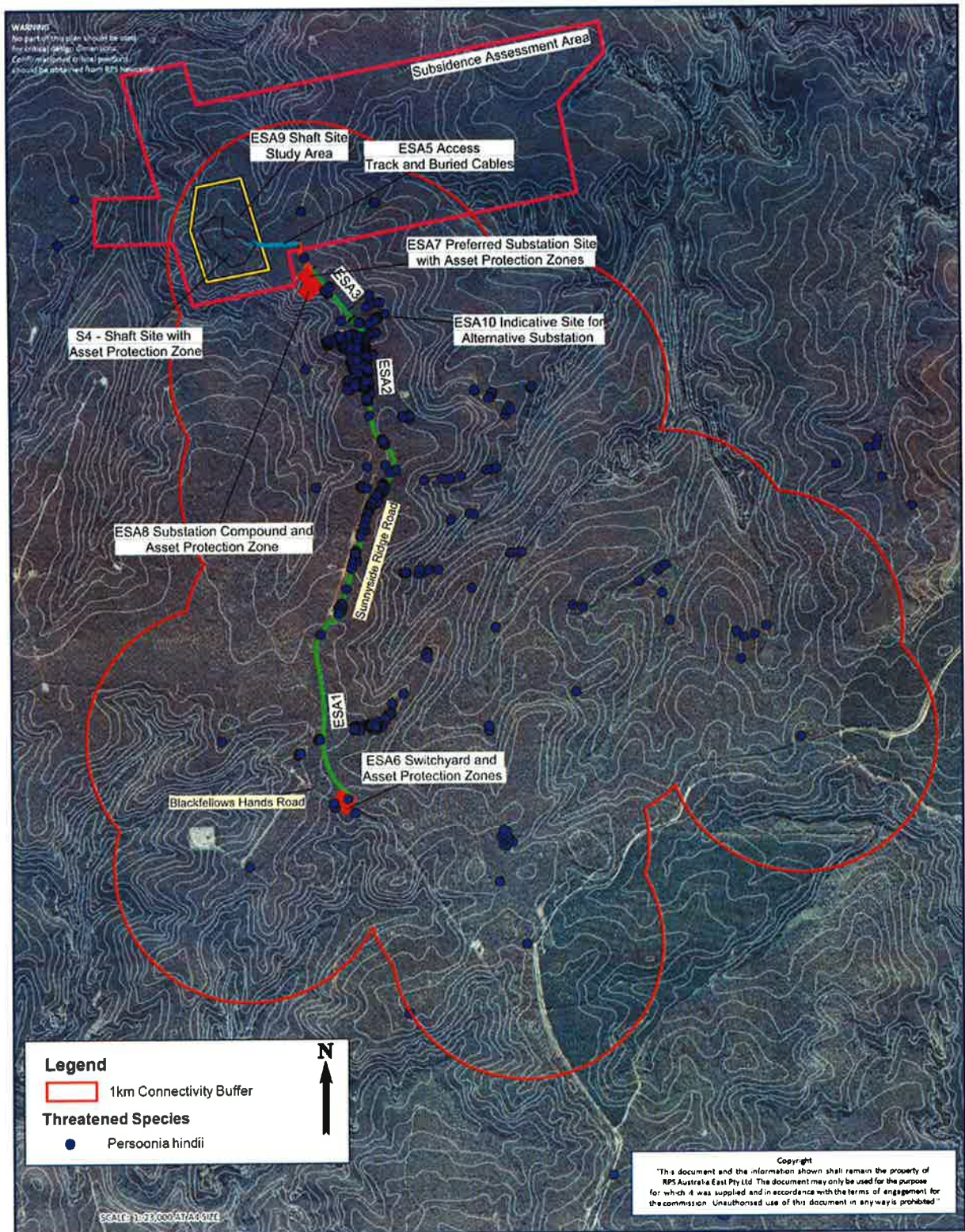


Figure 6: *Persoonia hindii* – Local Population

Rehabilitation

The Department has also recommended a condition of approval that requires Centennial to undertake rehabilitation of disturbed land on Sunnyside Ridge Road and at the ventilation facilities construction site not required for ongoing use, as soon as practicable and to the satisfaction of DRE.

In addition, the proposal involves the clearing of some 15 ha of native vegetation. Even though Centennial has undertaken all reasonable and feasible measures to minimise its impact footprint and the Department accepts that there are no alternative more favourable locations for the proposed

infrastructure, the Department considers that it is appropriate to provide some form of biodiversity offset for the residual clearing.

Such a consideration is not straightforward, as the lands involved are within an actively-logged State Forest. One of the components of the proposal is an agreement between Centennial and Forests NSW to salvage recoverable timber from the 17 ha of forest proposed to be cleared (including pine forest) and to provide monetary compensation for the loss of timber production.

Centennial is also working towards the establishment of a Regional Biodiversity Offsets Strategy, which would involve suitable areas of native vegetation being identified and used to offset proposed impacts a number of Centennial's mining operations within the Western Coalfield.

