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Friday 22 May, 2015

Mr Brian Gilligan
Chair
Planning Assessment Commission
GPO Box 3415
Sydney NSW 2001

Dear Mr Gilligan,

Submission as an objection to proposal R031/15
- Springvale Mine Extension Project

Introduction

The Springvale mine extension proposal lies within the 1932 National Parks and Primitive Areas Council proposal for a Blue Mountains National Park that extended over Newnes Plateau. The Colong Foundation for Wilderness Ltd, as part of its work in seeking protection for large natural areas, has sought improved protection of the Gardens of Stone region since 1985 when the area was proposed as an extension to Wollemi National Park[1].

The Gardens of Stone proposal was revised in 2005 to seek reservation of state conservation areas that are compatible with appropriately regulated underground coal mining. The Newnes State Forest is the largest and most diverse part of the Gardens of Stone Stage 2 reserve proposal that extends over 40,000ha[2] (see maps on the next two pages).

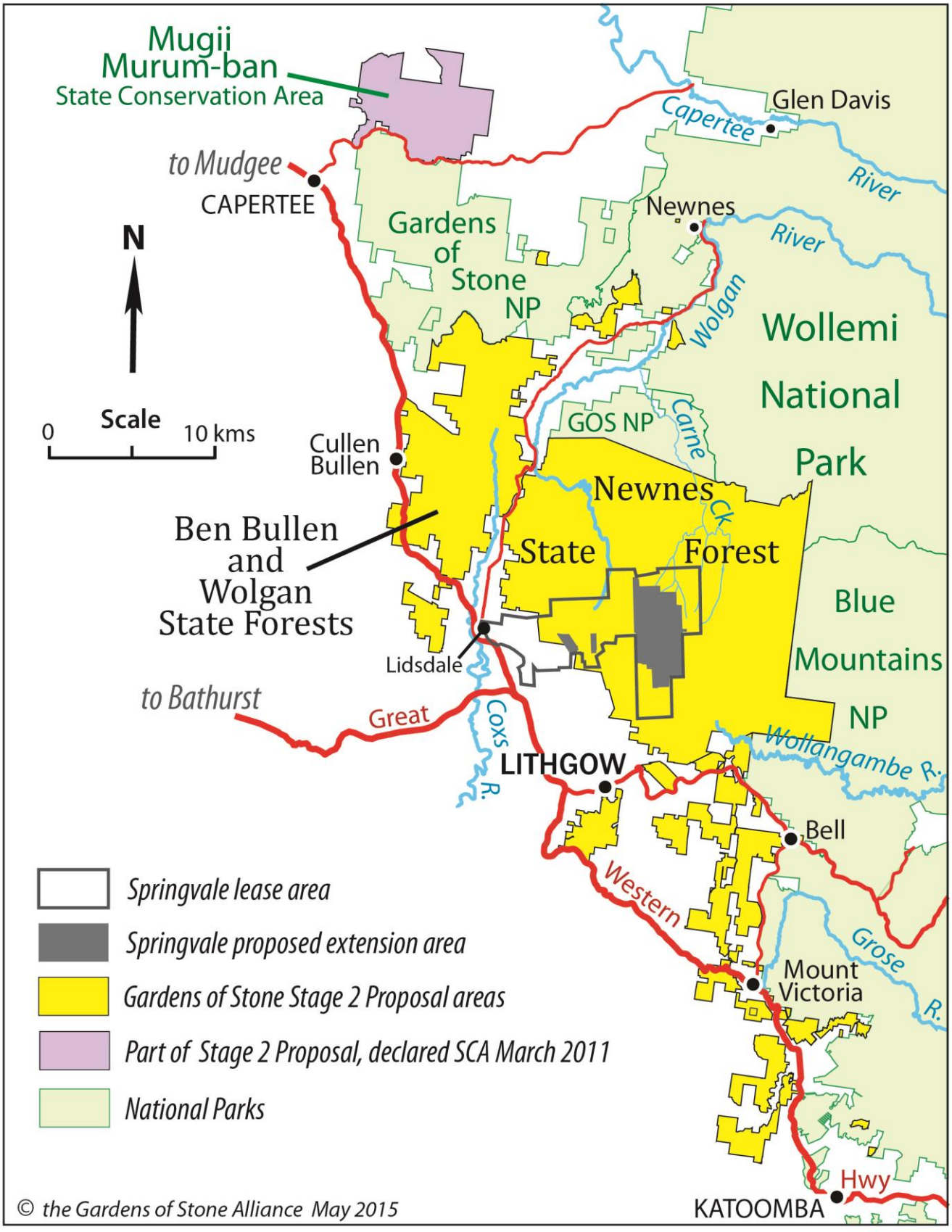
Over the last thirty years, the Colong Foundation has developed a good understanding of coal mining and its interaction with the natural environment. The Foundation has made detailed submissions to determination processes for all major mining proposals that lie in

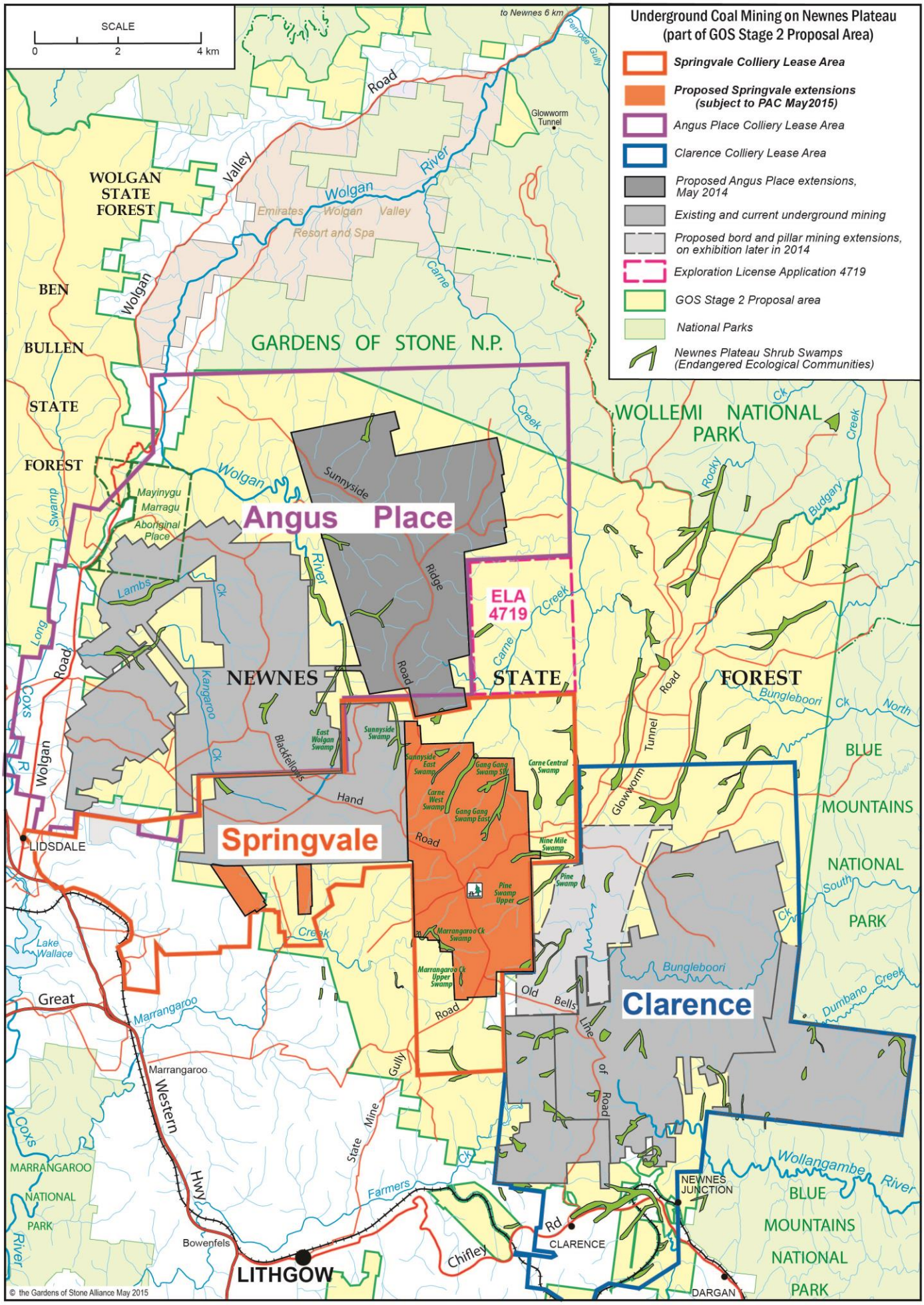
[1] Falconer R. and Blackwell, D., 1985, Gardens of Stone, Sydney, The Colo Committee, The Colong Committee, The Federation of Bushwalking Clubs.
[2] Muir, K., 2005, The Gardens of Stone Park Proposal – state Two – the Western Escarpment, Airly-Genowlan Mesa, Newnes Plateau and related Crown lands, Sydney, The Colong Foundation for Wilderness, Blue Mountains Conservation Society and Colo Committee.

