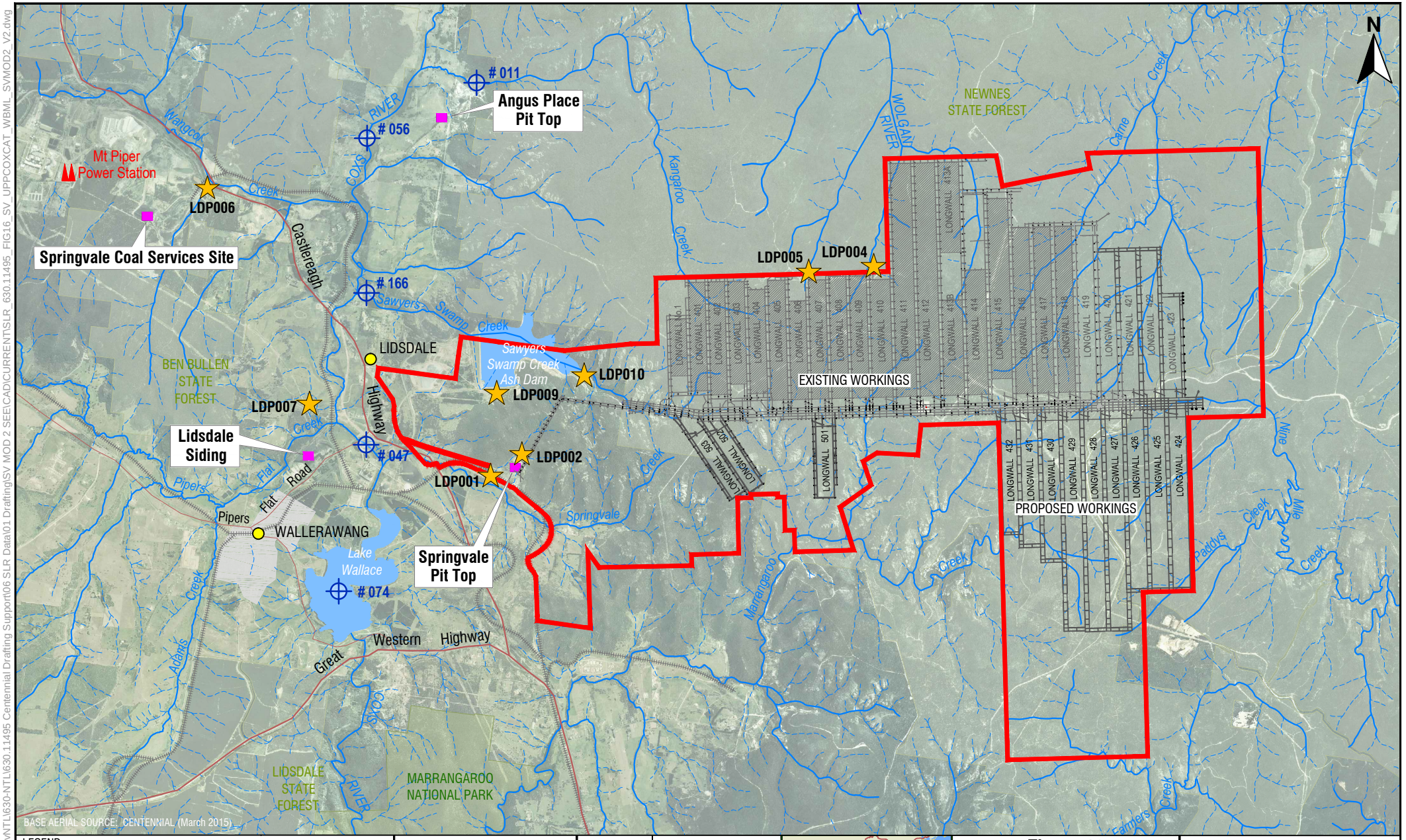

LEGEND:

- Project Application Area
- Major Roads
- Railway
- Built-up areas
- Town / City
- State Forest
- National Park
- Licensed Discharge Point
- Watercourse - Non Perennial
- Watercourse - Perennial
- Modelling Points of Interest

DATE	13.12.2016
SEAM	LITHGOW
REFERENCE	SLR_630.11495_FIG11_UPPCOXCAT_WBML_SVMOD2_V1.dwg
SCALE	1:75000

Figure 16

Water Balance Modelling Locations in Upper Coxs River Catchment

0.0 1.5 3.0 KM

Centennial Coal
Springvale

Prepared by: SLR

A4

H:\Projects-SLR\630-SrvNTL\630.11495 Centennial Drafting Support\06 SLR Data\01 Drafting\SV MOD 2 SEE\CAD\CURRENT\SLR_630.11495_FIG16_SV_UPPCOXCAT_WBML_SVMOD2_V2.dwg

Modelled Results – Flow and Salinity

Model output was generated for locations noted above. As noted above the Linear Fit and the Stepped Fit to the water quality criteria were utilized in the modelling. The results presented in Jacobs (2016a) comprise the prediction time-series charts, prediction distribution plots, and prediction daily statistics for salinity for both Linear and Stepped fits for the modelled locations noted above. Equivalent results for flow are also presented for both the *Approved Simulation* and *Proposed Simulation*, noting Linear and Stepped Fits do not apply for flows.

Only the prediction daily statistics for flow (mL/day) and salinity (mg/L) from Jacobs (2016) are presented below for each modelled node. Jacobs (2016a) generated, for each node, prediction time-series charts for flow (ML/day) and salinity (mg/L), the respective prediction distribution plots, and using the latter plots determined the prediction statistics for flow and salinity, which are presented below. These prediction statistics were used to assess impacts of the proposed modification on flow and salinity at each node, and in the Coxs River catchment.

It is noted that a linear transformation was assumed in Jacobs (2016a) between Salinity as EC (µS/cm) and Salinity as Total Dissolved Solids (TDS) (mg/L) as follows:

Salinity as EC (µS/cm) * 0.67 = Salinity as TDS (mg/L)

Kangaroo Creek and Coxs River above Wangcol Creek

Kangaroo Creek, downstream of Angus Place LDP001 – Node #011

Table 14 presents the prediction daily statistics at #011 for modelled salinity while Table 15 presents prediction daily statistics for flow for the same node. The results show there is no change in flow or salinity due to the modification.

Table 14 – Prediction Daily Statistics at #011 (Kangaroo Creek, downstream of Angus Place LDP001) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	56	56	56	56
5%	180	180	180	180
10%	282	282	282	282
20%	446	446	446	446
50%	652	652	652	652
80%	720	720	720	720
90%	742	742	742	742
95%	758	758	758	758
Maximum	801	801	801	801

Table 15 – Prediction Daily Statistics at #011 (Kangaroo Creek, downstream of Angus Place LDP001) – Flow ML/day

Percentile	Flow (ML/day)	
	Approved	Proposed
Minimum	2.0	2.0
5%	2.1	2.1
10%	2.1	2.1
20%	2.2	2.2
50%	2.4	2.4
80%	3.6	3.6
90%	6.3	6.3
95%	11.1	11.1
Maximum	502	502

Coxs River above Wangcol Creek – Node #056

This node is located is located on the Coxs River above the confluence with Wangcol Creek. **Table 16** presents the prediction daily statistics at #056 for modelled salinity while **Table 17** presents prediction daily statistics for flow for the same node. **Table 16** show there is no change in flow or salinity due to the modification. This was expected since discharge from Springvale Mine to the Coxs River is received further downstream.

Table 16 – Prediction Daily Statistics at #056 (Coxs River above Wangcol Creek) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	57	57	57	57
5%	103	103	103	103
10%	140	140	140	140
20%	235	235	235	235
50%	476	476	476	476
80%	613	613	613	613
90%	667	667	667	667
95%	709	709	709	709
Maximum	797	797	797	797

Table 17 – Prediction Daily Statistics at #056 (Coxs River above Wangcol Creek) – Flow ML/day

Percentile	Flow (ML/day)	
	Approved	Proposed
Minimum	2.0	2.0
5%	2.2	2.2
10%	2.3	2.3
20%	2.6	2.6
50%	3.4	3.4
80%	8.1	8.1
90%	18.0	18.0
95%	35.1	35.1
Maximum	1694	1694

Swayers Swamp Creek

Sawyers Swamp Creek above Coxs River – Node #166

Node #166 is located on Sawyers Swamp Creek immediately above the Coxs River. Sawyers Swamp Creek receives mine water discharge via Springvale Mine's LDP009. LDP009 is located adjacent the Sawyers Swamp Creek Ash Dam.