The opportunity exists to combine an integrated offset for the residual biodiversity impacts of this proposal with other biodiversity offsets likely to be required for other Centennial mining proposals, particularly those on the Newnes Plateau. Such proposals include the recent approval of the Springvale Colliery Bore 8 modification (which involves a further 4 ha of clearing) and the proposed expansions of Springvale and Angus Place Collieries. This approach offers efficiencies in identifying, purchasing, managing, conserving and securing appropriate long term offsets. However, it also necessarily involves some delay in identifying and setting aside an appropriate biodiversity offset, as Centennial's regional offset strategy has not yet been identified or assessed and approved.

The Department has proposed 4 years for this process to be finalised. This period offers several benefits. Firstly, it would allow construction and rehabilitation to take place, so that the true "residual" biodiversity impacts of the proposed modification on overall native vegetation could be identified. Secondly, it would allow for the proposed *Persoonia hindii* Management and Research Program to be largely implemented. This would offer important information about the ability to translocate *Persoonia hindii* stems and to successfully return them to disturbed areas (or for the species to recolonise those areas). It would also provide further information about the overall size of the local and total population of the species. In all these respects, the program would provide valuable information to identify the true "residual" impacts on the species.

Conclusion

The Department has recommended a condition of approval that requires Centennial to apply the results of the proposed *Persoonia hindii* Management and Research Program in determining the residual biodiversity impacts of the proposed modification and then to offset these impacts as part of a wider offset strategy for its mining operations in the Western Coalfield. In the unlikely event that Centennial does not aggregate its other offsets into a regional offset, then it would still be required to provide a stand-alone offset for the proposed impacts at Angus Place to satisfy this condition.

Other potential impacts to flora that were considered in the EA include indirect impacts to EECs such as Newnes Plateau Shrub Swamps in the vicinity of the shaft site (see Figure 6 in light blue). Also identified were two areas with moist understorey (see Figure 7 as green stars), that while exhibiting many of the attributes of shrub swamps, are not strictly classified as such. Centennial has proposed to protect these sensitive areas by maintaining a buffer zone from the cleared areas and implementing measures to control erosion and sediment impacts and to maintain the natural water flow regime to the wet vegetation areas. The Department has recommended a condition of approval requiring the production and implementation of a Construction Environmental Management Plan that would include measures to control erosion from all proposed construction activities.

The Department is satisfied that the proposed measures to address biodiversity impacts are comprehensive and appropriate to the particular circumstances that apply to the proposal.

5.2 Fauna

A total of 49 threatened fauna species and two threatened insect species have been previously recorded within 10 km of the study area or have potential to occur within the study area. The locations of the 10 threatened species actually recorded in the study area are shown on Figure 8. Of these, two bird species (Scarlet Robin and Flame Robin) and one bat species (Yellow-bellied Sheath-tailed bat) were located within areas proposed to be cleared.