The Gardens of Stone Region Locality Map

Showing proposed extensions to Springvale coal mine 2015

The Gardens of Stone Region is collectively the GoS2 areas, Mugii Murum-ban SCA, the GoS National Park and the western parts of the Wollemi and Blue Mountains N Pks within the map area




Underground Coal Mining on Newnes Plateau
(part of GOS Stage 2 Proposal Area)
Springvale Colliery Lease Area
Proposed Springvale extensions
(subject to PAC May2015)
Angus Place Colliery Lease Area
Clarence Colliery Lease Area
Proposed Angus Place extensions,
May 2014
Existing and current underground mining
Proposed bord and pillar mining extensions,
on exhibition later in 2014
Exploration License Application 4719
GOS Stage 2 Proposal area
National Parks
Newnes Plateau Shrub Swamps
(Endangered Ecological Communities)
SCALE
0
2
4 km
to Newnes 6 km
Penrose Gully
Road
Glowworm Tunnel
WOLGAN STATE FOREST
Valley
River
Wolgan
Emirates Wolgan Valley Resort and Spa
Carne
BEN BULLEN STATE FOREST
GARDENS OF STONE N.P.
Creek
WOLLEMI NATIONAL PARK
Rocky
Budgary
Sunnyside
Angus Place
Mayinygu Marragu Aboriginal Place
Swamp
Ridge
ELA 4719
Lambs
Long
Coxs
Kangaroo
Blackfellows Hand
NEWNES STATE FOREST
Bungleboori
North
BLUE MOUNTAINS NATIONAL PARK
East Wolgan Swamp
Sunnyside Swamp
Sunnyside East Swamp
Gang Gang Swamp SE
Carne Central Swamp
Carne West Swamp
Gang Gang Swamp East
Springvale
Nine Mile Swamp
Pine Swamp
Pine Swamp Upper
Marrangaroo Ck Swamp
Marrangaroo Ck Upper Swamp
LIDSDALE
Lake Wallace
Great
Marrangaroo
Old Bells Line of Road
Clarence
Bungleboori
Dumbano Creek
Gully
State Mine
Western Hwy
MARRANGAROO NATIONAL PARK
Farmers
Wollangambe River
NEWNES JUNCTION
Bowenfels
LITHGOW
Chifley
Rd
CLARENCE
DARGAN
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the Gardens of Stone reserve proposal and have taken part in consultations regarding mine regulation since 1985.

The Colong Foundation and other environment groups of the Gardens of Stone Alliance[3] do not, in principle, oppose underground coal mining in the proposed state conservation areas, which includes the area subject to this proposal. The Foundation understands that Mt Piper is currently supplied with over 2mtpa of thermal coal from Springvale colliery via a purpose built conveyor belt. NSW conservation groups, however, will continue to vigorously defend the Gardens of Stone region from adverse environmental impacts associated with inappropriate coal mining.

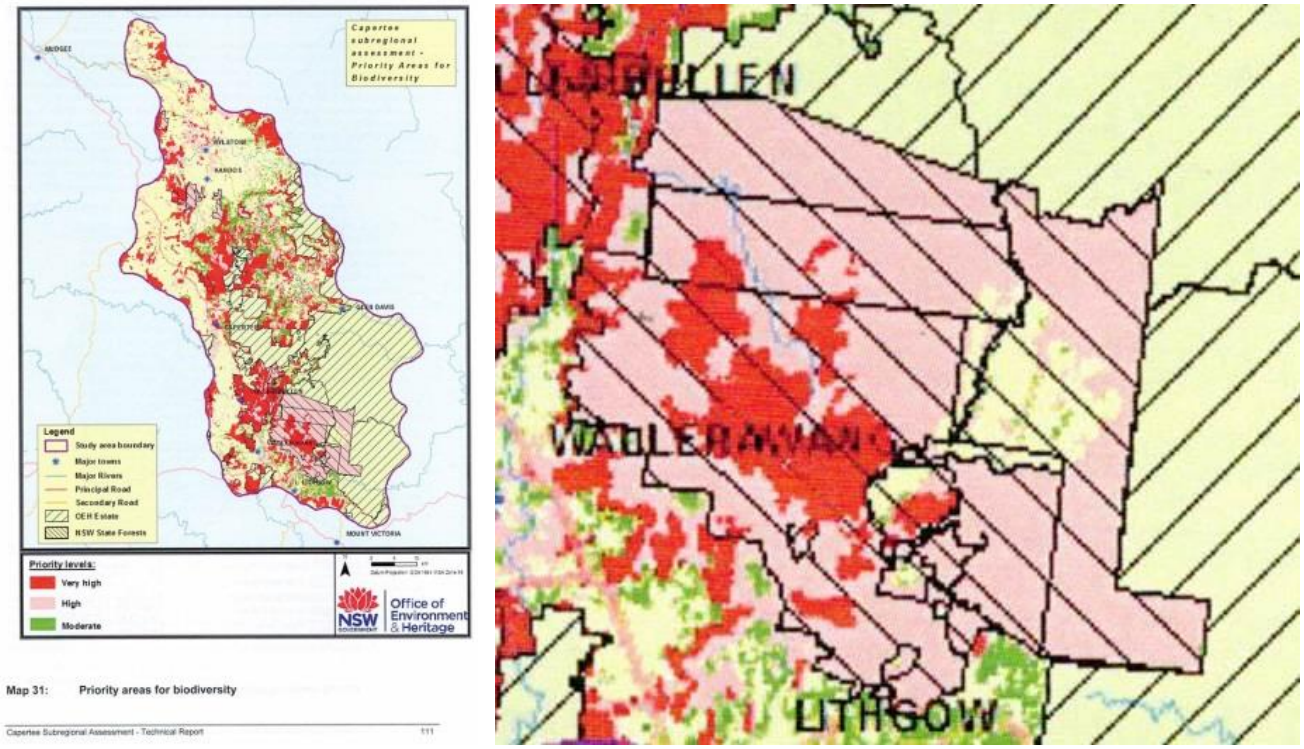
The Colong Foundation believes that this Springvale mine extension, as currently proposed, when all social and environmental factors are properly valued, will not improve the welfare for the people of NSW. For example, the Office of Environment and Heritage (OEH) has estimated that the ten Newnes Plateau Shrub swamps (NPSS) potentially affected by the Springvale and Angus Place mine extensions would have a community value of at least $157M ($2M/ha x 78.75ha) (see OEH, pg 6, App B, 2 June, 2014). Nine of those swamps are in the Springvale extension proposal. The loss of these NPSS and associated Newnes Plateau Hanging Swamps should be properly taken into account and protected by this Planning Assessment Commission (PAC) review. At the moment these important swamps are not properly considered and all but two are proposed to be unprotected from mining impacts.

This extension proposal will undermine twenty eight nationally endangered swamps that have a very high biodiversity value. The Office of Environment and Heritage published a report[4] in May 2014 that finds the area proposed for mining to be of very high value for biodiversity conservation (Map 31, page 111 - see following page). The map is generated by the Biodiversity Forecasting Tool that identifies areas proposed for longwall mining to be of high conservation benefit (OEH page 113, May 2014). The section of the Newnes State Forest affected by the proposed longwalls is particularly significant for conservation of … high altitude upland swamp ecosystems (OEH page 115, May 2014).

The Biodiversity Forecasting Tool also assesses the rarity of the native vegetation, its connectedness to other vegetation, and its condition. Newnes Plateau is an important regional biodiversity corridor connecting the Greater Blue Mountains World Heritage Area with the Capertee Valley (OEH, Map 30, page 96, May 2014). The tool also has been applied in the Murray Catchment and in the NSW Biodiversity Strategy.

[3] The Gardens of Stone Alliance consists of the Blue Mountains Conservation Society, Lithgow Environment Group and the Colong Foundation for Wilderness Ltd.

[4] OEH, May 2014, Capertee Subregional Assessment – Identifying priority areas for biodiversity conservation and investment in the Capertee subregon and Newnes Plateau – Technical Rpt No 2014/40622, OEH, Sydney.



Map 31 showing very high priority areas for biodiversity in red. On Newnes Plateau these red areas generally approximate the boundary of the Burralow Formation.

For this PAC review to recommend consent for this proposed extension of Springvale Mine (SSD 5594), the proponent must ensure that this proposal meets community expectations. To achieve this for an area of high conservation value that discharges effluent to a drinking water catchment:

- Planned water pollution discharges must be treated to a standard equivalent to natural background of the receiving waters; and
- All impacts on Newnes Plateau streams and endangered ecological communities, particularly its nationally endangered swamp communities must be eliminated.