Table 18 presents the prediction daily statistics at #166 for modelled salinity while **Table 19** presents prediction daily statistics for flow for the same node. **Table 18** indicates the difference in modelled median salinity is small, for both the Linear Fit and the Stepped Fit. There is an increase in modelled salinity at 90th percentile from 732 mg/L to 754 mg/L in the linear water quality criteria simulation, and from 764 mg/L to 775 mg/L in the stepped water quality criteria simulation. The modelled change, whilst being an increase compared to approved conditions, is not considered to be significant, given the significantly altered and disturbed state of Sawyers Swamp Creek. It is noted that the water quality in Sawyers Swamp Creek will improve upon completion and commissioning of the Springvale WTP in June 2019 when LDP009 discharges cease.

Table 18 – Prediction Daily Statistics at #166 (Sawyers Swamp Creek above Coxs River) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	116	116	115	121
5%	235	235	311	311
10%	239	239	325	325
20%	249	249	332	332
50%	292	293	334	334
80%	576	722	696	740

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
90%	732	754	764	775
95%	758	772	795	796
Maximum	803	803	804	804

Table 19 – Prediction Daily Statistics at #166 (Sawyers Swamp Creek above Coxs River) – Flow ML/day

Percentile	Flow (ML/day)	
	Approved	Proposed
Minimum	12.1	12.1
5%	12.8	12.8
10%	14.2	14.2
20%	19.7	19.7
50%	22.5	22.5
80%	25.9	25.9
90%	32.0	32.0
95%	33.4	33.4
Maximum	268	268

Lake Wallace

Coxs River upstream of Lake Wallace – Node #047

The prediction daily statistics for salinity for Coxs River Upstream of Lake Wallace, Node #047 (DPI Water Station No. 2121054) is presented in **Table 20**. **Table 21** provides the prediction daily statistics for flow at #047.

Results presented in **Table 20** for Coxs River upstream of Lake Wallace (Node #047) indicate a change in median salinity from 359 mg/L to 360 mg/L, assuming a linear fit to the water quality criteria, and a change from 396 mg/L to 397 mg/L, when assuming a stepped fit to the water quality criteria. At 90% distribution, the increase is from 614 mg/L to 670 mg/L (linear) and is 656 mg/L to 694 mg/L (stepped). At maximum modelled salinity, there is no change between the approved and the proposed case. With respect to the duration of the prediction period, the change in salinity considered a minor change.

From **Table 21** there is no modelled change in flow due to the proposed modification.

Table 20 – Prediction Daily Statistics at #047 (Coxs River Upstream of Lake Wallace) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	148	148	147	148
5%	228	229	239	241
10%	266	268	283	286
20%	307	308	352	354
50%	359	360	396	397
80%	498	550	543	607
90%	614	670	656	694
95%	669	704	704	724
Maximum	793	793	791	791

Table 21 – Prediction Daily Statistics at #047 (Coxs River Upstream of Lake Wallace) – Flow ML/day

Percentile	Flow (ML/day)	
	Approved	Proposed
Minimum	19.4	19.4
5%	24.6	24.6
10%	27.9	27.9
20%	29.9	29.9
50%	37.5	37.5
80%	53.8	53.8
90%	92.4	92.4
95%	158	158
Maximum	5922	5922

Lake Wallace – Node #074

Table 22 presents the prediction daily statistics at Lake Wallace (Node #074) for salinity while **Table 23** provides the prediction daily statistics for volume.

Table 22 indicates the change in modelled median salinity is negligible. The change in 90% distribution shows an increase from 426 to 480 mg/L for the linear fit to the water quality criteria and an an increase from 443 to 482 mg/L in the stepped fit to water quality criteria. The maximum modelled salinity is also increased from 561 mg/L to 600 mg/L in both simulations. Overall, the impact would be considered minor.

From **Table 23** there is no change in volume due to the proposed modification. Modelling indicates that Lake Wallace is full throughout the prediction simulation.

Table 22 – Prediction Daily Statistics at #074 (Lake Wallace) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	157	157	157	157
5%	233	234	242	244
10%	255	256	270	272
20%	275	275	301	302
50%	305	306	340	342
80%	369	392	404	413
90%	426	480	443	482
95%	462	518	470	520
Maximum	561	600	561	600

Table 23 – Prediction Daily Statistics at #074 (Lake Wallace) – Volume ML

Percentile	Volume (ML)	
	Approved	Proposed
Minimum	4221	4221
5%	4221	4221
10%	4221	4221
20%	4221	4221
50%	4221	4221
80%	4221	4221
90%	4221	4221
95%	4221	4221
Maximum	4221	4221

Lake Lyell and above Lake Lyell

Coxs River above Lake Lyell – Node #035 and Node #154

Node #035 and Node #154 are located between Lake Wallace and Lake Lyell. Node #035 is coincident with Energy Australia's water quality monitoring station COX5 and Node #154 is coincident with the DPI Water Station 212058. Only salinity results have been provided for Node #035 and flow results for #154 in Jacobs (2016a), consistent with RPS (2014b) and Jacobs (2015a,b).

Table 24 presents the prediction daily statistics at Lake Wallace (Node #074) for salinity while **Table 25** provides the prediction daily statistics for flow.

Figure 4.40 in Jacobs (2016a), representing the prediction time-series chart at #035 for salinity, shows there is a minor change in magnitude of modelled salinity in the period 1 July 2017 to 30 June 2019. From Table 24 (below) indicates that this minor change equates to a negligible change in modelled median salinity but there is an increase in 90% distribution from 383 to 429 mg/L for the linear fit to water quality criteria and an increase from 410 to 432 mg/L for the stepped fit to water quality criteria. Modelled maximum salinity shows an increase from 546 to 593 mg/L in both interpretations of the water quality criteria. The modelled change in salinity is considered to be minor.

From **Table 25** there is no change in modelled flow due to the modification, as is expected, since there is no proposed change to mine water discharge (quantity).

Table 24 – Prediction Daily Statistics at #035 (Coxs River above Lake Lyell) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	106	106	106	106
5%	182	184	189	190
10%	207	208	218	218
20%	237	239	255	256
50%	282	284	312	315
80%	333	343	368	374
90%	383	429	410	432
95%	418	475	436	481
Maximum	546	593	546	593

Table 25 – Prediction Daily Statistics at #154 (Coxs River above Lake Lyell) – Flow ML/day

Percentile	Flow (ML/day)	
	Approved	Proposed
Minimum	12.9	12.9
5%	24.1	24.1
10%	26.7	26.7
20%	29.7	29.7
50%	39.8	39.8
80%	77.4	77.4
90%	143	143
95%	257	257
Maximum	10916	10916

Lake Lyell – Node #174

Lake Lyell is represented by Node #174 in the model. **Table 26** and **Table 27** summarises the water quality (salinity) and volume distribution output, respectively, for Lake Lyell.

From **Table 26** the increase in modelled median salinity is a small increase from 293 mg/L to 299 mg/L in the linear fit to water quality criteria and is of similar magnitude (305 mg/L to 313 mg/L) in the stepped fit to water quality criteria. The increase in median salinity is considered insignificant. The modelled change in 90% distribution is an increase from 322 to 344 mg/L (Linear Fit) and an increase from 348 to 353 mg/L (Stepped Fit). There is no change in modelled maximum salinity in Lake Lyell due to the modification.

From **Table 27** there is no modelled change in volume in Lake Lyell due to the proposed modification.

Table 26 – Prediction Daily Statistics at #174 (Lake Lyell) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	160	161	160	161
5%	199	201	204	205
10%	215	217	221	222
20%	242	247	247	250
50%	293	299	305	313
80%	313	325	334	347
90%	322	334	348	353
95%	324	345	351	357
Maximum	400	400	400	400

Table 27 – Prediction Daily Statistics at #174 (Lake Lyell) – Volume ML

Percentile	Volume (ML)	
	Approved	Proposed
Minimum	25775	25775
5%	29040	29040
10%	30272	30272
20%	31361	31361
50%	31994	31994
80%	32109	32109
90%	32109	32109
95%	32109	32109
Maximum	32109	32109

Thompsons Creek Reservoir

Thompsons Creek Reservoir – Node #272

Thompsons Creek Reservoir is the offline storage reservoir for Mount Piper Power Station. It is represented in the RWQIAM as Node #272. **Table 28** and **Table 29** precent the prediction daily statistics for #272 for salinity and volume, respectively.