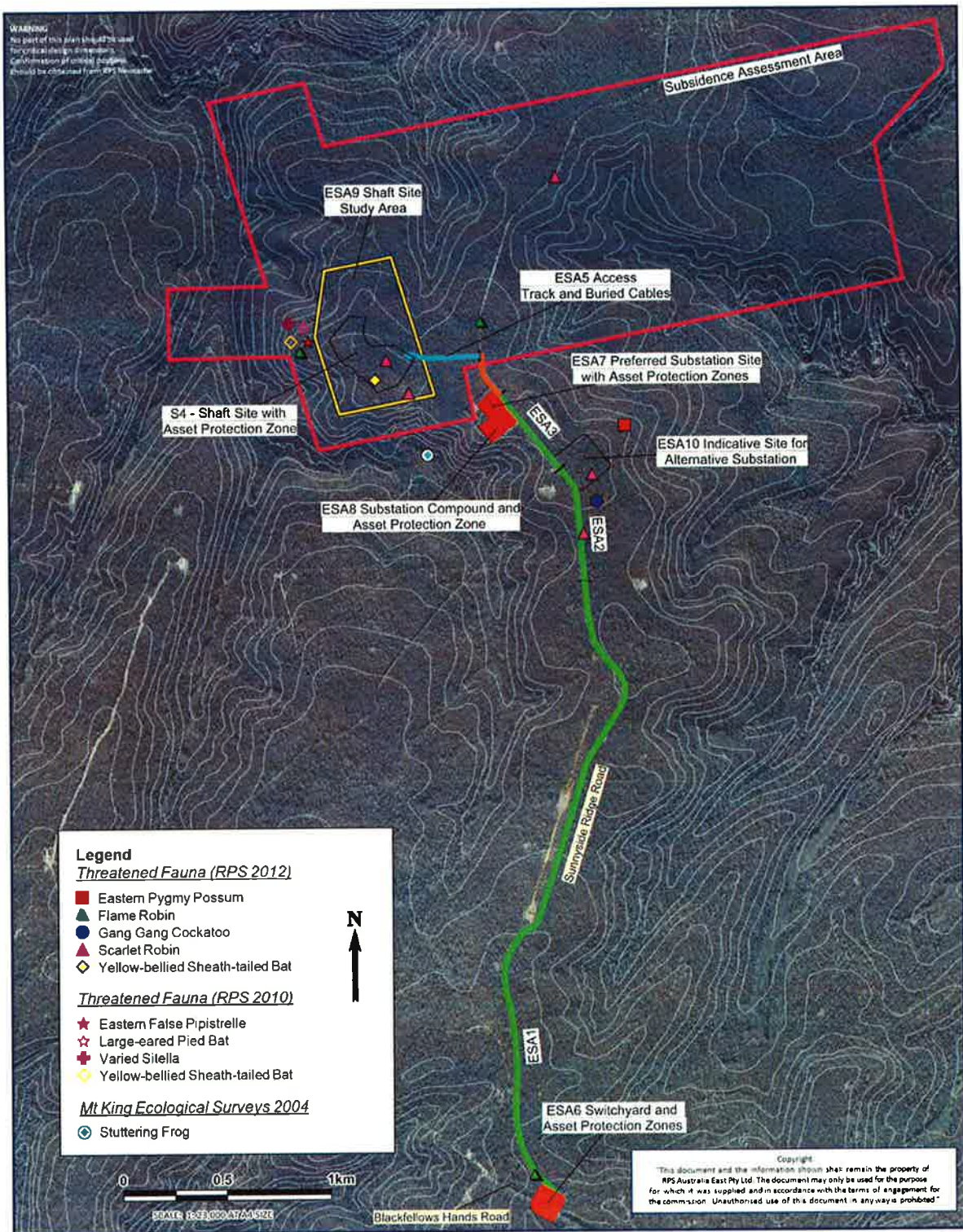


Figure 8: Threatened Fauna Records

Most vegetation proposed to be cleared lies adjacent to Sunnyside Ridge Road and is unlikely to affect the ability of these avifauna to disperse within Newnes State Forest. However, due to forestry activities, many mature trees have already been removed from the forest, along with the tree hollows used by avifauna and arboreal fauna as shelter and breeding sites. The remaining tree hollows are therefore of higher importance. The Department supports Centennial's proposals to identify any hollow-bearing trees in areas proposed to be cleared. Such trees should be retained, where possible (such in the fire asset protection zone for the ventilation facilities), and if felled, any hollows should be removed and relocated to adjacent forest communities. Any hollows that are destroyed should be replaced by an equal number of appropriately-sized artificial nest boxes. The Department has recommended a condition of approval that requires Centennial to implement these measures.

The Department considers that Centennial has sought to implement all reasonable and feasible measures to mitigate impacts on faunal habitat through measures to reduce to a practical minimum the amount of native vegetation to be cleared. In particular the decision to use an underground power supply has significantly reduced potential impacts on fauna. Only 15 ha of the 25,000 ha of native vegetation on the Newnes Plateau would be cleared as part of this proposal. Consequently the Department considers that this is unlikely to significantly affect habitat availability or the lifecycle of any threatened species. Further, Centennial's measures to mitigate impacts on native vegetation would also minimise impacts on local fauna. Finally, the proposed provision of a biodiversity offset for the residual impacts of vegetation clearing is likely also to provide suitable habitat for highly mobile forest species such as birds and bats.

5.3 Surface Water

The EA concludes that there would be minimal impacts on surface water flows and water quality in downstream receiving waters as a result of the proposal. No watercourses would be intersected by the proposed ventilation facilities, electrical switchyard and substation or the access road/track.

Water management measures similar to those successfully employed at existing facilities in Newnes State Forest would be applied. Surface water runoff at the ventilation facilities compound would be managed to protect adjacent areas of Newnes Plateau Hanging Swamp EEC and areas with swamp-like qualities and a fully vegetated buffer of at least 50 m to these sensitive areas would be maintained (see Figure 5 and Section 5.1). Erosion and sediment control and surface water management during the construction phase of the proposal would be included in a Construction Environmental Management Plan (see Section 5.4).

The Department has recommended that Angus Place's Water Management Plan be revised to ensure that it is applied to the ventilation facility site and associated facilities.

5.4 Construction Environmental Management Plan

Centennial proposes to prepare and implement a Construction Environmental Management Plan (CEMP) that would apply to all activities associated with the construction of the proposed ventilation facilities, not only at the site of the ventilation shafts but for the associated electricity switchyard and substation and access track improvements. The proposed CEMP would cover the following aspects:

- construction traffic management and safety;
- erosion and sediment control;
- noise;
- visual and night-lighting;
- air quality/ dust control;
- Aboriginal cultural heritage;
- public safety;
- recreation users of the Newnes State Forest;
- hazardous materials; and
- construction waste management.

The Departments supports this approach to environmental management as these facilities are remote from Angus Place's pit-top facilities and it would be cumbersome to modify all existing management plans to address each of these potential impacts individually. A single document addressing all these issues would provide an integrated and efficient approach. However, some other matters (such as ongoing management of minewater) are best dealt with by updating existing management plans.

5.5 Proposed Trial Mining

Centennial is seeking approval to undertake a substantial "trial mining" program, by first workings only, east of its currently approved mining operations. Initially, Centennial sought approval to:

- extend mine headings to the west of approved Longwall 910 to connect to the base of the two proposed ventilation shafts. This would assist in ventilating existing and proposed mine workings by allowing air flow from and to the proposed shafts;
- develop headings in close proximity to the base of the ventilation shafts to connect to the 9 proposed service boreholes;
- develop a series of main headings to the north and south of the proposed shafts. These would enable geological and mining conditions data to be obtained to the northern and southern extremities of the trial mine area and provide the main ventilation and service pathways for any future mining in the area; and

- develop up to 5 sets of parallel twin headings in an easterly direction from the proposed north-south main headings to obtain geological and mining conditions data to the eastern extremity of the trial mining area.