Colong Foundation will argue in this submission that the Department of Planning and Environment (DPE) in framing its environmental assessment report and proposed consent conditions gave insufficient weight to the advice from NSW Government agencies with expertise in environment protection. The DPE when writing its assessment report largely relied on the advice of the proponent's experts.

The Colong Foundation believes that the approach by DPE does not ensure community expectations were properly taken into account, particularly in relation to consideration its duties toward the protection of our national heritage. **There are five heads of consideration under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) triggered by this proposal as controlled actions, yet DPE did not propose a consent condition that expressly addresses this national heritage.** The proposed

conditions are silent regarding the EPBC Act and national heritage. This raises questions regarding how DPE intends to implement its bi-lateral agreement obligations under the EPBC Act in relation to this proposal.

The submissions by the Sydney Catchment Authority SCA), Environment Protection Authority(EPA) and the OEH are based on a good working knowledge of field conditions, law and what can be reasonably achieved for environment protection. These state government agencies have argued that this proposal should not proceed in its current form because it will have significant adverse effects. The proposal will impact on endangered ecological communities and threatened species, important uplands streams of great natural beauty and on drinking water resources.

The Colong Foundation believes that the ecological health of the Coxs River has been and will continue to be significantly degraded by Springvale's mine effluent, particularly since the Wallerawang Power Plant closed in 2014. These aquatic impacts extend through the downstream reaches of the Coxs River within the Greater Blue Mountains World Heritage Area.

The PAC is no doubt aware that much of the evidence and advice received from the NSW environmentally expert government agencies; the SCA, EPA, OEH, as well as that from Independent Expert Scientific Committee (IESC), contradicts that from the proponent's experts upon which DPE's assessment and the proposed recommendations are based. In this submission we will argue that proponent's expert advice is inconsistent with field observation evidence regarding past environmental impacts arising this mine. The Foundation will argue that the observed damage can reasonably be expected to continue under the mine extension proposal and is not compatible with community expectations.

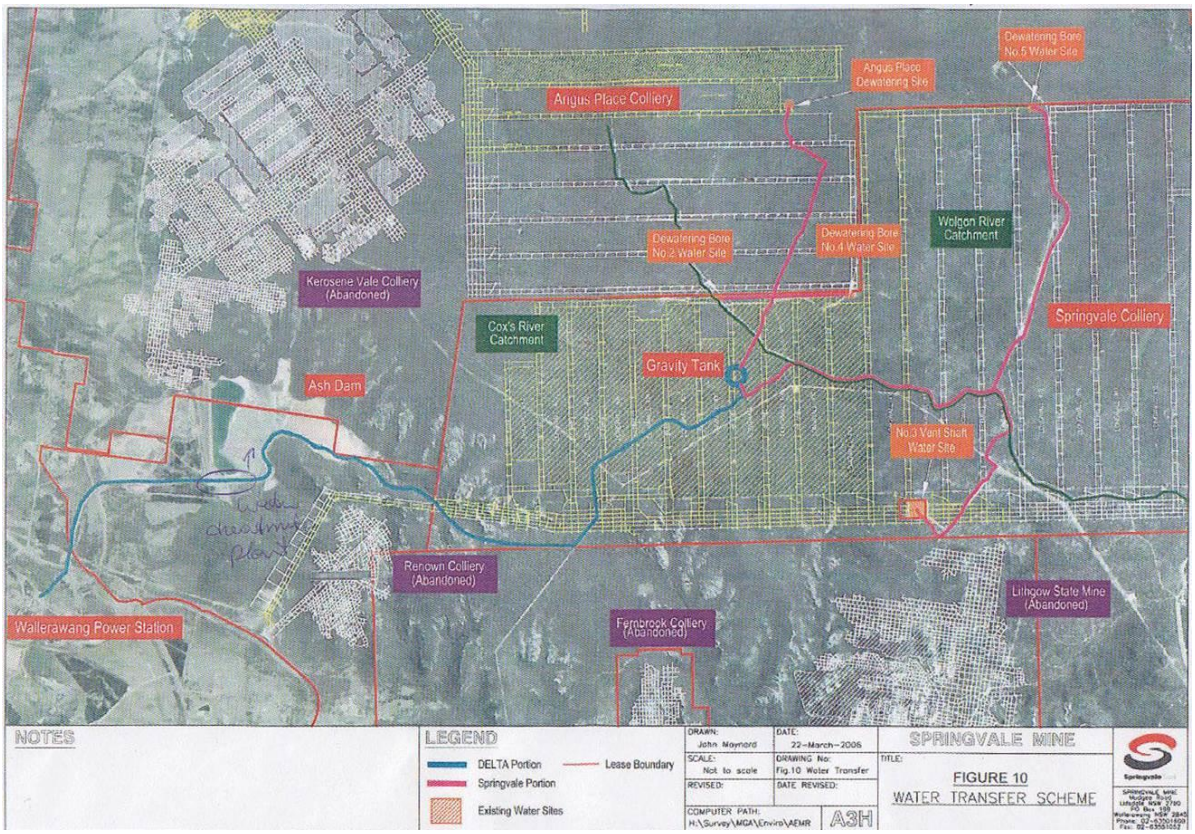
The Colong Foundation, after reviewing all the documentation including the responses to submissions by the applicant, requests that the Planning Assessment Commission (the PAC) recommend refusal of development consent for the Springvale mine extension proposal because the proponent has failed to minimise environmental impacts.

Surface infrastructure disturbance should be minimised

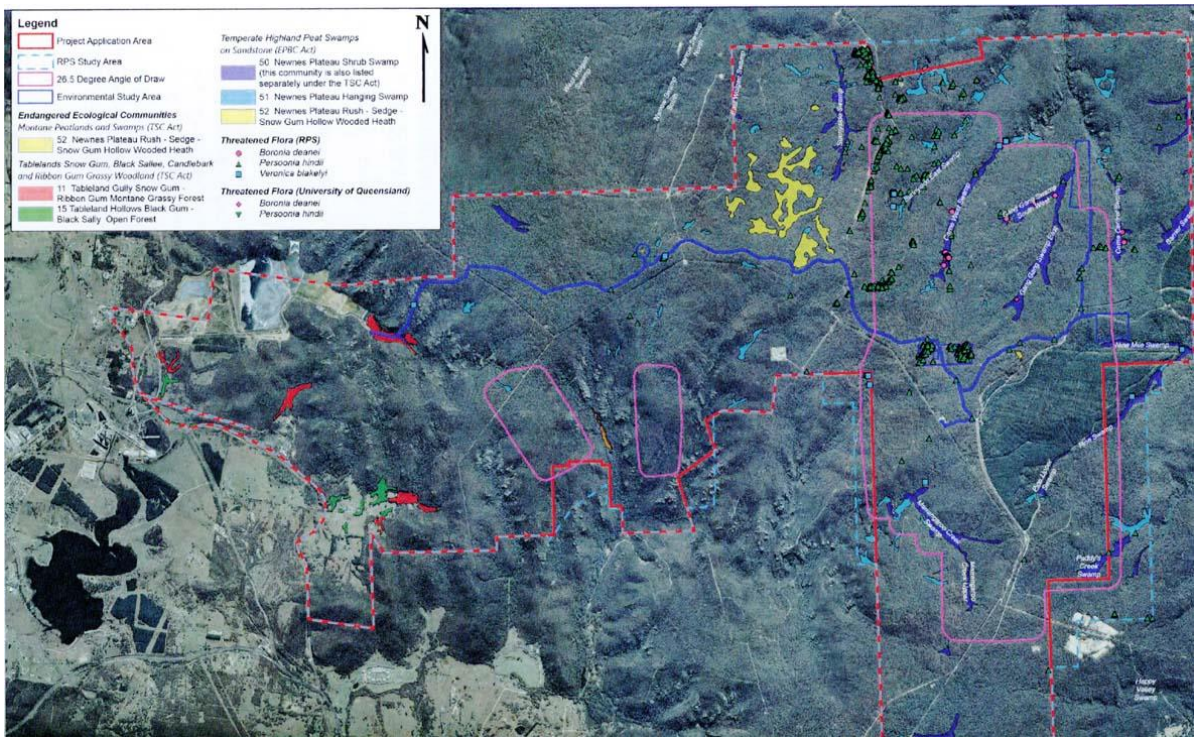
To minimise surface impacts arising from the proposed duplication of the mine effluent transfer pipeline (i.e. for the SDWTS), this pipeline should be required to follow the existing SDWTS pipeline alignment. The currently proposed pipeline and road would unnecessarily bisect two endangered ecological forest communities. It would also adversely impact on the scenic gully that lies between the pagoda studded ridges known locally as Clerestory Spurs Number 7 and Number 8 that lie to the north above Sawyers Swamp Creek.