From **Table 28**, modelling indicates an increase in median modelled salinity in Thompsons Creek Reservoir from 307 mg/L to 317 mg/L (Linear Fit) and from 317 mg/L to 323 mg/L (Stepped Fit). The change in the 90% distribution is also an increase, from 337 to 340mg/L (Linear Fit) and from 344 to 350mg/L (Stepped Fit). There is no modelled change in maximum salinity due to the modification. The changes in modelled salinity in Thompsons Creek Reservoir due to the modification are considered to be minor in both magnitude and consequence.

From **Table 29**, there is no modelled change in storage volume in Thompsons Creek Reservoir, as is expected, since there is no proposed change to mine water discharge (quantity) associated with the modification.

Table 28 – Prediction Daily Statistics at #272 (Thompsons Creek Reservoir) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	263	267	275	278
5%	266	270	278	281
10%	273	276	285	288
20%	287	291	291	293
50%	307	317	317	323
80%	320	333	337	345
90%	337	340	344	350
95%	358	358	358	358
Maximum	366	366	366	366

Table 29 – Prediction Daily Statistics at #272 (Thompsons Creek Reservoir) – Volume ML

Percentile	Volume (ML)	
	Approved	Proposed
Minimum	26929	26929
5%	26976	26976
10%	26983	26983
20%	26992	26992

Percentile	Volume (ML)	
	Approved	Proposed
50%	27003	27003
80%	27020	27020
90%	27035	27035
95%	27065	27065
Maximum	28000	28000

Lake Burragorang and above Lake Burragorang

Coxs River immediately above Lake Burragorang – Node #225

Node #225 is located immediately above Lake Burragorang. The node corresponds with DPI - Water Station 212250.

Table 30 and **Table 31**, respectively, show the prediction daily statistics for salinity and flow. Figure 4.50 in Jacobs (2016a) representing the salinity prediction time-series chart at #225 showed the difference between the approved and proposed condition simulations is almost indiscernible. **Table 30** indicates there is a small increase in median salinity from 143 mg/L to 144 mg/L, in the linear fit case, and no change in the stepped fit case. At 90% distribution, the increase in salinity is from 197 to 203 mg/L (linear fit) and from 206 to 211 mg/L (stepped fit). At maximum salinity, there is an increase from 290 to 301mg/L (linear case) and an increase from 312 to 321mg/L (stepped case). With respect to the duration of the prediction period, the change in modelled salinity is considered a minor to negligible change.

From **Table 31**, there is no modelled change to flow since mine water discharge (quantity) is not proposed to change due to the modification.

Table 30 – Prediction Daily Statistics at #225 (Coxs River above Lake Burragorang) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	52	52	52	52
5%	96	97	98	98
10%	108	109	109	110
20%	119	120	120	121
50%	143	144	145	145
80%	175	178	181	184
90%	197	203	206	211
95%	220	228	231	239
Maximum	290	301	312	321

Table 31 – Prediction Daily Statistics at #225 (Coxs River above Lake Burragorang) – Flow ML/day

Percentile	Flow (ML/d)	
	Approved	Proposed
Minimum	18.6	18.6
5%	32.8	32.8
10%	40.9	40.9
20%	59.9	59.9
50%	154.0	154.0
80%	594.2	594.2
90%	1280	1280
95%	2,821	2,821
Maximum	75422	75422

Lake Burragorang – Node #280

Modelled Node #280 in the RWQIAM represents Lake Burragorang. **Table 32** and **Table 33**, respectively, show the prediction daily statistics for salinity and volume.

The salinity results presented in **Table 32** indicate no change in median salinity and an increase at 90% distribution from 102 to 103 mg/L (linear fit) and no change with respect to the stepped fit simulation. There is no predicted change in maximum salinity in Lake Burragorang due to the modification. With respect to the duration of the prediction period, the change in salinity is considered a negligible change.

Table 33 shows there is also no modelled change in volume in Lake Burragorang due to the modification.

Given the modelled salinity results, and as will be presented below, the modification is considered to meet the NorBE water quality effect test due to minor to negligible change in predicted water quality in Lake Burragorang.

Table 32 – Prediction Daily Statistics at #280 (Lake Burragorang) – Salinity mg/L

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
Minimum	88	88	88	88
5%	91	91	91	91
10%	92	92	92	92
20%	96	96	96	96
50%	100	100	100	100
80%	102	102	102	102
90%	102	103	103	103

Percentile	Salinity (mg/L) – Linear Water Quality Criteria		Salinity (mg/L) – Stepped Water Quality Criteria	
	Approved	Proposed	Approved	Proposed
95%	103	104	104	104
Maximum	104	104	105	105

Table 33 – Prediction Daily Statistics at #280 (Lake Burragorang) – Volume ML

Percentile	Volume (ML)	
	Approved	Proposed
Minimum	1679000	1679000
5%	1760900	1760900
10%	1828000	1828000
20%	1906000	1906000
50%	2015000	2015000
80%	2031000	2031000
90%	2031000	2031000
95%	2031000	2031000
Maximum	2031000	2031000

7.4.4 Geomorphology

7.4.4.1 Approach to Analysis

The impact to geomorphology associated with the Project includes potential for scour within Sawyers Swamp Creek associated with mine water discharge at LDP009, which then flows into Coxs River.

7.4.4.2 Results of Analysis.

Section 6.3 of the Surface Water Assessment presented in the SVMEP EIS (RPS, 2014a) presents an assessment of the potential for scour due to mine water discharge within Sawyers Swamp Creek. RPS (2014a) found that the potential for scour was small since the average channel velocity during a typical large rainfall event was much higher than proposed channel velocities.

There is no proposed increase in rate of mine water discharge to Sawyers Swamp Creek associated with the modification. Current rates of discharge are consistent with that presented in the SVMEP EIS and the modification does not propose to change these discharge rates. It is therefore concluded there is no change to the potential for scour within Sawyers Swamp Creek as a result of the modification.

7.4.5 Flood Modelling

7.4.5.1 Approach to Analysis

The potential for impact to flooding and drainage associated with the Project consists of mine water discharge to Sawyers Swamp Creek, which then flows into the Coxs River.

7.4.5.2 Results of Analysis

Section 6.3 of the Surface Water Assessment (RPS, 2014a) for the SVMEP EIS states that mine water discharge will not result in significant impact to flooding and drainage within Sawyers Swamp Creek or the Coxs River, since predicted daily flow will remain in bank, defined notionally to contain the 2 year Average Recurrence Interval flood event.

Given there is no proposed change to the rate of mine water discharge to Sawyers Swamp Creek associated with the modification, it is accordingly concluded there will be no change to flooding and drainage to this creek as a result of the modification.

7.4.6 Toxicological Assessment of Mine Water Discharge Quality

Direct toxicity assessment was used to determine the toxicity of mine water discharge at Springvale Mine. An Ecotoxicological Assessment report (GHD, 2016c) is presented in Appendix A of Jacobs (2016a). Samples of treated (with flocculants) mine water discharge at LDP009 were collected in August and October 2014, April 2015 and May 2016 for toxicity screen testing (freshwater cladoceran). This testing was also undertaken on raw mine water (i.e. prior to any treatment with flocculants) collected in October 2014 and May 2016. The screening test species were selected due to their identified sensitivity in previous toxicity testing by Centennial Coal in the region.

GHD (2016c) indicate that water quality analyses of LDP009 do not contain dissolved metals in significant concentrations to cause toxicity, and conclude that salinity is the potential cause of toxicity in Springvale Mine water discharges.

Toxicity testing of mine water at LDP009 and on samples collected below LDP009 within the Coxs River catchment in 2014 (GHD, 2014) has shown that the observed toxicity diminished with increasing distance downstream from LDP009, with no adverse impact observed in the upper portion of Lake Wallace or any points further downstream.

As identified in RPS (2014a,b) and Jacobs (2015a,b), mine water discharges dominate flows in Sawyers Swamp Creek. It is noted that mine water discharge meets Australian Drinking Water Guidelines (ADWG) (NHMRC (2016), with the exception of salinity where the drinking water standard considers a TDS concentration of 600 mg/L (~895 µS/cm) to be good quality drinking water and a TDS of between 600 mg/L and 900 mg/L (~895 µS/cm to 1,345 µS/cm) to be fair quality drinking water. It is noted that the guidance values for salinity in the ADWG is an aesthetic-based value and is not a health-based value.

GHD (2016c) describe the toxicity effect as due to ionic imbalance. It is interpreted by Jacobs (2016a) that this refers to the effect on osmoregulation and does not imply that the groundwater itself is outside a state of electroneutrality. As stated in the SVMEP EIS (Golder Associates, 2014), groundwater quality of the deep system (mine water discharge) is fresh with pH in the order of 7.2 and is Na-HCO_3 type water. On-going monitoring of the water quality of mine water discharge at LDP009 indicates salinity is ~800 mg/L (1200 µS/cm).