Centennial indicated that the proposed trial mining has been designed to provide additional geological information to support its current surface exploration program and enable a more expansive view of the underground resource and mining conditions within the proposed Angus Place Extension Project area. In support of this position, Centennial reported in its RTS that its exploration program has indicated geological and geotechnical risks to the viability of extending mining operations to the northeast of the current mining area. These include:

- “dilution” – the risk of stone falling from the roof in sufficient quantities to dilute the quality and value of ROM coal;
- risks associated with the stability of roof strata;
- risks associated with the cuttability of stone in the development face; and
- the risk that it would not be possible to achieve sufficient development rates to support longwall mining operations, when mining thinner sections of the coal seam.

Centennial did not provide an indicative layout for its proposed trial mining in the main body of the EA. However, an indicative layout was included in its accompanying specialist subsidence assessment (see Figure 9).

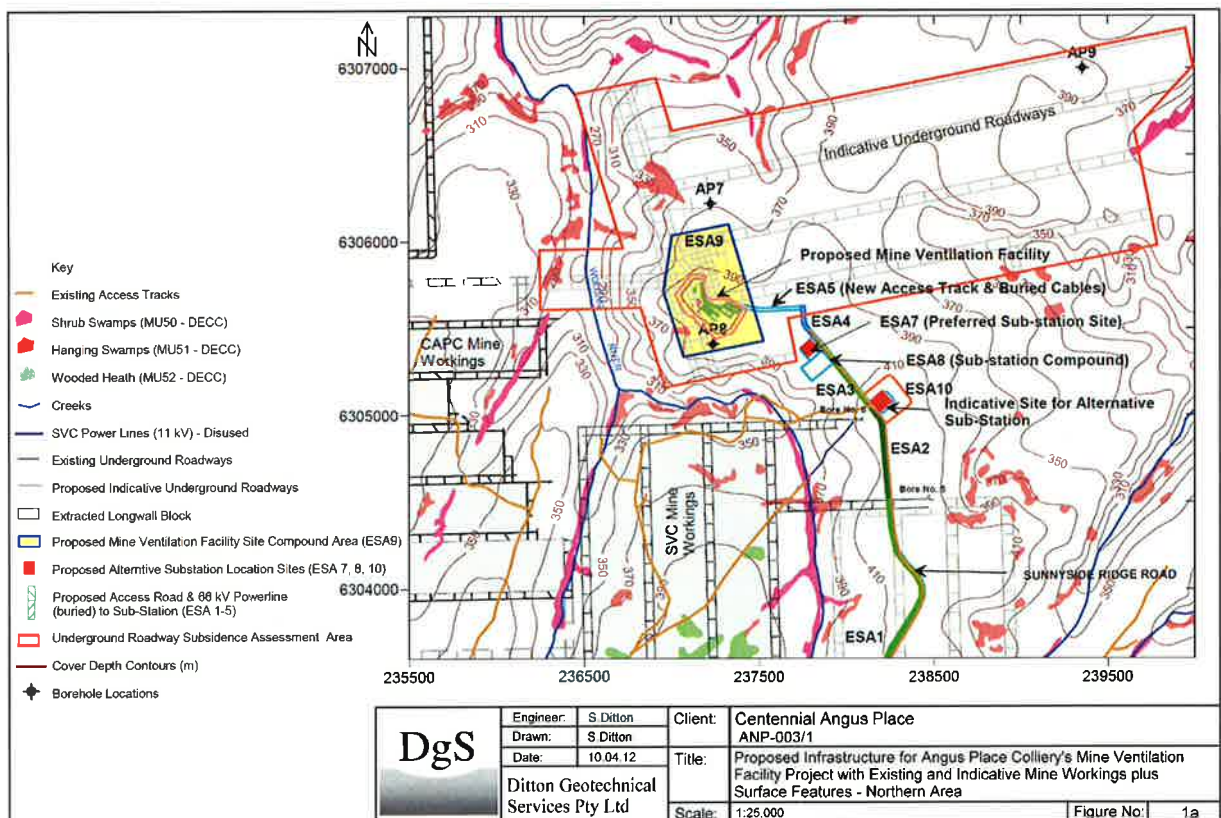


Figure 9: Originally Proposed "Indicative" Trial Mine Workings

As can be seen, parts of the originally proposed trial mining (in particular the 5 sets of easterly twin headings) have the potential to establish a mining layout for four longwall panels that could then become part of the proposed Angus Place Extension Project, for which Director-General's requirements were issued on 6 November 2012.