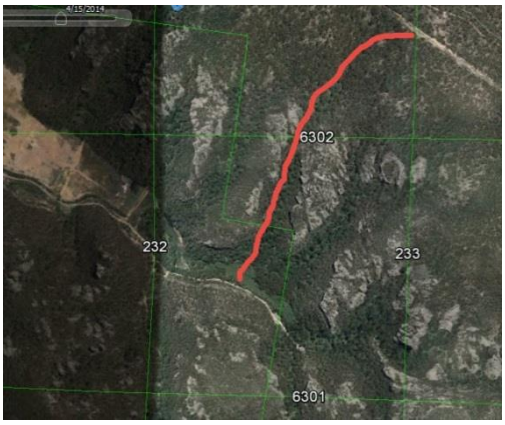
The proposed pipeline would be a complying development under the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* and as

amended. Nevertheless, any proposed pipeline should be required to follow the existing SDWTS pipeline alignment to prevent unnecessary damage into this scenic and ecologically important part of the Gardens of Stone region.



Existing transfer pipeline enters Sawyers Swamp Creek valley from the west (figure above), the proposed pipeline would enter this valley from the north causing unnecessary environmental disturbance (figure below).





Proposed pipeline and road route through a gully with an endangered ecological community that lies between as Clerestory Spurs 7 and 8

Poor water management practice does not inspire confidence

Previous poor water management decisions made in relation to the Springvale-Delta Water Transfer Scheme (SDWTS) were outlined in detail in the Colong Foundation's submission on the Environmental Assessment for this mine extension (SSD 5594). To summarise these events - past poor management includes a number of pipeline integrity failures that required emergency discharges to be sent down the Wolgan River, a listed wild river, over many months. The absence of a retention basin to allow for flocculation and sediment settling, and an associated collapse of the power plant's condensers owing to the failure to treat the water, led to subsequent installation of a reverse osmosis treatment plant to reduce salinity of mine water provided to the Wallerawang power plant. The replacement of condensers cost electricity ratepayers $35 million, which was a wasted investment as the Wallerawang power plant is now permanently closed. These are main points in the 'daisy chain' of problems associated with the establishment of the current SDWTS that now discharges directly to the Coxs River catchment. This is what can happen with complying development of mine pipeline infrastructure.

The above events are further detailed and referenced in Appendix 1 - *The Impact of Coal Mining on the Gardens of Stone, 2010, section 3.2 Case study: the Springvale Water Transfer Scheme, pages 41-43.* Given this track record, the Colong Foundation has no confidence in the engineering design of the proposed SDWTS transfer augmentation pipeline. Other pipeline proposals associated with water treatment options for the ever growing quantities of mine effluent from mines operating under Newnes Plateau are of equal concern, particularly if managed as complying development.

Water quality impacts should be based on a worst case of 50ML/day LDP9 discharge

The proposed duplication of the Springvale – Delta Water Transfer Scheme (SDWTS) would increase capacity of this Scheme to 50ML/day[5]. The proponent has not withdrawn the pipeline duplication or lodged a revised development proposal. The analysis by the proponent's consultants and DPE should have been based on the amount of mine effluent that potentially could be emitted at Springvale's mine discharge point, LDP9, following SDWTS duplication. The proponent's reply to submissions fails to make a worst case analysis on the maximum possible impact.

The proponent has in its response to submissions indicated that the proposed mine extension for Angus Place will not proceed until Springvale is completed in 2033. This does not seem probable. The proposed Angus Place extension could take place at any time and would come forward when the thermal coal price rises. Angus Place is a productive mine that can produce 4mtpa of thermal coal and will be made operational at the first opportunity.

Angus Place is in care and maintenance. These arrangements require continued Angus Place discharges of 8.3ML/day by Springvale mine's main discharge point LDP9. Further, it is highly probable that the proposed extension of Angus Place will come forward sooner rather than later and the maximum possible LDP9 discharge will then approach 50ML/day.

The EPA considers that the proposed 50ML/day discharge is the worst case scenario. This would be in line with the expected maximum LDP9 discharge estimated in the Environmental Assessment to be 43.8ML/day for year 2023 (pg 165, Vol 1 of the EA). This proposed discharge of salt laden mine effluent is likely to significantly reduce the diversity and abundance of aquatic life in the Coxs River downstream through the Greater Blue Mountains World Heritage Area. These impacts to the Coxs River environment will extend from the Blue Mountains National Park boundary to the limit of stored waters of Lake Burragorang at the Coxs and Kowmung River junction.

The Colong Foundation is concerned that assessment of water quality by DPE seems to rely on a discharge 18-19ML/day[6], and an assessment of 'neutral or beneficial effect' test. The assessment should be on a worse-case scenario - a proposed discharge of 50ML/day.

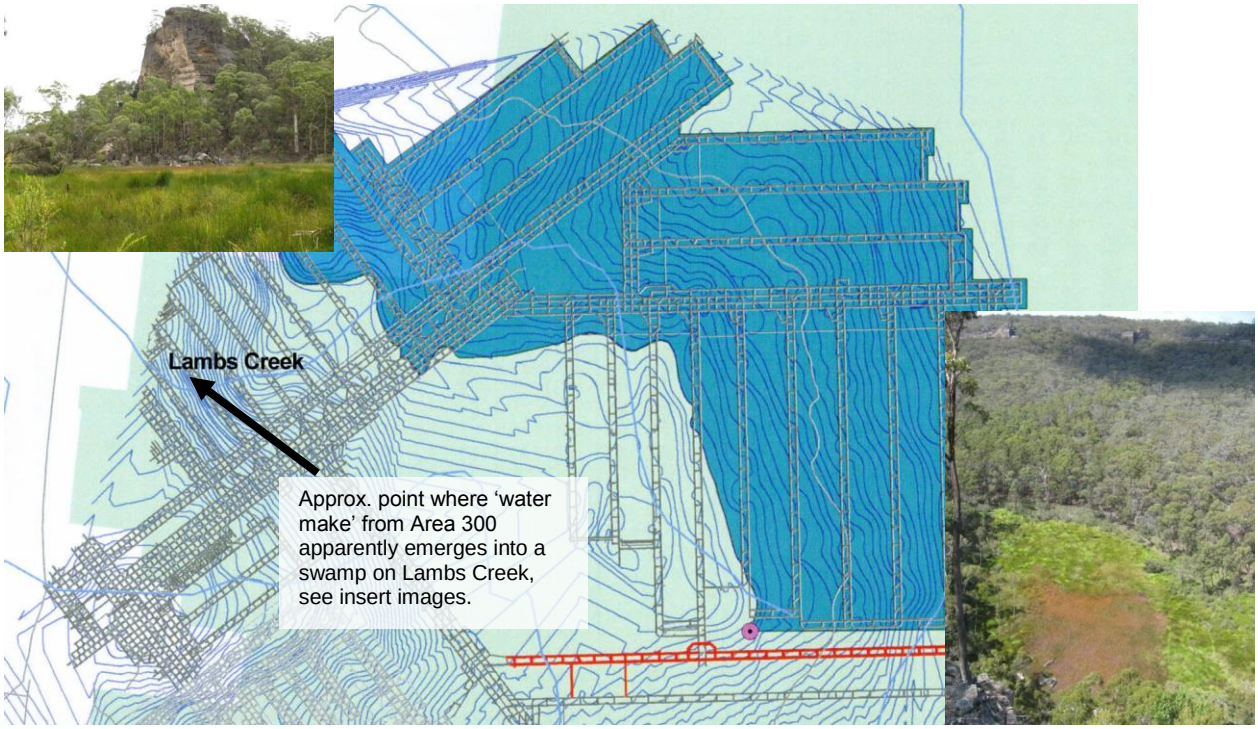
The Department's assessment report has apparently overlooked that Angus Place mine effluent colliery must also continue to be discharged by the Springvale mine as part of this

[5] Environment Protection Authority, 4 Nov, 2014 (DOC14/257524-01) - Review of Springvale and Angus Place Mine Extension EIS's Response to Submissions, page 3, 'the EIS and RTS both advocate increasing this further by increasing the LDP009 discharge to up to 30 to 50 ML/day of poorly treated highly saline mine waste.'

[6] DPE, April 2015, ASSESSMENT REPORT Springvale Mine Extension Project (SSD 5594), pages 7 and 40. 'The water balance indicates that the proposed Springvale extension would therefore result in a significant water surplus of around 18-19 ML/day, which is an increase of about 6-7 ML/day above current operations.'

proposal if that mine is to remain in either a production or a care and maintenance state. Currently it is claimed that 5ML/day is directed to an underground storage in Angus Place mine. This arrangement cannot continue for long, unless the storage reports to the surface.

Angus Place Mine denies that it is possible for mine water to emerge at Lambs Creek as the storage is about 100 metres below the surface. The Colong Foundation retains doubts about this underground storage and Lambs Creek, but has no proof of re-emergent water. The large unnatural 'spring' on Lambs Creek at the point indicated remains a mystery…



The figure and inset images above indicate the arrangement of Angus Place underground storage and a very green, iron stained swamp that lies above it. Swamps that receive mine effluent, such as those at the Baal Bone Colliery have a similar appearance.