GHD (2016c) present that alga shows significant toxicity and duckweed shows no toxicity. GHD (2016c) state that cladoceran reproduction results imply chronic toxicity in all assessments for LDP009 discharge to date. GHD (2016c) note that cladoceran survival tests show improvement from 2014 testing, with no acute toxicity detected. GHD (2016c) comment that changes to flocculent agent (undertaken between the 2014 and 2016 testing) and dosing rates have reduced the acute toxicity of LDP009 discharge, however, chronic toxicity of mine water discharge has not changed significantly since August 2014.

Toxicological impact will continue until the Springvale WTP becomes operational.

7.4.7 Macroinvertebrate Ecology

Given that the modification is a continuation of mine water discharge at current and historical water quality, there is no change to environmental consequences with respect to aquatic ecology (macroinvertebrates) compared to that presented in the SVMEP EIS (Golder Associates, 2014).

7.4.8 Results of Hydrological Analysis

7.4.8.1 Site Water Management

There is no change to site water management (potable water supply, erosion and sediment control, sewerage) due to the modification.

7.4.8.2 Surrounding Land Use

There are no expected changes to surrounding land use due to the modification.

7.4.8.3 Rivers and Creeks

There is no direct extraction from surface watercourses associated with the project and there is no proposed extraction associated with the modification.

Modelling indicates that the removal of the interim 30 June 2017 water quality performance criteria, with respect to salinity, does not lead to a significant difference in predicted water quality within the Coxs River, over the prediction period, compared to that currently approved. Modelling indicates no change to modelled median salinity in Lake Burragorang over the prediction period due to the proposed modification.

7.4.8.4 Sensitive Environmental Receptors

Temperate Highland Peat Swamp on Sandstone

Discharge to the Newnes Plateau was not proposed as part of Project. Potential impact to the Temperate Highland Peat Swamp on Sandstone (THPSS) ecosystems, as identified in the SVMEP EIS, is due to subsidence and mining induced change to groundwater contribution to surface water flow.

The proposed modification will not lead to change to predicted impact to the THPSS ecosystems.

Coxs River

The proposed modification is a continuation of historical discharge at current and historical quality, for a further period, prior to the commencement of Springvale WTP.

Modelling indicates an insignificant change in predicted water quality (salinity), over the prediction period, due to the proposed modification.

There is no change to geomorphology or flooding within the Coxs River due to the modification.

Given that the modification is a continuation of mine water discharge at current and historical water quality, there is no change to environmental consequences with respect to aquatic ecology (macroinvertebrates) in Coxs River catchment compared to that presented in the SVMEP EIS.

7.4.8.5 Surface Water Users

The change to surface water flow, level and quality due to the modification to consent at relevant surface water users is presented in **Table 34**. From **Table 34** there is an insignificant change to water quality (salinity), over the prediction period, expected to be experienced by surface water users due to the modification.

Table 34 – Predicted Change to Flow, Level and Quality for Surface Water Users

Surface Water User	Distance from Site	Predicted Change to Flow	Predicted Change to Level	Predicted Change to Quality
Coxs River (Upper Nepean and Upstream Warragamba Water Source (Wywandy Management Zone))				
WAL25607	3.5 km downstream of Springvale LDP009	No change due to the modification. Increase in flow due to the Project.	No change due to the modification. Increase in level (whilst remaining in-bank) due to the Project.	Continuation of current surface water quality for a further period. Salinity of surface water elevated due, in part, to the Project.
WAL27428 (Lake Wallace)	7.4 km downstream of Springvale LDP009	No change due to the modification. Lake Wallace already operating at full level due to closure of Wallerawang Power Station in April 2014.	No change due to the modification.	Continuation of current surface water quality due to mine water discharge for a further period. Modelling indicates a minor change in median modelled salinity due to the modification. Salinity of surface water elevated due, in part, to the Project.
Coxs River (Upper Nepean and Upstream Warragamba Water Source) (far field)				
WAL27428 (Lake Lyell)	22.6 km downstream of Springvale LDP009	No change due to the modification.	No change due to the modification.	Modelling indicates a minor change in median modelled salinity due to the modification. Salinity of surface water influenced due to project.
WAL27431 (Lake Burragorang)	~80 km downstream of Springvale LDP009	No change due to the modification.	No change due to the modification.	No change in modelled median salinity, over the prediction period, due to the modification. Salinity of surface water influenced due to Project.

7.4.8.6 Surface Water / Groundwater Interaction

Table 35 presents the expected change to groundwater as a result of mine water discharge to the Coxs River.

Table 35 – NSW Aquifer Interference Policy (Level 1 Minimal Impact Considerations) (DPI Water, 2012) – Less Productive Porous and Fractured Rock Aquifers

Level 1 Minimal Impact Consideration	Predicted Change
Water table Less than or equal to a 10% cumulative variation in the water table, allowing for typical climatic 'post-water sharing plan' variations, 40 metres from any: • high priority groundwater dependent ecosystem or • high priority culturally significant site listed in the schedule of the relevant water sharing plan.	There are no high priority groundwater dependent ecosystems or high priority culturally significant sites downstream of the point of discharge to Sawyers Swamp Creek.
OR A maximum of a 2 metre water table decline cumulatively at any water supply work.	There is no direct extraction from surface water sources associated with the project that could lead to a decline in water table level of a water supply work. There is also no proposed extraction associated with the modification to consent and accordingly, the modification will not lead to a decline in water table level at any water supply work.
Water pressure A cumulative pressure head decline of not more than a 2 metre decline, at any water supply work.	As above, there is no direct extraction from surface water sources associated with the project and there is no proposed extraction associated with the modification. Accordingly, the modification will not lead to a decline in water pressure at any water supply work.
Water quality Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 metres from the activity.	Mine water discharge to the Coxs River comprises groundwater inflow to underground operations. Recharge to that deep groundwater system is via outcropping of coal seams in or immediately adjacent to the Coxs River.

7.5 Impact Assessment

This section presents and discusses the potential impacts to streamflow and quality as a result of the proposed modification to the Project. The impact assessment is presented with respect to relevant Commonwealth and NSW legislation, guidelines and policy.

7.5.1 Commonwealth Legislation, Guidelines and Policy

7.5.1.1 Significant Impact Guidelines Assessment

Table 36 presents an assessment of the modification against the EPBC Act *Significant Impact Guidelines for Coal Seam Gas and Large Coal Mines* (DoE, 2013).

Table 36 – Impact Assessment against Significant Impact Guidelines

Impact Guideline	Compliant	Comment
Hydrological Characteristics		
A significant impact on the hydrological characteristics of a water resource may occur where there are, as a result of the action: a) changes in the water quantity, including the timing of variations in water quantity	Yes	As established in the SVMEP EIS, the Coxs River has had a long history of industrial activity. The proposed modification to consent does not include a change to approved discharge volumes.
b) changes in the integrity of hydrological or hydrogeological connections, including substantial structural damage (e.g. large scale subsidence)	Yes	The modification does not involve any change to previously presented subsidence-related impacts to surface water or groundwater resources.
c) changes in the area or extent of a water resource	Yes	There is no change in the extent of any water resource as a result of the modification, since there is no proposed change to currently approved discharge rates.
Water Quality		
A significant impact on a water resource may occur where, as a result of the action: a) there is a risk that the ability to achieve relevant local or regional water quality objectives would be materially compromised, and as a result the action: i. creates risks to human or animal health or to the condition of the natural environment as a result of the change in water quality	Yes	The Project results in mine water discharge to the Coxs River catchment, which eventually discharges into Lake Burragorang. As presented during the SVMEP EIS, the RWQIAM indicates a small increase in salinity in Lake Burragorang as a result of the Project. The outcomes of RWQIA modelling presented in Jacobs (2016a) indicate no change in modelled median salinity in Lake Burragorang as a result of the proposed modification.
ii. substantially reduces the amount of water available for human consumptive uses or for other uses, including environmental uses, which are dependent on water of the appropriate quality	Yes	The Project comprises an increase in availability of water in the Coxs River catchment. The proposed modification does not change the predicted impact of the Project.
iii. causes persistent organic chemicals, heavy metals, salt or other potentially harmful substances to accumulate in the environment	Yes	Water quality criteria established in the SSD 5594, expressed in Springvale Coal's EPL 3607, have been tailored to reduce the potential impact of metals and salinity on the environment. Modelling presented in this report indicates an insignificant change in modelled salinity, over the prediction period, as a result of the modification.
iv. seriously affects the habitat or lifecycle of a native species dependent on a water resource, or	Yes	As established in the SVMEP EIS, the Coxs River is an adapted ecosystem (perennial) from its long history as an industrialised catchment. The modification to consent does not result in a change to the rate of mine water discharge from that presented in the EIS. As noted in Section 4.4 of Jacobs (2016a), an update to mine inflows was incorporated into the RWQIAM, however, is consistent with that presented in the SVMEP EIS.