If this was to be the case, then this part of the longwall layout, and the associated subsidence impacts on surface features, would effectively become a foregone conclusion. As CFW stated, if this element of the proposed trial mining is approved, then it would effectively “lock-in” the width of these longwall panels. Consequently, any future assessment would not have effective means to control subsidence impacts, for example by requiring narrower longwall panels. CFW and OEH both expressed concerns over this potential outcome, and considered that the most appropriate timing for environmental impact

assessment of the trial mining would be as a component of an integrated application for an extension of mining to the northeast of the proposed ventilation shafts. Such an approach would allow the impacts of subsidence associated with longwall mining operations to be fully assessed.

In respect of the 5 sets of easterly twin headings, the Department shares this position. There are very substantial limitations on its ability to control the subsidence impacts of longwall mining if the width and general layout of these 4 panels are already established. The Department therefore does not support those components of the trial mining layout that effectively set up a longwall mining layout. However, the Department accepts the proposed development of the north-south mains, the development of headings to connect with the 9 proposed service boreholes, and the proposed connection of the existing mine workings with the proposed ventilation shafts (see Figure 9).

Following discussions, Centennial has accepted this position, and has recently proposed significant changes to its trial mining program (see Figure 10). The result is that only one paired set of easterly headings could be driven, together with a north-south set of headings and the previously-proposed mains. All proposed workings would be first workings only, and would be within the current Angus Place Colliery Holding (ie no new mining lease would be required to be granted).

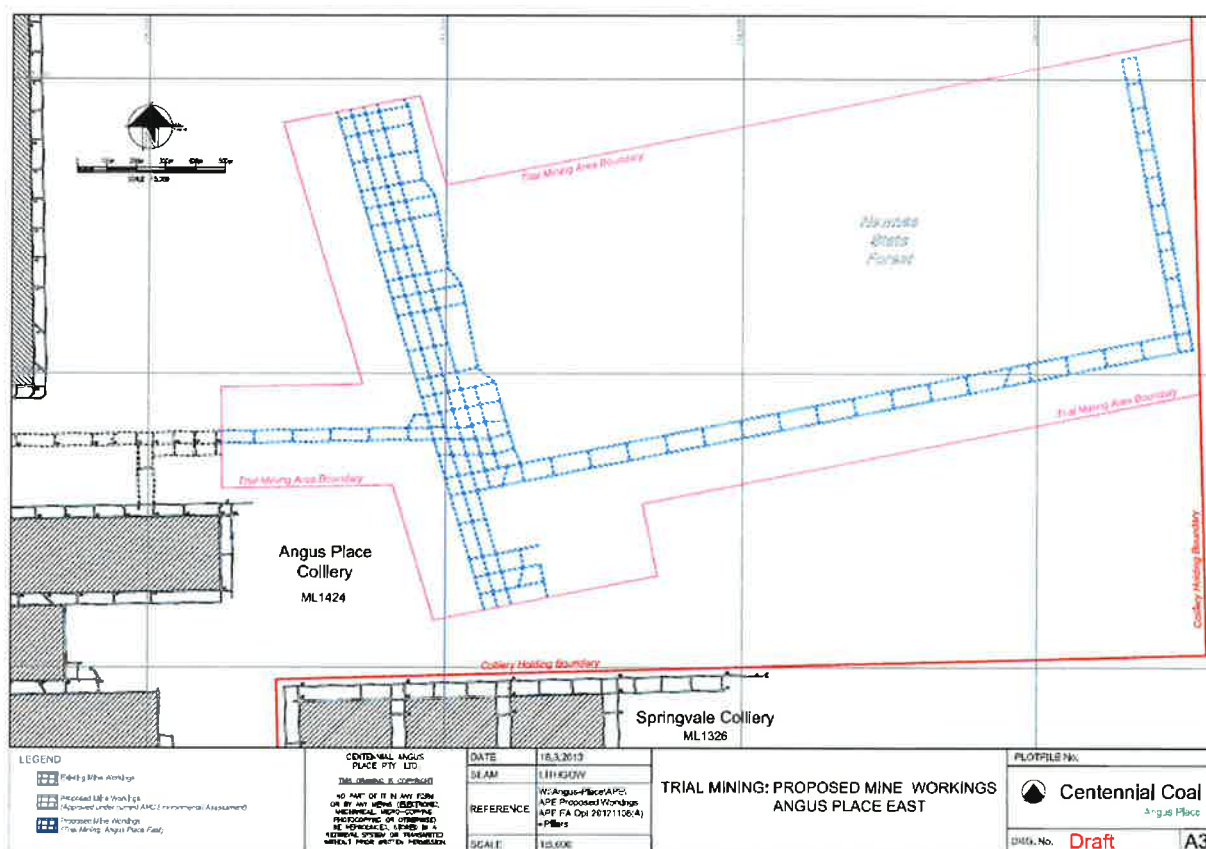


Figure 10: Currently Proposed Trial Mine Workings

The Department accepts that Centennial has advanced valid reasons to support limited trial mining in the eastern area. A single set of easterly headings, even when coupled with its proposed north-south extension, is insufficient to define the layout of even a single longwall. Subsidence associated with the proposed workings will be effectively zero (ie less than the practical limit of measurability of 20 mm). The information gained would enable Centennial to bring forward a viable proposal for the extension of longwall mining at Angus Place based on superior knowledge but with the flexibility to adjust longwall widths and control environmental impacts.