Proposal to dilute Springvale mine effluent with Clarence mine effluent

The proposed dilution of the more saline Springvale effluent with the lesser saline Clarence effluent would increase mine discharges to receiving waters, while only marginally reducing the salinity concentration of the effluent. The concentration of other than gross salinity, such as zinc, nickel and manganese ions, may be increased under this proposed arrangement.

Peer research by Mr Nakia Belmer and others of the University of Western Sydney confirm that disposal of wastewater from Clarence Colliery into the headwaters of the Wollangambe River, a high conservation value waterway, has caused water pollution and ecological

degradation. Electrical conductivity was found to be eleven times higher below the mine than above it and the concentration of zinc below the mine was ten times greater than the recommended ANZECC guidelines for aquatic ecosystems. Nickel is more than double the recommended guideline was reported. The mine discharge also increased water temperature in the Wollangambe River by more than 2.5°C. The pollution has a severe adverse impact on a highly regarded, well-loved and popular wild river, the Wollangambe. Below the mine, macroinvertebrate richness has decreased by 65% and abundance by 90%.

The salinity of the Clarence Colliery effluent is 342 µS/cm, but even this salinity has been harmful. Springvale mine's consultants have proposed transfer of 19ML/day of this effluent and some reverse osmosis treatment would yield a blended effluent of 700 to 900 µS/cm.

The time taken to deliver this water transfer proposal to dilute Springvale mine water salinity is suggested to be about four years. The proposed dilution of more saline effluent with less saline effluent does not necessarily reduce the toxicity of the combined effluent. Adequate treatment of the mine effluent requires a large reverse osmosis plant. It should not rely on re-use of old plant used to treat LDP9 effluent for the Wallerawang power plant.

The Commission should recommend a clean up the Springvale mine effluent so that receiving waters gain a benefit. The discharge should become environmentally neutral by being treated to an EC standard of 30 µS/cm, that is to a standard that is the natural background for the Coxs River headwaters.

Mine Discharge salinity should be reduced to natural background levels

Since the closure of Wallerawang power plant last year, operation of Springvale has caused the Coxs River to become much more saline. The median Electrical Conductivity (EC) of the mine effluent from LDP9 is 1055µS/cm (microSiemens per centimetre), while background for the Coxs River headwaters is 30µS/cm[7]. The pollution emitted at LDP9 is about 35 times background salinity. The mine wastes discharged at LDP9 contain unnatural concentrations of calcium, zinc, potassium, magnesium, sulfate, alkalinity, chloride and sodium. The EPA is concerned about the toxicity of the discharge.

The appropriate guideline for water salinity under the ANZECC (2000) Water Quality Guidelines for Protection of Aquatic Ecosystems for the Springvale Extension mines is 300µS/cm. Springvale is discharging water that is about three and half times more saline than this guideline.

The salinity exceedance of ANZECC guidelines indicates that existing mine discharges have caused and will continue to cause salinity pollution. The mine's Environment Protection

[7] Birch, G., Siaka, M., and Owens, C. (2001). The source of anthropogenic heavy metals in fluvial sediments of a rural catchment: Cox's River, Australia. Water, Air and Soil Pollution **126**, pp.13-35. [Reference for background salinity of 30µS/cm]

Licence 3607 has legitimised salinity pollution as 1200µS/cm is now specified in the tables.' In relation to mine water discharges by Springvale, the Colong Foundation supports the remarks by Lithgow Environment Group (LEG) of the Gardens of Stone Alliance in relation to water pollution. LEG has been monitoring water pollution in the Gardens of Stone regional by over a decade.

The Blue Mountains Conservation Society, following proceedings in the Land and Environment Court at its expense, negotiated with Delta Electricity a reduction in the pollution discharged by Wallerawang Power Plant. Delta Electricity is required to obtain a pollution licence from the Environment Protection Authority (EPA) to limit its maximum pollution concentration levels for copper, zinc, aluminium, boron, fluoride, arsenic, nickel and salt in its discharges from Wallerawang's cooling towers. This negotiated decision was to ensure effective pollution control technology was constructed by the end of 2015. **Now that the Wallerawang Power Plant has closed, these negotiated environmental gains will not be achieved unless transposed to the primary source of pollution, the Springvale-Delta Water Transfer System.**

The transfer scheme forms the bulk of the median flow of the Coxs River at its nearest monitoring point to LDP9. The Office of Environment and Heritage states that the proposed discharge from LDP9 is approximately twice the median flow of the Coxs River of 13.3ML/day at this point (see Attachment B, OEH Science Division, June 2014, page 33). The Colong Foundation believes that this current discharge from LDP9 of 19ML/day of saline water significantly impacts on aquatic life in the Coxs River down to Lake Burragorang and degrade the drinking water supplies.

Such an arrangement is NOT a neutral effect on the water catchment in the terms of the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*. The DPE has should have accepted the advice of the Sydney Catchment Authority regarding the neutral and beneficial impact on receiving waters.

The proponent's expert model predicts a salinity of Lake Burragorang to increase by 5 or 6% due to the mine effluent emitted from LDP9. The DPE found this predicted level of salt pollution to be an 'environmentally neutral' effect on the Lake (DPE, page 41). The Colong Foundation does not understand this finding. The more relevant impact of this salinity discharge and its associated metal ions on the much smaller Coxs River will be much greater and toxic.

Lake Burragorang is Sydney's main water storage. It is 52 kilometres long, has a surface area of 7,500ha and can store up to 2,031 gigalitres. The finding that LDP9 discharge can increase salinity by 5 to 6% is not indicative of an 'environmentally neutral' outcome given this effect on such a very large body of drinking water. If every proposed development were to be determined on whether its impact was 'environmentally neutral' on these stored waters, then the *State Environmental Planning Policy (Sydney Drinking Water Catchment)*

2011 would become nonsense. This is an inappropriate test for a neutral environmental effect. The DPE should rely on advice from its expert government agencies when framing its assessment report and recommended consent conditions. The neutral or beneficial test for pollution drinking water supplies should ensure that:

- Future generations will be no worse off with catchments producing poorer quality water;
- Aquatic life, particularly that within the World Heritage Area, will be not harmed by water pollution emitted to the catchment, so that aquatic diversity and abundance are maintained;
- The controls (both in the form of regulations, such as pollution licencing, and physical pollution control infrastructure) are precautionary to give confidence that the catchment will be protected.

The Colong Foundation requests that Commission recommend that Springvale mine effluent is treated by reverse osmosis technology to remove salt and metals to a standard of the natural background for the Coxs River headwaters. The application of this standard would have a beneficial effect on the receiving waters and would protect the Coxs River and aquatic ecosystems in the Greater Blue Mountains World Heritage Area, as well as the drinking water supplies.

It would be unfair for the EPA to require Delta to maintain a reverse osmosis plant for its blow down water emitted from Mt Piper Power Plant, if the EPA were then to turn a blind eye to exceptional pollution from Springvale mine. The determination of this proposal should support the EPA in its lawful pursuit of pollution control.

Specific clean up directions for Springvale's mine effluent should be part of this PAC review

The Colong Foundation believes it is inappropriate defer water pollution control to a secondary process outside this review, the proposed Upper Coxs River Action Plan and Water Management Action Plan. Key matters for decision, such as the reduction for mine water pollution discharged to the Coxs River headwaters, should be assessed in the PAC review report, and if appropriate, also in draft consent conditions.

The proposal for Clarence mine water transfers are speculative and should require a separate development consent obtained by another company. Given that this proposed effluent transfer is between two different mining companies in different river basins, it must be treated as a major project, not as a complying development under the Mining SEPP.

The DPE did not adequately considered what would define environmental neutrality for the proposed discharges to the Coxs River catchment, particularly where it flows through the

Greater Blue Mountains World Heritage Area. Surely a neutral effect of the proposed discharges must be judged on what should be the desirable physical, chemical and biological conditions of receiving waters?

This PAC review should consider and determine the appropriate levels of environmental protection now; otherwise the benefits of a PAC's independent review processes to protect the environment, including drinking water supplies are substantially eroded.

The community at large can have no confidence in the PAC process, if a secondary process then sets performance standards that do not protect important matters, such as nationally endangered heritage, pristine streams that flow to a wild river, a World Heritage Area and drinking water quality.

Impact of longwall mining on swamps

The DPE in its assessment report has failed to identify the mining conditions necessary to ensure the ongoing health of swamps and streams on Newnes Plateau. The DPE are wrong to state that 'no significant fracturing or surface flow diversions have been observed along the river following previous mining' (page 42, DPE, April 2015). There is little evidence to support the DPE's conclusion and a considerable body of evidence available that contradicts it.

There are several examples of serious surface rock fractures in relation to this mine. Where longwall mining has taken place, the tributary streams of the Wolgan River have subsequently had no flows through them until these streams leave the areas undermined and enter incised valleys below the level of Newnes Plateau.