Impact Guideline	Compliant	Comment
		With respect to water quality, the modification will lead to an insignificant change in modelled salinity within the Coxs River over the prediction period, compared to that already approved.
v. causes the establishment of an invasive species (or the spread of an existing invasive species) that is harmful to the ecosystem function of the water resource, or	Yes	N/A
b) there is a significant worsening of local water quality (where current local water quality is superior to local or regional water quality objectives), or	Yes	LDP009 is located within Sawyers Swamp Creek and as presented in the SVMEP EIS, is a highly altered and disturbed catchment. The modification will result in continuation of mine water discharge for a further period, however, is consistent with current and historical flow and quality within that watercourse.
c) high quality water is released into an ecosystem which is adapted to a lower quality of water.	Yes	N/A

7.5.1.2 Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000

Assessment of the impact of the modification against ANZECC (2000) is presented in **Section 7.5.2.3** in regard to the *NSW Water Quality and River Objectives* (OEH, 2006).

7.5.1.3 Australian Drinking Water Guidelines 2011

Assessment of the impact of the modification against NHMRC (2016) is presented in **Section 7.5.2.3** in regard to the *NSW Water Quality and River Objectives* (OEH, 2006) and in **Section 7.5.2.1** with respect to *State Environmental Planning Policy (Sydney Drinking Water Catchment)* 2011 (NSW).

7.5.2 NSW Legislation, Guidelines and Policy

7.5.2.1 Water Management Act 2000 Assessment

Water Management Plan for the Greater Metropolitan Unregulated River Water Sources 2011

The relevant water sharing plan for the Project Application Area is the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources* 2011 (NSW). There is no direct surface water extraction from this water sharing plan.

Due to indirect change to groundwater contribution to surface watercourses, as a result of mining activity, there is a requirement for water access licences from surface water sources. The proposed modification does not include proposed change to groundwater impact on surface watercourses

Impact to Surface Water Users

Table 37 presents an assessment of the impact of the predicted change to flow, level and quality due to the modification to the already approved impacts on relevant surface water users.

Table 37 – Impact Assessment of Changes to Flow, Level and Quality on Surface Water Users

Surface Water User	Distance from Site	Impact to Flow	Impact to Level	Impact to Quality
Coxs River (Upper Nepean and Upstream Warragamba Water Source (Wywandy Management Zone))				
WAL25607	3.5 km downstream of Springvale LDP009	Negligible due to modification	Negligible due to modification	Negligible due to modification
WAL27428 (Lake Wallace)	7.4 km downstream of Springvale LDP009	Negligible due to modification	Negligible due to modification	Negligible due to modification
Coxs River (Upper Nepean and Upstream Warragamba Water Source) (far field)				
WAL27428 (Lake Lyell)	22.6 km downstream of Springvale LDP009	Negligible due to modification	Negligible due to modification	Negligible due to modification
WAL27431 (Lake Burragorang)	~80 km downstream of Springvale LDP009	Negligible due to modification	Negligible due to modification	Negligible due to modification

7.5.2.2 Environmental Planning and Assessment Act 1979 Assessment

State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011

Table 38 presents an assessment of the impact against the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*, in accordance with WaterNSW (2015). It is noted the assessment of the Project presented during the environmental impact assessment stage did not use the NorBE tool available in WaterNSW (2015), because it was not suitable.

The modification is considered to meet the NorBE water quality effect test due to minor to negligible change in predicted water quality, having a neutral impact compared to current conditions ('base case' as per the below).

DPE (2015), Section 2.3, notes "*The Department and Water NSW have considered the question of what is an appropriate 'base case' for Springvale, given the length of time the mine has been operating and other variables, including the closure of the Wallerawang Power Station. In the context of the long-term and existing mining operations at Springvale, the Department considers that the most appropriate position is to consider the base case as being the existing discharge limits on Springvale's EPL that existed at the time the current development application was made (ie 1,200 µS/cm EC).*" page 14.

Table 38 – Impact Assessment against Neutral or Beneficial Effect Test

Assessment Condition	Compliant	Impact Assessment
"A neutral or beneficial effect on water quality is satisfied if the development: (a) has no identifiable potential impact on water quality, or	N/A	N/A
(b) will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or	N/A	N/A
(c) will transfer any water quality impact outside the site where it is treated and disposed of to standards approved by the consent authority."	Yes	Modelling indicates that the proposed modification will not result in a significant change to water quality (salinity) within the Coxs River over the period of prediction, compared to that already approved. DPE (2015) define the 'base case' for Springvale Mine as the EPL 3607 limit of 1200 µS/cm (LDP009) existing at the time of the SSD 5594 development application. Accordingly, the proposed modification will result in a neutral impact to water quality with respect to NorBE, since the modification will allow the Springvale Mine to continue to discharge mine water at the current water quality criteria until the Water Treatment Project (SSD 7592) assessment and construction has been completed.

7.5.2.3 NSW Water Quality and River Flow Objectives 2006

Table 39 and **Table 40** present, respectively, water quality and river flow assessments of impact of the modification against the *NSW Water Quality and River Objectives* (OEH, 2006).

Table 39 – Impact Assessment against NSW Water Quality Objectives

Water Quality Objective	Compliant	Impact Assessment
Aquatic Ecosystems "Maintaining or improving the ecological condition of water bodies and their riparian zones over the long term."	Yes	Discharges to the Coxs River via Sawyers Swamp Creek occur via LDP009. The proposed modification will result in continuation of discharge for a further period. Toxicological assessment indicates that acute toxicity impacts observed in mine water discharges at LDP009 have been ameliorated due to the change in flocculent agent and dosing rate. Accordingly, the proposed modification will not have a significant change to acute toxicity. With respect to chronic toxicity, the indicator species used indicates continuing impact due to difference in salinity of mine water discharge (groundwater) compared to surface water. That impact will continue until the commissioning of the Springvale WTP. The Springvale WTP, once operational, will meet the 30 June 2019 water quality criteria.
Visual Aesthetics "Aesthetic qualities of water"	Yes	No change due to the modification. Mine water discharge to the Coxs River meets the ADWG with

Water Quality Objective	Compliant	Impact Assessment
		the exception of salinity where 600 to 900 mg/L is considered of fair quality.
Drinking Water – Groundwater "Refers to quality of drinking water drawn from the raw surface or groundwater sources before any treatment."	Yes	No change due to the modification. As indicated in the Groundwater Assessment (2016a) , there are no local users of groundwater with respect to water supply. For the Coxs River, mine water discharge meets the ADWG with the exception of salinity where 600 to 900 mg/L is considered of fair quality.
Industrial Water Supplies "The high economic value of water taken from river and lakes for use by industry needs recognition in water quality planning and management. It has been identified as an important environmental value through community consultation."	Yes	No change due to the modification. As per the Water Sharing Plan for the *Greater Metropolitan Unregulated River Water Sources 2011,* water must not be taken from the Coxs River under a major utility [power generation] access licence until all available mine water is used from its storages.

Table 40 – Impact Assessment against NSW River Flow Objectives

River Flow Objective	Compliant	Impact Assessment
Protect natural pools in dry times "Protect natural water levels in pools of creeks and rivers and wetlands during period of no flow"	Yes	No impact due to modification. There is no direct extraction of water from surface watercourses due to the Project or proposed as part of the modification.
Protect natural low flows "Protect natural low flows"	No	With respect to the Coxs River, there is continuous discharge to Sawyers Swamp Creek. This was approved as part of SSD5594 and continuous discharge to Sawyers Swamp Creek will continue under the modified project.
Maintain wetland and floodplain inundation "Maintain or restore natural inundation patterns and distribution or floodwaters supporting natural wetland and floodplain ecosystems"	Yes	No change due to the modification, since there are no physical works such as hydraulic structures within the Coxs River catchment proposed, nor are there any structures associated with the project. Infrastructure associated with LDP009, in Sawyers Swamp Creek, is already established.
Maintain natural flow variability "Maintain or mimic natural flow variability in all streams"	No	No change due to the modification, as continuous discharge of mine water to Sawyers Swamp Creek will continue, as currently approved. As presented in the SVMEP EIS, Sawyers Swamp Creek is a heavily modified catchment, due to its previous and current land use, including open cut mining and ash disposal facilities. The Coxs River is also extensively modified due to water supply reservoirs at Lake Wallace and Lake Lyell.
Maintain groundwater ecosystems "Maintain groundwater within natural levels and variability, critical to surface flows and ecosystems"	Yes	There is no change to the predicted impact to groundwater ecosystems on the Newnes Plateau associated with the modification.