The Department therefore recommends that Centennial's proposed trial mining is limited to (see Figure 10):

- connection with the existing approved mine workings;
- development of the proposed north and south main headings; and
- development of a single paired set of L-shaped headings east of these mains.

Centennial would be able to obtain the geological and mining conditions information it seeks, but without constraining the future environmental management of longwall subsidence impacts and consequences.

5.6 Groundwater

The EA contains a specialist assessment of hydrogeological impacts based on a conceptualisation of general hydrogeological conditions in the modification area, developed from data available at the Angus Place and adjacent Springvale Colliery (see Figure 11).

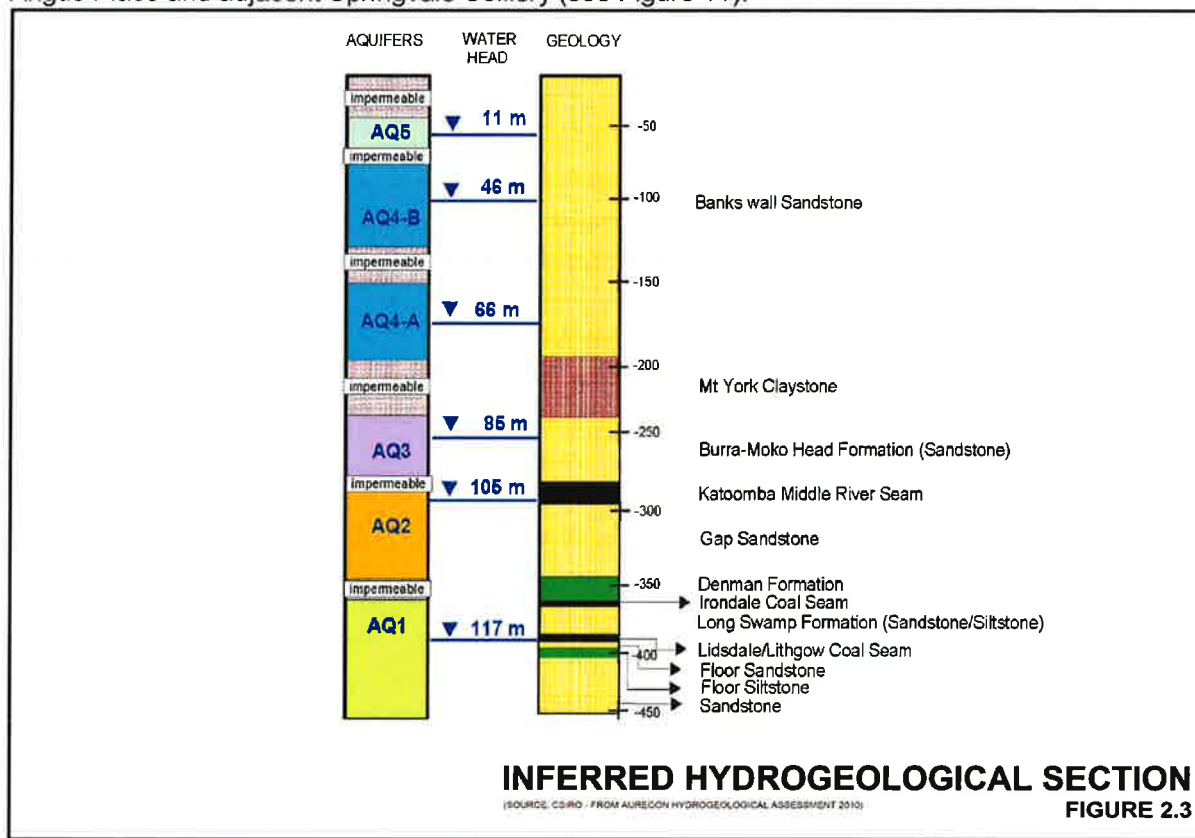


Figure 11: Hydrogeological Section

There are five “regional” aquifers occurring at distinct and varying depths down to the basal Lithgow Seam. These aquifers are separated by zones of very low water flow (aquitards or aquicludes). Importantly, the Mt York Claystone provides a barrier to mining-induced groundwater impacts from the extraction of the Lithgow Seam. Many upland swamps in the area rely on groundwater seepage from the upper aquifers above the Mt York Claystone.

Centennial proposes to protect each of the regional aquifers from potential interconnection by lining all boreholes with steel and the two ventilation shafts with composite concrete as they are constructed. During construction of the ventilation shafts (by the blind boring method), the shaft would contain drilling fluids that maintain hydrostatic pressures such that water would not be captured by the shaft from any aquifers it may intersect. The steel and/or cement linings of the boreholes and shafts would ensure that water retained in the uppermost aquifer is not drained to underlying strata and avoid potential impacts to ecosystems reliant on near-surface groundwater such as many shrub and hanging swamps. The uppermost aquifer (AQ5), which supplies water to many of the upland swamps located on the Newnes Plateau, would therefore be unaffected by this proposal.