If the evidence of the proponent's experts regarding swamp impacts and DPE's assessment report are accepted by this PAC review, the proposed Springvale mine extension will further damage the outstanding natural environments of Newnes Plateau. The Colong Foundation has little confidence in proposed subordinate regulatory processes established in the proposed consent because of the past record regarding this mine. Previous subsidence management plans and development consent monitoring arrangements have had no effect. Regulatory agencies have unduly relied on the narrative contained in mining consultant reports rather than on field observations. Further, the graphical data presented in consultant reports is very often hard to interpret.

In the follow pages, the Colong Foundation will explain that past and predicted future damage indicates that the proposed longwall panels will cause a loss of base flows to streams when undermined, except during periods of high rainfall. These impacts are not 'relatively minor' losses that 'would not result in any significant environmental consequences' (DPE, Assessment Report, page 44). The past impacts to swamps will also be described in some detail.

Adaptive management proposals, such as Threat Abatement Response Plants (TARPs), are likely to have little effect on the environmental impacts associated with mine operations. Unless these processes can immediately require a stop to mining when damage to streams or swamps occurs, and then implement a variation to the mine plan to stop further swamp or stream damage, then these processes will only result in a futile cycle of monitoring, reviews and meetings. If this PAC review considers the issue of development consent to be appropriate, then it should propose conditions for stop work and mine variation processes. Such conditions would give real effect to adaptive management that can further protect high conservation value natural environments and Sydney's drinking water supplies.

Past longwall mining swamp damage[8]

Past swamp damage caused by this mine has exceeded reasonable community expectations, as evidenced by a $1.45 million fine for damaging nationally endangered swamps. The first swamp to be undermined and damaged by Springvale Colliery was located in the headwaters of Kangaroo Creek in 1997. The swamp has been dry since that time, with most of the Leptospermum shrub layer dead and a sparse unhealthy groundcover. Eucalypts have colonised the swamp area.

Junction Swamp was the second swamp to be undermined and destroyed in 2003-2004. It is described as a small swamp fed by a perched water table (Centennial Angus Place, 2005). Its Sphagnum moss, coral fern, sedge and rush species were healthy in 2001. These species had declined by 2006 (Springvale Coal, Nov. 2006, Attachment 5, table 4). Emergent eucalypt saplings were reported in March 2007 (Springvale Coal, Attachment 4, section 3.4) indicating the swamp may be evolving into a woodland. The swamp's stands of Leptospermum are dead or in a poor condition. Certain other swamps, including West Wolgan Swamp above the Angus Place Colliery, have also shown an increase in abundance of Eucalypt species (Centennial Angus Place, June 2009, page 42).

The third endangered swamp to be undermined and ruined was East Wolgan Swamp, located on Newnes Plateau 330 metres above the Lithgow coal seam. The northern end of the swamp was cracked along an existing faulted zone when longwall 411 passed under the swamp commencing in March 2006 (Springvale Coal, July 2006, page 4 and 12). In November 2006 groundwater levels in the swamp were reported to have a rapidly declined and continued to show limited response to rainfall (Springvale Coal, Nov. 2006, page 13 and Nov. 2007, pg 14). A surface cracking report was then prepared which incorrectly described the cracking as "minor" (Springvale Coal, Nov. 2006, page 33).

[8] See Appendix 1 for references quoted.

Groundwater 2001 Groundwater 2007

Paired images: Junction Swamp vegetation and groundwater changes following longwall mining

Subsequent monitoring again reported the damage as “minor”, with “sequential photographs ... demonstrating that the cracks are rapidly weathering and filling with silt” (Springvale Coal, Mar. 2007, pg 10), and then as having a “minimal impact” (Springvale Coal, Mar. 2007, Attachment 5, pg14). Evidence of upsidence apparent to even the most amateur observer was described as minor by the subsidence monitoring and reporting (Springvale Coal, Mar. 2007, Attachment 5, pg 8). Yet the very obvious damage to the swamp was indeed serious and the degree of damage was instantly apparent to anyone who inspected it.

Following the commencement of longwall 411, discharges of up to 14 megalitres/day of saline mine effluent from licensed discharge point 4 were said to have “no effect on the East Wolgan’s flows” (Springvale Coal, Mar. 2008, pg 15). This major anomaly apparently did not trigger any concern by the company, its consultants or departmental regulators. No flows leaving from East Wolgan Swamp have been recorded since, including during above average rainfall periods and all subsequent discharges from licensed discharge point 4.

From November 2006 and the cracking report, Springvale Coal should have been fully aware of the significance of the cracking and its impact on stream flows. Instead, up until November 2008, Springvale Coal concluded “there is no requirement to instigate additional monitoring due to impacts nor is there any need to undergo additional consultation” (page 39).

Alleged minor [upsidence] cracking claimed to have no effect on East Wolgan Swamp
(Photos: C. Jonkers, 2008)

The extent of damage continued to be heavily downplayed until finally in March 2009 it was proposed to conduct more investigations into the flow of water through East Wolgan swamp (Springvale, page 41). This response was prompted after the Blue Mountains Conservation Society showed the company's staff the gaping crevasse through which all mine effluent and surface flows "disappeared".

Up to 14 megalitres a day of mine effluent had flowed down a crevasse at the northern end of East Wolgan Swamp for periods ranging from weeks to months (Springvale, Mar. 2009, pg 17) over almost three years. No mine consultant had adequately reported its significance, although access to the crevasse site is well trampled by visitors.

The Springvale Mine Subsidence Management Plan requires that anomalies, such as crevasses that swallow megalitres of mine effluent a day, be immediately reported to the then Department of Industry and Investment, Mineral Resources Division.

In November 2009, Springvale Coal reported it had "found that water was entering a cavity and not resurfacing. Several inspections in adjacent drainage lines as well as inspections downstream of where the cavity is located did not locate the water. Monitoring from a nearby piezometer array indicates that the water is travelling to a depth of approximately 60-70m underneath the swamp and most probably travelling laterally and pooling within the bedding partings. The investigation found that the water, however, did not enter the mine workings" (page 14).

Following mining of longwall 411 and 412, there have been no natural flows through East Wolgan Swamp (Springvale Coal, Nov. 2009). Prior to mining, flows from the East Wolgan Swamp would have been in the order of a megalitre per day.

The crevasse (left) in East Wolgan Swamp that can receive 14 ML/day (right)
(Photo: C. Jonkers, Nov. 2008)

Prior to mining, the flows of both East Wolgan swamp would probably have been augmented to some degree by seepage from the several hanging swamps located above them. Seven hanging swamps in Springvale Coal's SMP area have been mined under and probably impacted by mine subsidence. No monitoring of these swamps has occurred. Junction Swamp, a hanging swamp associated with a perched aquifer, has been destroyed, so the chances of damage to other hanging swamps are high.

Subsidence cracking of the sandstone bedrock has drained and dried out East Wolgan Swamp (Photo: M. Wilkinson, 2009)

In the nine years since these swamps have been damaged there has been no recovery that demonstrates that the associated cracks are rapidly weathering and filling with silt so that the hydrological conditions favourable to swamps are being restored.

East Wolgan swamp in the 'headwaters' of the Wolgan River. Nine years after being ruined by longwall mining there is still no sign of recovery.

The proponent's consultants would have us believe that the streams that have been subjected to longwall mining on Newnes Plateau, including Kangaroo Creek to the west were always of an ephemeral nature. For Junction Swamp and Kangaroo Creek there is enough evidence to indicate that these were perennial streams prior to longwall mining. For East Wolgan Swamp we know that the cracking was severe. It is not too late to establish that Carne West Swamp has a perennial stream flowing through it, as OEH claims (OEH Science Division pg 23, Appendix B, 2 June, 2014). Gang Gang East, Gang Gang West and Marangaroo swamps are also believed to be located on perennial streams.

Gang Gang Swamp (left) and Carne West Swamp (right) have perennial streams.

Future impacts of proposed longwall mining on swamps

The previous sections detail particular instances that explain why the general community has no confidence in self-regulation of mine operations. On the basis of this past record we do not have confidence in proposed condition 4 or the proposed Swamp Monitoring Program. If consent is recommended, then effective swamp protection needs to be

established through this PAC review process and included in the proposed consent conditions.

Carne West Swamp – dependent on a thin Burralow Formation aquitard

The Burralow Formation is described as 'essential to the formation and persistence of both hanging and shrub swamps' and that 'without the Burralow Formation and the aquitard layers within it, swamp communities would not exist' (p 51, Vol 1 of the Environmental Assessment, April 2014).

The extent of the Burralow formation is shown in Figure 5 below, which indicates that the damage to Kangaroo Creek, Junction, Narrow and East Wolgan Swamps all overlie overlie this formation (see McHugh, Appendix 18, Part 1, page 13). As this Formation covers the proposed mine extension area, then past damage can be taken as a reasonable indicator of future swamp damage.