7.5.2.4 Managing Urban Stormwater 2004 & 2008

There is no proposed change to site water management as a result of the proposed modification. Accordingly, there is no impact from the modification on erosion and sediment control outcomes.

7.5.2.5 NSW Aquifer Interference Policy Assessment

Table 41 provides an assessment of the proposed modification against the Level 1 Minimal Impact Consideration of the *NSW Aquifer Interference Policy* (DPI, 2012) for the Less Productive Porous and Fractured Rock Aquifers.

Table 41 – Impact Assessment against NSW Aquifer Interference Policy (Level 1 Minimal Impact Considerations)

Level 1 Minimal Impact Consideration	Compliant	Impact Assessment
Water table Less than or equal to a 10% cumulative variation in the water table, allowing for typical climatic 'post-water sharing plan' variations, 40 metres from any: • high priority groundwater dependent ecosystem or • high priority culturally significant site listed in the schedule of the relevant water sharing plan.	Yes	Negligible due to the modification
OR A maximum of a 2 metre water table decline cumulatively at any water supply work.	Yes	Negligible due to the modification
Water pressure A cumulative pressure head decline of not more than a 2 metre decline, at any water supply work.	Yes	Negligible due to the modification
Water quality Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 metres from the activity.	Yes	Negligible due to the modification

7.6 Water Licensing

7.6.1 Environment Protection and Biodiversity Conservation Act 1999

There are no licensing requirements under the EPBC Act with respect to respect to discharge to surface water sources.

7.6.2 Water Management Act 2000

There is no direct surface water extraction from the Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2011.

There is no change due to the modification in estimated indirect take from the above water sharing plan due to mining-related reduction in groundwater contribution to surface watercourses.

Accordingly, there are no changes to licence requirements (both surface water and groundwater) under the relevant Water Sharing Plans due to the modification.

7.6.3 Protection of the Environment Operations Act 1997

There are no changes to mine water discharge limits in the current EPL (No. 3607, dated 26 February 2016) suggested associated with this modification to consent.

7.7 Consequence of Potential Impacts

Modelling undertaken, using the RWQIAM, for LDP009 mine water discharges indicates that the removal of the interim 30 June 2017 water quality performance criteria, with respect to salinity, does not lead to a significant difference in predicted salinity within the Coxs River catchment, over the prediction period, compared to that currently approved. Impacts range from minor to negligible at the modelled nodes. Modelling indicates no change to modelled median salinity in Lake Burragorang, over the prediction period, compared to that currently approved.

Given that the modification is a continuation of mine water discharge at current and historical water quality, there is no change to environmental consequences with respect to aquatic ecology (macroinvertebrates) in Sawyers Swamp Creek and Coxs River presented in the SVMEP EIS.

Toxicity of mine water discharge has not changed significantly since 2015 when the flocculent used to treat mine water was replaced and the acute toxicity was eliminated, however chronic toxicity remained. The chronic toxicological impact will continue until the Springvale WTP becomes operational.

There is no proposed increase in rate of mine water discharge to Sawyers Swamp Creek associated with the modification. Current rates of discharge at LDP009 are consistent with that presented in the SVMEP EIS, and accordingly the following have been concluded, with respect to impacts on creek geomorphology, flooding and drainage.

- There is no change to the potential for scour within Sawyers Swamp Creek due to the modification, i.e. there are no impacts on the geomorphology of the Sawyers Swamp Creek associated with the modification.
- There will be no change to flooding and drainage to Sawyers Swamp Creek as a result of the modification.

Given the minor to negligible impacts predicted for water quality (salinity) and negligible change predicted in flows and levels in the Coxs River catchment there will be negligible impacts on the surface water users downstream of LDP009.

7.8 Interaction between the Modification and the Springvale Water Treatment Project

As noted in **Section 1.6** the Springvale WTP has been developed to meet the water quality performance measures specified in Schedule 4 Condition 12 of SSD 5594. That project will not be operational by 30 June 2017 to meet the interim water quality criteria required to be met by that date by Springvale Mine. There are considered to be no other feasible options to the development of a treatment system to achieve the interim 2017 salinity reduction targets. This has triggered the need to modify SSD 5594 to remove the interim water quality criteria to ensure Springvale Mine will be compliant with its consent conditions.

The Springvale WTP provides significant environmental benefits. It permits beneficial reuse of mine water and improves the water quality in the Coxs River catchment through cessation of mine water

discharges, and it will achieve these goals with minimal environmental impacts (GHD, 2016b). The Springvale WTP has recently been amended to incorporate a transfer of treated water to Thompsons Creek Reservoir to allow storage and subsequent reuse and the project will operate as a zero discharge system. This will provide significant benefits to the catchment beyond the requirements of the performance measures included in the Springvale Mine's.

A regional water and salt balance (GHD, 2016a) modelling undertaken for the Springvale WTP has yielded the following results. The 'do nothing' scenario modelled assumes that untreated mine water will continue to be discharged at LDP009 at Sawyers Swamp Creek and Coxs River catchment.

- The salt balance modelling for mine water discharges for the proposed condition in 2031 (when the mine inflows will be maximum) shows 10,067 t/year of salt will be discharged at LDP009 for the modelled 'do nothing scenario'. This salt load will be eliminated when the Springvale WTP becomes operational and LDP009 discharges cease.
- On a catchment level the salt load contribution to the catchment will reduce from 21,583 t/year ('do nothing scenario') to 12,219 t/year for a modelled operational scenario of 50% power generation (correlates to recent historical trends and corresponds to the approximate volume of water available from the SDWTS).
- The change in salinity at the modelled locations downstream of LDP009 in the catchment shows consistent reduction in salinity (when compared to the 'do nothing scenario') due to the operation of the Springvale WTP as follows:
    - Coxs River flow to Lake Wallace: –52%
    - Coxs River flow to Lake Lyell: –52%
    - Coxs River flow to Lake Burragorang: –26%.

    However, there is an increase in salinity of 16% at Wangcol Creek at the confluence of Coxs River due to the transfer of residuals stream from the Springvale WTP to Springvale Coal Services Site (Western Coal Services Project). This impact is ameliorated downstream of the confluence due to catchment flows.

Given the reduction in salinity in the Coxs River catchment downstream of LDP009, GHD (2016a) considers the Springvale WTP achieves an overall beneficial effect against the NorBE test (WaterNSW, 2015).

7.9 Management and Monitoring

Water management at Springvale Mine is governed by the Water Management Plan, as specified in Schedule 4, Condition 14, SSD 5594. The Water Management Plan presents the monitoring network, establishes trigger levels on expected impacts as well as presents the Trigger Action Response Plan (TARP).

There is also a tailored Water Management Plan required with respect to each Extraction Plan (Schedule 3, Condition 10).

Schedule 4, Condition 13 of SSD 5594 specifies a requirement to prepare an Upper Coxs River Action and Monitoring Plan (UCRAMP) to achieve a target salinity in the Coxs River of 500 µS/cm (90th percentile) by 30 June 2019. This management plan requires a monitoring program that focuses on:

- Water quality, macroinvertebrates and ecotoxicology monitoring across the Coxs River catchment to measure performance against a long term water quality target of 350 µS/cm and

the impacts of toxicity and salinity changes on the aquatic ecology and ecosystem health of the Coxs River

- Water quality parameters to be monitored for all existing and proposed licensed discharge points
- A TARP detailing actions to be taken should any concentration limits be exceeded.

The UCRAMP has been submitted to DPE.

The Surface Water Assessment (Jacobs, 2016a) has concluded that compared to the currently approved Project, due to the expected minor to negligible change to flow, level and quality, there are no presented changes to surface water monitoring at Springvale Mine associated with the modification. Water management and monitoring at Springvale Mine will continue to be undertaken as currently undertaken at the mine and in accordance with conditions of SSD 5594.

7.10 Conclusion

An assessment of the potential impact of the proposed removal of the interim 30 June 2017 water quality performance criteria included in Springvale Mine's consent per Schedule 4 Condition 12 has been undertaken to support the modification application to SSD 5594 (MOD 2). The modification is being sought because the Springvale WTP, developed to meet the SSD 5594 water quality performance criteria (Schedule 4. Condition 12), will not be operational by 30 June 2017 to meet the interim water quality criteria due to the time-consuming processes involved in project design, development consent, procurement, construction and commissioning (**Section 1.6**).