Trial mining activities in the Lithgow Seam would intersect groundwater located within the seam itself and to some extent from the overlying rock strata. Within the trial mining area there would be no likelihood of overlying strata collapse, and therefore drainage of these strata would be limited in extent. The EA predicts that up to an additional 0.5 ML of minewater per day would need to be managed by the Colliery’s minewater management system. However, this figure is based on the extent of Centennial’s proposed trial mining, and would be substantially less under the Department’s proposed limitations on development of mine headings.

Currently, minewater is either transferred by pipelines within the mine workings to the surface and discharged to Kangaroo Creek in accordance with the mine's EPL or else pumped from a borehole to the surface and transferred via the Delta Water Transfer Scheme (DWTS) to Wallerawang Power Station for use in its cooling towers. The EPA submission indicated that under a Pollution Reduction Program (PRP) attached to this EPL, Centennial would not be permitted to discharge minewater to Kangaroo Creek after 30 June 2013. Centennial has indicated that it intends to meet the requirements of this PRP and that the DWTS has sufficient capacity to manage additional minewater. Accordingly, the proposed increased production of minewater would not adversely affect surface waters.

5.7 Other Issues

The Department has considered other potential impacts of the proposed modification, which are summarised in Table 3 below.

Table 3 – Other Issues

Issue	Description of Issue	Conclusion and Recommendation
<i>Noise and Vibration</i>	<p>The closest dwellings are at least 9 km from the site. Noise modelling demonstrates that operations at the site are unlikely to be audible at these dwellings. Noise associated with construction would have a negligible impact on the nearest sensitive receptors.</p> <p>The operation of the ventilation fans would have a noise impact for limited surrounding areas of Newnes State Forest. This would reduce the enjoyment of the immediate area by passive recreational users of the forest and may have an effect on noise-sensitive fauna. Overall, these impacts, though real, affect a small area and are considered by the Department to be minor.</p> <p>Vibration levels are predicted to be below levels of human perception at the nearest residential receptors.</p>	Construction noise issues to be included in the proposed CEMP. No other change to existing conditions.
<i>Cultural Heritage</i>	<p>A search of OEH's Aboriginal Heritage Information Management System and field surveys undertaken with registered Aboriginal stakeholders failed to identify any Aboriginal sites in the area of proposed disturbance.</p> <p>There are no known items of European heritage in or within the area of the proposed modification.</p>	Aboriginal cultural heritage considerations to be included in the proposed CEMP. No other change to existing conditions.
<i>Air Quality</i>	Dust emissions modelling shows that the predicted air quality impacts of the proposal are negligible.	Air quality considerations to be included in the proposed CEMP. No other change to existing conditions.
<i>Greenhouse Gases (GHG)</i>	The operation of the proposed ventilation facilities would only add a trivial amount (185 tonnes) to the mine's existing GHG emissions, leading to total annual Scope 1 emissions of 76,146 tonnes CO _{2-e} per annum.	No change to existing conditions.
<i>Traffic and transport</i>	<p>During the 2 year construction period, it is estimated that an average of 20 vehicles a day would access the ventilation facilities site. Once operational, traffic movements would be minimal, with an occasional light vehicle trip being undertaken for maintenance and inspection.</p> <p>All forestry access tracks and roads used by Centennial's vehicles are maintained under a maintenance agreement with Forests NSW.</p>	Traffic management considerations to be included in the proposed CEMP. No other change to existing conditions.
<i>Public Safety</i>	<p>Newnes State Forest is host to extensive recreational use (bushwalking and 4-wheel driving), principally on the weekends. Centennial has committed to fencing its facilities to exclude the public and the installation of signage, security lighting and CCTV cameras to monitor the ventilation facilities. Interactions with the public's vehicles on forestry tracks and roads would be addressed in the traffic management component of the CEMP.</p> <p>Asset protection zones would be put in place around the</p>	The Department supports Centennial's commitments to provide public safety at its facilities. Traffic management considerations to be included in the proposed CEMP. No other change to existing conditions.