The aquitards lie directly under the swamps as clearly indicated in the figures provided in the evidence by Elizabeth McHugh (Response to Submissions Appendix 18 the Geology of Shrub Swamps within the Mine Extension Areas, Sept. 2014). The cracking associated with this formation is alleged by the proponent's consultants to be from 10 to 15 metres in depth (Environment Assessment, Appendix E, Groundwater Impact Assessment, Figure 40, April 2014). This surface rock fracturing associated with longwall mining has in the past and will in the future pass through the first few aquitards of the Burralow Formation.

The proponent's experts state that a groundwater drawdown of 0.5 to 10 metres can be expected after longwall mining in the proposal area (Appendix E, page 75). The Colong Foundation believes this modelling to be an understatement, but model groundwater drawdown is sufficient to cause a catastrophic loss of swamp dependent native vegetation and its dependent native fauna in the undermined swamps. This future loss is confirmed by

past the drying and loss of swamps and associated past cracking of the underlying rocks in what is now known to be the Burralow Formation.

There is ample evidence to conclude that swamps directly undermined will be impacted by the proposed levels of mine subsidence, and impacts will be more severe for those that overlie structural lineaments. As the DPE environmental assessment states on page 22 the '*compressive strains along the drainage lines in the extraction area, resulting from valley closure movements, are expected to be similar to those measured above extracted longwalls at Angus Place and Springvale*.' As subsidence movements, particularly strains and closure movements are a good predictor of environmental damage (which is why so much effort goes into monitoring these movements) the DPE has also with the above remark reported that the existing unacceptable degree of environmental damage will continue into the proposed mine extension area. The cogitations by the proponent's consultants on depth of cover and height of fracturing are largely a distraction because the predicted fracturing will degrade the critical near-surface aquitards of the Burralow Formation.

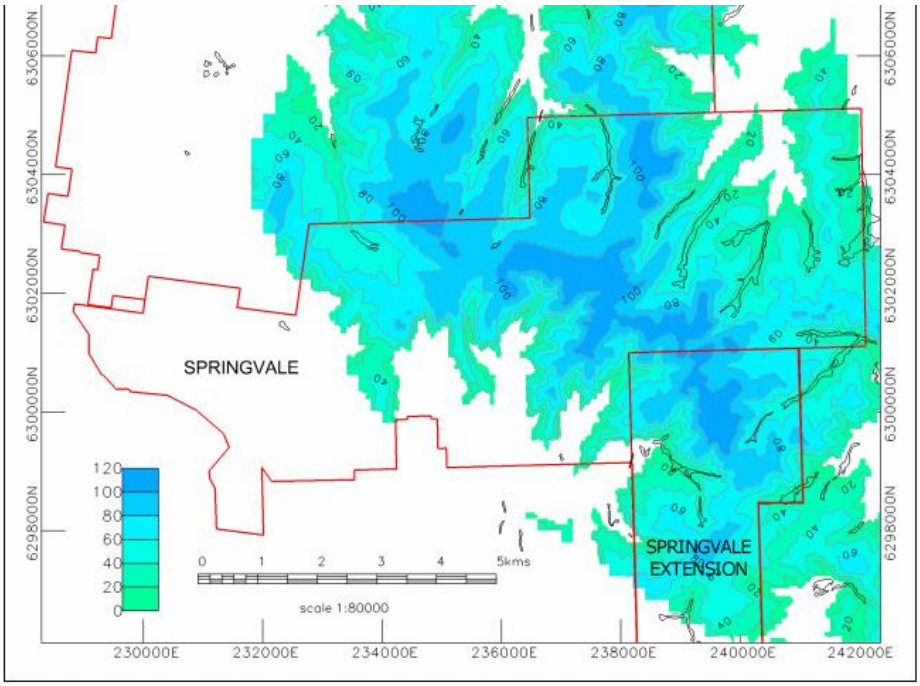


Figure 5 Burralow Formation Isopach
(Note: shrub swamps shown with black outline)

The Independent Scientific Committee on coal seam gas and large coal mining development (24 August, 2014) found that 'it is highly likely that impacts to THPSS and dependent threatened species will be severe and potentially irreparable' (pg 2). It is of concern that the DPE ignored this finding, and preferred to agree with the assertions made by some of the proponents' expert consultants that seem not to be founded on predicted modelled groundwater drawdown (i.e. the predicted 0.5 to 10 metre drawdown) and associated fracturing predictions. On the contrary, the consultant's modelling and past evidence of

damage points agree and point to a loss of up to twenty eight nationally endangered upland swamps.

Likely damage to hanging swamps

In contrast to the nine Newnes Plateau Shrub Swamps, there is little specific research or consideration in this proposal's consultant reports regarding the other nationally endangered Newnes Plateau Hanging Swamps. There are at least twenty hanging swamps in the area proposed for longwall mining that are mapped as Temperate Highland Peat Swamps.

These hanging swamps seem to be extremely vulnerable to damage. Anticipated surface cracking from 10 to 15 metres depth suggests that the thin Burralow Formation aquitards just below each of the hanging swamps will be fractured. Twenty hanging swamps will be impacted due to fracture of aquitards below perched aquifers.

The proponent's experts indicate that near surface aquifers and aquitards are damaged by longwall mining related fracturing, and that is enough to cause the modelled drawdown of groundwater levels predicted. There is no remedy for this damage, the national endangered hanging swamps will be damaged under the proposed mining arrangements due to the predicted groundwater drawdown.

Aquitards are further compromised by structural features in the proposal area

The Colong Foundation does not accept the proponent's strongly held view that the thicker aquitards, like the Mt York claystone, prevent hydraulic connection of the mine goaf area with surface hydrology.

Newnes Plateau is located on the western edge on the Blue Mountains, near the Great Dividing Range. In this geological location surface and groundwater hydrology of Newnes Plateau are structurally controlled by faults and joints. These structures pass through the coal seam aquifer and reach to the surface. These structures also pass through all acquitards, including the Mt York claystone, and are reactivated by longwall mining.

The flows from Springvale and all other mines under Newnes Plateau are not fully explained by horizontal flows through the coal seam from aquifer recharge areas the west. The Angus Place, Springvale and Clarence Mines collectively produce about 40ML/day and this groundwater yield continues to increase. Usually groundwater resources that are so heavily taxed for decades do not behave in this way but rather have declining yields. Indirect surface water connectivity above mine goaf areas seem to be at least part of resupply source for the heavily taxed groundwater resources of Newnes Plateau.

Performance measures and offsets

Up front offsets are not substitutes for damage and loss of these remarkable swamps. Since the 2008 Southern Coalfield Inquiry there has been more than enough evidence of the link between longwall mining and swamp damage. The DPE conclusion that there is no proven link between longwall mining and swamp damage is hard to understand in the light of the remarks made in the independent scientific committee submission to this proposal.

The DPE proposed consent conditions for swamps are based on a wrong conclusion of little risk of swamp damage. This error means that the real issue, the likely loss of at least twenty eight nationally endangered swamps has not been properly addressed by DPE.

The negligible change for shrub swamps in the prescriptions DPE proposed in Table 1, conditions 1 and 4 of schedule 3 are very welcome. It is certain these triggers will be exceeded given predicted subsidence movements and impacts outlined in the environmental assessment for this proposal. These impacts then trigger proposed conditions for shrub swamps offsets under proposed condition 14 of schedule 4.

The Colong Foundation believes that the DPE's proposed conditions are inconsistent in regard to water courses in proposed table 1 of schedule 3 when compared with swamp conditions. How could proposed conditions for streams in the mining area allow the cracking damage described in the environmental assessment but also cause a 'negligible impact' in the swamps associated with them? Both are to a large extent dependent upon the groundwater resources of the Burralow Formation.

The proposed impact triggers for water resources in Schedule 3 of the proposed conditions should also be set at 'negligible impact'. It is particularly important to set a 'negligible impact' trigger for Carne Creek and Paddys Creek as these are headwater streams of a wild river that should be protected from adverse impacts.

The Colong Foundation believes that DPE's overall approach to risk management is inappropriate. The likely loss of at least twenty eight nationally endangered swamps and associated pristine steams will be considered unacceptable to the community and become a source on constant complaint. There are really no like for like substitute for Newnes Plateau swamps and their OEH valuation at $157M points to the 'irreplacability' of this national heritage.