Modelling of water quality and flow impacts in the Coxs River catchment indicates that the removal of the interim 30 June 2017 water quality performance criteria, with respect to salinity, does not lead to a significant difference in predicted salinity within the Coxs River, over the prediction period, compared to that currently approved in SSD 5594. Minor to negligible impacts in salinity have been predicted in the catchment. Modelling also indicates no change to modelled median salinity in Lake Burragorang, over the prediction period, compared to that currently approved. Negligible to no change to flow and level has been predicted in the catchment and Lake Burragorang.

As a result of the salinity modelling results there will be no change to environmental consequences with respect to aquatic ecology (macroinvertebrates) in Sawyers Swamp Creek and Coxs River presented in the SVMEP EIS. However, the observed chronic toxicity in the mine water discharges will remain until the Springvale WTP becomes operational and mine water will not be discharged to Sawyers Swamp Creek.

The proposed modification has been assessed to result in a neutral impact to water quality in the Coxs River catchment with respect to the NorBE test when compared to the 'base case' defined by DPE (2015) as the EPL 3607 limit at LDP009 of 1200 µS/cm existing at the time of the SSD 5594 development application. The modification will therefore allow the Springvale Mine to continue to discharge mine water at the current water quality criteria (governed by EPL 3607) until the Springvale WTP assessment and construction has been completed, and the project is operational.

Given there is no proposal to increase the rate of mine water discharge to Sawyers Swamp Creek associated with the modification, there will be no change to the potential for scour within Sawyers Swamp Creek due to the modification, and neither will there be any change to flooding and drainage to Sawyers Swamp Creek as a result of the modification.

No surface water users downstream of LDP009 discharges will be impacted by the proposed modification.

Overall, the minor to negligible impacts predicted due to the proposed modification is insignificant compared to the significant benefit in water quality improvements in the Coxs River catchment that will be achieved by the operation of the Springvale WTP and the subsequent cessation of mine water discharges.

8.0 STATEMENT OF COMMITMENTS

Table 42 provides the Statement of Commitments (SoC) for the SEE. The proposed modification has not resulted in any specific relating to the management of surface or groundwater resources, above those management controls already in place at Springvale Mine.

Springvale Mine will continue to implement the management controls already at place including those noted in the SoC of the SVMEP EIS (Golder Associates (2014)) and the Response to Submissions (Springvale Coal, (2014)) on the EIS, and SoC included in the SEE for the proposed Modification 1 (currently under assessment).

Table 42 – Statement of Commitments

Desired Outcome	Action
1. General	
Undertake all operations in a manner that will minimise the environmental impacts associated with the operation of Springvale Mine.	Operations will be undertaken in accordance with operations approved in the Springvale Mine Extension Project (SSD 5594) as modified (MOD 1 and MOD 2).
2. Hours of Operation	
Undertake all operations within the approved operating hours.	Operations will be undertaken 24 hours a day and 7 days a week.
3. Groundwater and Surface Water Resources	
All surface water, groundwater and aquatic impacts are minimised to the greatest extent possible.	The surface and groundwater management and monitoring will continue to be managed in accordance with the site's Water Management Plans, Swamp Monitoring Program and Upper Coxs River Action and Management Plan, prepared in accordance with SSD 5594 conditions.

9.0 JUSTIFICATION AND CONCLUSION

9.1 Introduction

This chapter provides a justification for the proposed modification having regard to environmental considerations. It summarises the potential environmental impacts on water resources, and considers the proposed modification against the principles of Ecologically Sustainable Development.

9.2 Substantially the Same Development

The proposed modification constitutes a minor change to an existing approved underground mine that has been operating successfully since 1995. Springvale Mine has well-defined surface mining environment. The modification will not result in any change in the core elements of approved mining operations under SSD 5594.

The SSD 5594 consent boundary for the Springvale Mine Extension Project (SVMEP) remains unchanged (**Figure 2**). There are no changes proposed to the surface infrastructure. No changes are proposed on the current surface operations, including the existing site water management regime.

All activities on the surface (pit top and Newnes Plateau infrastructure areas) will continue to be undertaken as described in the SVMEP EIS (Golder Associates, 2014). No change in rehabilitation activities is proposed. Progressive and life of mine rehabilitation will be undertaken as described in Golder Associates (2014).

There is no proposal to change the approved longwall mining technique or the approved mine plan. ROM coal will be transported off site as approved in SSD 5594.

There is no proposal to reduce the life of the consent in this modification from the approved 13 years from the date of consent, and the consent expiry date (31 December 2028) will remain unchanged. Hours of operations are not proposed to change from the approved 24 hours per day and seven days per week.

This modification proposes to remove the interim water quality criteria required to be met by 30 June 2017 as per Schedule 4 Condition 12 of SSD 5594. A catchment level water quality and flows modelling (Jacobs, 2016a) indicates that the removal of the interim 30 June 2017 water quality performance criteria does not lead to a significant difference in predicted salinity within the Coxs River catchment, over the prediction period, compared to that currently approved. Assessed impacts on salinity range from minor to negligible at the modelled nodes in the Coxs River catchment. Modelling also indicates no change to modelled median salinity in Lake Burragorang, over the prediction period, compared to that currently approved. There are no impacts on flows given that there is no proposed increase in rate of mine water discharge to Sawyers Swamp Creek associated with the modification.

The existing chronic toxicity associated with the LDP009 discharges however will remain until the Springvale WTP, developed to meet Springvale Mine's water quality performance measure of 500 µS/cm (90^{th} percentile) EC by 30 June 2019 (Schedule 4 Condition 12 of SSD 5594), is operational.

Given the proposed modification is a continuation of mine water discharge at current and historical water quality and flows, there is no change to environmental consequences with respect to aquatic ecology (macroinvertebrates) in Sawyers Swamp Creek and Coxs River presented in the SVMEP EIS. Since there is no proposal to increase the rate of discharge at LDP009 above the levels assessed in the SVMEP EIS there will be change to the potential for scour within Sawyers Swamp Creek due to

the modification. There will be no change to flooding and drainage to Sawyers Swamp Creek as a result of the modification.

The proposed modification has been necessitated because the Springvale WTP will not be operational by 30 June 2017 due to the time-consuming processes (design, development consent, procurement, construction and commissioning). The proposed modification will allow Springvale Mine to be compliant with its consent conditions until the Springvale WTP is operational. The Springvale WTP will improve the water quality in the Coxs River catchment through cessation of mine water discharges as required by Springvale Mine's consent.

For reasons discussed above, the Springvale Mine Extension Project (as to be modified) will remain substantially the same development as that was originally approved as SSD 5594. The proposed modification is justified.

9.3 Ecologically Sustainable Development

The principles of ecologically sustainable development (ESD) are outlined in Section 6(2) of the NSW *Protection of the Environment Administration Act 1991* and Clause 7(4) Schedule 2 of the EP&A Regulation. Section 5(a)(vii) of the EP&A Act adopts ESD as one of its objects.

Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

(a) The precautionary principle – namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
- *(ii) an assessment of the risk-weighted consequences of various options,*

(b) inter-generational equity – namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity – namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms – namely, that environmental factors should be included in the valuation of assets and services, such as:

- *(i) polluter pays – that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
- *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
- *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

The consistency of the modification with each of the ESD principles noted above is discussed in sub-sections below.

9.3.1 The Precautionary Principle

The precautionary principle reinforces the need to take risk and uncertainty into account, particularly in relation to threats of irreversible environmental damage. For this reason a surface water assessment to assess the impacts of the proposed modification elements was undertaken. Gaining an understanding of the impact of not meeting the water quality criteria specified in Springvale Mine's consent (Schedule 4 Condition 12) on the receiving environment and the sensitive receptors was essential.

The impact assessment process involved water quality and flow modelling, at the Coxs River catchment level, of mine water discharges at LDP009 using a robust model, careful analyses of the modelling output and interpretation of the results. This process has enabled the impacts of the modification to be predicted with a reasonable degree of certainty. All predictions, however, contain a degree of uncertainty, which reflects the variable nature of the water environment. Where there has been any uncertainty in the prediction of impacts throughout the assessment process, a conservative approach was adopted to ensure the worst case scenario was predicted in the assessment of impacts.

The regional water quality impact assessment model has been developed by a suitably qualified hydrologist / hydrogeologist with an excellent understanding of the hydrological and hydrogeological; environments that Springvale Mine operates in, and who has had previous involvement in the preparation of surface and groundwater impact assessments for SVMEP EIS and SVMEP MOD 1 application.