	ventilation facilities, substation and switchyard to protect these facilities from bushfires and to guard against these facilities being an ignition source for bushfires.	
<i>Subsidence</i>	<p>The proposed modification is not predicted to cause subsidence above 20 mm, the practical limit of measurement. Mine workings would be in the range of 270 to 380 m below the base of the Wolgan River.</p> <p>Due to the sensitive nature of the Wolgan River, Centennial has committed to undertake pre- and post-mining surveys. The Department supports this commitment.</p> <p>Some sections of Sunnyside Ridge Road, the electrical cable to be buried adjacent to the road and the electrical switchyard would be affected by subsidence caused by the adjacent Springvale Colliery's longwall mining operations. This is predicted to be for the road and cable 1.53 m, and 0.43 m for the switchyard. These facilities have been designed to cope with the predicted level of subsidence and would be inspected as part of Springvale Colliery's Subsidence Management Plan.</p>	No change to existing conditions.
<i>Visual Amenity</i>	The proposed ventilation facilities and associated infrastructure would only be viewed by Centennial's staff and contractors, forestry workers and recreational users of the access road/track. The buildings and infrastructure would be clad with green Colourbond, to reduce visual impacts against the surrounding forest. The decision to bury the electricity supply not only reduces vegetation clearing but also the visual impact of an aerial power supply. It is considered that visual impacts would be minimal.	The Department is satisfied that the proposed modification would not have a significant impact on any sensitive visual receiver. Visual amenity considerations to be included in the proposed CEMP. No other change to existing conditions.
<i>Rehabilitation and Closure</i>	<p>Once decommissioned, full rehabilitation of the ventilation facilities and associated infrastructure sites would be undertaken in accordance with the occupation permit issued by Forests NSW. In the interim, progressive rehabilitation would be undertaken wherever possible.</p> <p>The 9 service boreholes would be fully sealed with cement and the 2 ventilation shafts would be filled with the cuttings removed during their construction and stored on the site. The land would be reformed so as to blend with the surrounding landscape and revegetated with endemic native vegetation. The access tracks would be retained as a fire trails.</p>	The Department has recommended conditions requiring preparation and implementation of a Rehabilitation Management Plan for the ventilation facilities and providing a timetable for how disturbed areas would be progressively rehabilitated, monitored and assessed.
<i>Socio-economic impacts</i>	<p>The ventilation facilities and service boreholes are critical components of Angus Place's short-term and potentially long-term operational and financial viability. Without the ventilation facilities and a mine extension to the northeast, operations at Angus Place would begin to wind down, with mine closure to occur around 2016.</p> <p>Currently the mine is approved to produce up to 4.0 Mtpa with a workforce of 225 employees and 75 contractors. The proposed modification would be conducted within these limits, but would maintain the economic activity at current levels over the next 3 years.</p> <p>The proposed modification is a significant capital investment of \$63.5 million, which would help maintain contractor numbers at the mine during the construction of the ventilation shafts and associated infrastructure.</p> <p>The modification provides the opportunity for sustained economic activity by facilitating an application of extended mining operations to the northeast (ie the Angus Place Extension Project), subject to appropriate assessment under the EP&A Act.</p>	No change to existing conditions. The workforce required for construction can be accommodated within the mine's existing workforce.

6 RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of approval for the modification (see **Appendix A**). These conditions are required to:

- prevent and/or minimise adverse environmental impacts of the proposed modification;
- set standards and performance measures for acceptable environmental performance;
- ensure regular monitoring and reporting;
- provide for a research program into *Persoonia hindii*; and
- provide for the ongoing environmental management of the development.

The Department has consulted with, and received the support of, DRE, OEH and EPA on relevant proposed conditions of approval. Centennial has reviewed and accepted the recommended conditions.

The proposed notice of modification would vary the existing approval to the form shown in **Appendix B** (the "consolidated approval").

7 CONCLUSION

The Department has assessed the ventilation facilities and trial mining modification application in accordance with the relevant requirements of the EP&A Act. This assessment has found that the proposed modification would not cause any additional environmental impacts associated with the approved project that could not be mitigated or otherwise managed under the existing conditions of approval, with some minor revisions to account for the impacts associated with construction activities and improvements to environmental management and monitoring regime. In particular, the Department has recommended a comprehensive Construction Environmental Management Plan be developed to address, mitigate and manage the impacts associated with construction of surface facilities on the Newnes Plateau and that a Management and Research Program be implemented in the same terms that have been applied in the approval of Springvale Colliery's Bore 8 in respect of the threatened species *Persoonia hindii*.

The Department considers that Centennial is justified in seeking to undertake trial mining operations, to seek improved knowledge about the constraints to mining in this particular area, but not in a manner that amounts to preliminary mining for a predetermined longwall mining layout. Consequently the Department has recommended conditions of approval that limit the number, extent and layout of mine headings developed as "trial mining".

Approval of the proposed modification would allow Centennial to schedule the construction of the ventilation facilities, which have a long lead-time to completion, so that its future plans for the Angus Place Extension Project are not compromised by major disruptions to continuity of longwall coal production. Without construction of the ventilation shaft commencing in early 2013, it is likely that longwall coal production at the mine would have to cease in about two years' time for a period of between one and two years. This would be very disruptive and costly for Centennial, with many of the workforce probably stood down at that time or deployed elsewhere. The implementation of the proposed modification is at a significant commercial risk to Centennial, as the expenditure of \$63.5 million to establish the ventilation and ancillary surface facilities would not be effectively utilised if the Extension Project does not proceed, at least in some form. The Department notes that Centennial is fully aware that the Extension Project would be assessed on its merits. Centennial has applied for this modification in preference to the certainty of a discontinuity in longwall coal production that would ensue from delayed construction of the ventilation facilities.

The Department believes that the proposed modification is in the public interest and should be approved, subject to conditions.

8 RECOMMENDATION

It is **RECOMMENDED** that the Planning Assessment Commission exercise the powers and functions delegated to it in the Instrument of Delegation from the Minister for Planning and Infrastructure, dated 14 September 2011, and:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification is within the scope of section 75W of the EP&A Act;

- **approve** the modification application, subject to conditions, under section 75W of the EP&A Act; and
- **sign** the attached notice of modification (Tagged A).

Howard Reed

Howard Reed
Manager
Mining Projects

22.3.13



25.3.13

Chris Wilson
Executive Director
Development Assessments Systems and Approvals

David Kitto 22/3/13

David Kitto
Director
Mining & Industry Projects