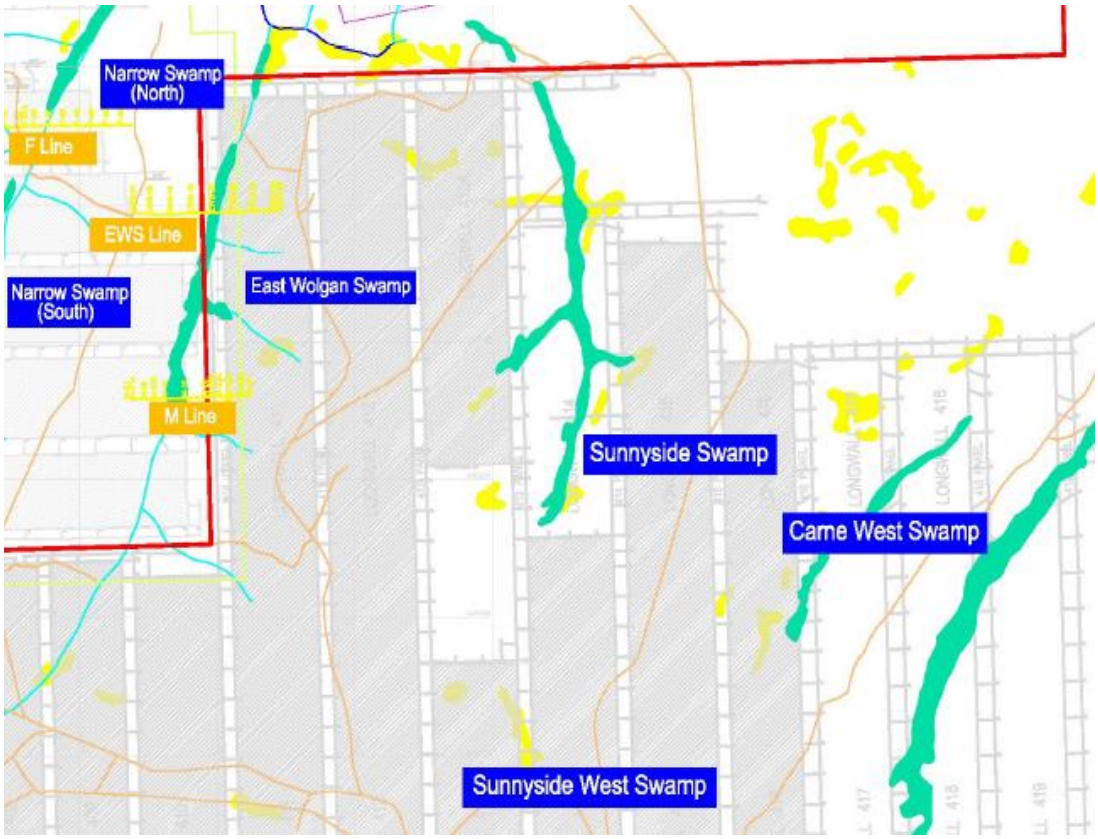
The proponent in framing this mining proposal has made insufficient effort to avoid and minimise impacts on swamps and the associated near-surface hydrology and geological formations upon which they depend.

The proponent should be required to modify its proposal to prevent the cracking of the Burralow Formation. The width of longwall panels need to be further narrowed and in some instances shortening to prevent swamp and associated stream damage.

To reduce mining impacts, longwalls (LW) 419 - 422 must be significantly narrowed to prevent surface cracking under the largest most intact Newnes Plateau Shrub Swamps. Longwalls 432, 431, 430, 429 should be shortened to prevent damage to the Marrangaroo swamps. To protect Paddys Creek Swamp longwalls 425 - 426 should be shortened; and longwall 501 needs to be shortened to protect cliffs and pagodas.

The proposed swamp protection by reducing longwall width, increasing the width of gate roads and even splitting longwall panels are not exceptional practices. To protect Sunnyside Swamp, longwall 413 was split and 414 shortened.

Similarly Carne West Swamp and its most northern associated hanging swamps can be protected by shortening Longwall 417, if it is not too late to do so. It is certainly not too late for the other nationally endangered swamps located in the proposed mining area to the east.



Springvale mine split Longwall 413 and shortened longwall 414 to protect Sunnyside Swamp

According to a new report by the Climate Council, ninety per cent of Australia's current coal reserves will need to be left in the ground for Australia to play its role in limiting warming to no more than 2^{o}C. As climate change is probably the most important issue confronting the survival of humanity, those who determine coal mining proposals should immediately adopt a policy of permanently sequestering coal resources to reduce environmental damage. Such a policy of strong protection zones is essential if the principles of ecologically sustainable development are to be implemented through development control.

Society should be far more particular about where and how its coal resources are developed. A significant reduction in the environmentally damaging aspects of the proposed Springvale mine extension is justified by the heritage values and water resources it would protect, and will assist in moving towards Ecologically Sustainable Development.

Conclusions and Recommendations

The primary environmental considerations in relation to this mining proposal are the protection of the many endangered swamps and associated stream flows, as well as the restoration of water quality in the receiving waters of the Coxs River catchment. The public, who want climate change addressed, their drinking water catchments and national heritage are adequately protected, will oppose the legitimisation of further damage to Newnes Plateau and the Coxs River under consent conditions for this proposal.

The current regulatory environment for the Springvale mine has failed to protect endangered swamps or the Coxs River. The solution to this regulatory failure is new measures that protect these key features of the environment.

While the DPE has undertaken consultation with key government agencies concerned with environmental protection – the actual outcomes in terms of DPE's assessment report and proposed consent conditions have discounted that advice. The sum result of DPE's deliberations appears to be coal extraction, with no regulatory certainty for drinking water quality or the twenty eight unique and important swamps of national heritage.

The potential economic costs of long term environmental damage area are large, estimated to be at least $157M for the upland swamps alone, yet this has not resulted in proponent adopting an environmentally benign mine plan.

The DPE has not offered an effective regulatory response, apparently because the coal industry through its environmental consultants retained such an influential grip on the process. In this development application, industry consultants provided nearly all the key evidence upon which DPE's assessment and regulatory decision-making were based. This reliance by DPE is despite the proponent's record of inconsistent and misleading regulatory reporting, and poor environmental management as outlined in this submission.

The DPE's proposed regulatory mining mechanism, including its risk management, adaptive management and Upper Coxs River Action Plan, Water Management Action Plan, Swamp Monitoring Program and Biodiversity Management Plan, will fail to adequately protect the environment as long as most of the evidence and argument continues to be provided by coal industry consultants.

The advice and recommendations of the Government's environmentally expert agencies, including Water NSW, the EPA and OEH must be properly considered by DPE and PACs to

achieve adequate environmental protection. The evidence of dry streams, dry headwater swamps on Newnes Plateau, and saline flows from LDP9 are more than sufficient evidence to demonstrate that urgent action is needed.

Government agencies charged with protecting essential drinking water supplies and natural heritage must have more influence on decision making processes. A development assessment process based on past performance, as undertaken in OEH submissions for example, should influence this PAC review and lead to a mining damage being curtailed.

The undue influence on DPE of the mountains of nattative provided by mining consultants should be counterbalanced by the expertise provided by government agencies and community submissions. The information provided to this PAC review by government agencies and the community in relation to past mining performance must play a more significant and influential role than it did in framing DPE's advice and conditions. This body of evidence supports the restoration of our essential drinking water supplies and the protection of sensitive swamp and stream environments on Newnes Plateau.

This PAC should recommend refusal of this development application because the proponent has not reduced potential environmental impacts to levels that meet community expectations for an area with outstanding heritage values.

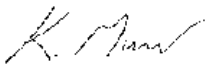
If the proposal is not rejected on the evidence of past and likely ongoing environmental damage, then the following conditions should be applied to ensure mining can meet environmental standards acceptable to the community so that:

- All environmental protections should be determined upfront and not by subordinate processes following the issue of development consent.
- The Government's environmentally expert agencies, including Water NSW, the EPA and OEH, be requested inspect the pre- and post-mining condition of each longwall panel and report on compliance with consent conditions;
- Any further damage to swamps or pollution of the Coxs River must trigger a stop to mining and subsequent variation in development consent so that mining operations to prevent further damage;
- Consent is limited to no more than 3 years and subject to strict performance triggers to protect the ecological health of endangered swamps, other endangered ecological communities, the receiving waters of the Coxs River catchment, including downstream environment of the Greater Blue Mountains World Heritage Area and Sydney's Drinking Water;
- Swamp and stream monitoring results are used in a transparent and rigorous assessment of environmental compliance to guide the proposed consent review processes above;

- Longwalls (LWs) 419 - 422 are significantly narrowed to prevent surface cracking under the largest most intact Newnes Plateau Shrub Swamps;
- LWs 417 and 418 are considerably shortened to protect Carne West Swamp;
- LWs 432, 431, 430, 429 are shortened to prevent damage to the Marrangaroo swamps;
- LWs 425 - 426 are shortened to protect Paddys Creek Swamp;
- LW 501 is shortened to protect cliffs and pagodas;
- Any Springvale-Delta Water Transfer Scheme pipeline duplication or augmentation must follow the existing infrastructure easement in order to not cause further damage to endangered ecological communities; and
- The contaminated water discharged by LDP9 is treated by reverse osmosis to remove salts and metals to a natural background standard for the Coxs River receiving waters in order to restore and protect Sydney's Drinking Water Supply and the Greater Blue Mountains World Heritage Area.

Thank you for considering this submission as an objection to the Springvale Mine Extension Project.

Yours sincerely,



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