The proposed modification has been assessed not to result in any significant environmental impacts (water quality and flows) on the Coxs River catchment, and the environmental consequences of the minor to negligible impacts on the sensitive receptors will be negligible.

9.3.2 Intergenerational Equity

The principle of intergenerational equity is centred on the concept that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The potential impact of the proposed modification elements is not considered significant, and as a consequence has negligible potential to adversely affect the health, diversity or productivity of the environment.

Springvale Coal has an existing environmental monitoring framework with management strategies, mitigation measures and monitoring programs designed to minimise adverse impact upon the local environment and nearby communities. The surface and groundwater management and monitoring at Springvale Mine will continue to be managed in accordance with the site's Water Management Plans, Swamp Monitoring Program and Upper Coxs River Action and Management Plan, prepared in accordance with SSD 5594 conditions.

For the reasons noted above the modification will not adversely impact the current or future generations.

9.3.3 Conservation of Biological Diversity and Ecological Integrity

The principle of conservation of biological diversity and ecological integrity holds that it should be a fundamental consideration for development proposals. The Centennial West Aquatic Ecology Monitoring Program includes the monitoring of sites on Coxs River downstream of LDP009. The Surface Water Assessment (Jacobs, 2016a) for the modification considered the potential impacts of removal of the 30 June 2017 water quality criteria the macroinvertebrate ecology in Coxs River. As

discussed in **Section 7.4.7**, there is no change to environmental consequences with respect to aquatic ecology (macroinvertebrates) compared to that presented in the SVMEP EIS (Golder Associates, 2014). On this basis, the modification is consistent with the principle of conservation of biological diversity and ecological integrity.

9.3.4 Improved Valuation, Pricing and Incentive Mechanisms

The principle of improved valuation, pricing and incentive mechanisms deems that environmental factors should be included in the valuation of assets and services, and that those who generate the pollution and waste should bear the cost of containment, avoidance or abatement. The cost associated with using or impacting upon an environmental resource, together with remediation costs is seen as a cost incurred to protect that resource.

The Surface Water Assessment (Jacobs, 2016a) has evaluated the environmental impacts and consequences of the modification on the water resources, and has concluded the environmental consequences of the modification are negligible.

The proposed modification is required to ensure that Springvale Mine is compliant with its compliant condition after 30 June 2017. The continued operation of the Springvale Mine will ensure the natural resources are valued both during mining and after mining has been completed.

9.4 Conclusion

Springvale Mine is a well-established underground coal mine with well-defined surface and mining environments. The Springvale Mine Extension Project (SSD 5594) was approved on 21 September 2015. The mine is seeking to modify its consent (MOD 2) to remove the interim water quality criteria included in SSD 5594 (Schedule 4 Condition 12), required to be met by 30 June 2017. The modification is being sought because the Springvale WTP, developed to meet the SSD 5594 water quality performance criteria will not be operational by 30 June 2017 due to the time-consuming processes involved in project design, development consent, procurement, construction and commissioning. However, once the Springvale WTP is operational it will achieve meet the 30 June 2019 water quality criterion of 500 (90^{th} percentile) and will provide significant environmental benefits. The Springvale WTP will permit beneficial industrial reuse of mine water and will improve the water quality in the Coxs River catchment through cessation of mine water discharges at LDP009. It will achieve these goals with minimal environmental impacts (GHD, 2016b).

The proposed modification will allow Springvale Mine to remain compliant with its consent conditions after 30 June 2017. A Surface Water Assessment (Jacobs, 2016a) undertaken to assess the impacts of the removal of the of the interim water quality criteria indicates there is will not be a significant difference in predicted salinity within the Coxs River, over the prediction period, compared to that currently approved in SSD 5594. Minor to negligible impacts in salinity have been predicted in the catchment. Modelling also indicates no change to modelled median salinity in Lake Burragorang, over the prediction period, compared to that currently approved. Negligible to no change to flow and level has been predicted in the catchment and Lake Burragorang.

Given that the modification is a continuation of mine water discharge at current and historical water quality, there is no change to environmental consequences with respect to macroinvertebrate ecology in Sawyers Swamp Creek and Coxs River as presented in the SVMEP EIS. There will be no change to potential impact for scour, flooding and drainage within Sawyers Swamp Creek over that provided in SVMEP EIS.

The proposed modification has been assessed to result in a neutral impact to water quality in the Coxs River catchment with respect to NorBE test, when compared to the 'base case' defined by DPE (2015) as the EPL 3607 limit of 1200 µS/cm existing at the time of the SSD 5594 development application. The modification will therefore allow the Springvale Mine to continue to discharge mine water at the current water quality criteria (governed by EPL 3607) until the Springvale WTP has been commissioned.

This SEE has demonstrated that the proposed modification will result in minor to negligible impacts in the water quality in the Coxs River catchment. These impacts are not considered to be significant, and there will be little or no risk of adverse water quality impacts or environmental harm within the Coxs River catchment. The modification does not require any additional water management or monitoring to be implemented. The Springvale Mine Extension Project as modified can be considered to remain substantially the same as the development that was originally approved as SSD 5594.

Overall, the minor to negligible impacts predicted due to the proposed modification is insignificant compared to the significant benefit in water quality improvements in the Coxs River catchment that will be achieved by the operation of the Springvale WTP and the subsequent cessation of mine water discharges.

The proposed modification meets the relevant objects of the EP&A Act and is consistent with the four principles of the ecologically sustainable development. It meets all relevant government guidelines and policies. On these bases, the modification will meet environmental performance and socio-economic benefit requirements to be considered for approval.

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11.0 ACRONYMS, UNITS AND ABBREVIATIONS

Acronyms, Units and Abbreviations	Definition
%	percent
%ile	Percentile
^{o}C	Degrees Celsius
ADWG	Australian Drinking Water Guidelines
AHD	Australian Height Datum
BOM	Bureau of Meteorology
CCC	Community Consultative Committee
CCL	Consolidated Coal Lease
CHPP	Coal Handling and Preparation Plant
CL	Coal Lease
cm	centimetre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DoE	Federal Department of the Environment (formerly SEWPaC)
DPE	Department of Planning and Environment (NSW)
DRE	Division of Resources and Energy (within DTIRIS)
EIS	Environmental Impact Statement
EL	Exploration Licence
EMS	Environmental Management System
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	Environment Protection Authority
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
g	gram
GDE	Groundwater Dependent Ecosystem
GIS	Geographic Information System
GHD	GHD Pty Ltd
ha	hectare
hr	hour
kg	kilogram
kL	kilolitre
km	kilometre
km^2	square kilometre

Acronyms, Units and Abbreviations	Definition
LCC	Lithgow City Council
LDP	Licensed Discharge Point
LEP	Local Environmental Plan
LGA	Local Government Area
m	metre
M	million
m/s	Metres per second
m^2	Square metre
m^3	Cubic metre
min	minute
mg/L	Milligram per litre
ML	Megalitre or Mining Lease
MLA	Mining Lease Application
MNES	Matter of National Environmental Significance
mm	millimetre
mm/m	millimetre per metre
MOP	Mining Operations Plan
Mt	Million tonne
Mtpa	Million tonnes per annum
NES	National Environmental Significance
NP&W Act	*National Parks and Wildlife Act 1974*
NPWS	National Parks and Wildlife Service
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
Pa	Pascal – a unit of pressure
POEO Act	*Protection of the Environment Operations Act 1997*
PRP	Pollution Reduction Programme
ROM	Run of Mine
RPS	RPS Australia East Pty Ltd
SAL	Strategic Agricultural Land
SDWTS	Springvale – Delta Water Transfer Scheme
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SLR	SLR Consulting Australia Pty Ltd.
SVMEP	Springvale Mine Extension Project

Acronyms, Units and Abbreviations	Definition
SoC	Statement of Commitments
TARP	Trigger Action Response Plan
TDS	Total Dissolved Solids
THPSS	Temperate highland peat swamps on sandstone
t	Tonne
TSC Act	*Threatened Species Conservation Act 1995*
WM Act	*Water Management Act 2000*
µg	Microgram
µg/m^3	Microgram per cubic metre
µm	Micrometre or micron

APPENDICES

Appendix A	**Development Consent SSD5594 & Federal Approval EPBC 2013/6881**
Appendix B	**Schedule of Lands**
Appendix C	**Surface Water Assessment Jacobs Australia Pty Limited**

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Development Consent SSD 5594

&

Federal Approval
EPBC 2013/6811

APPENDIX – A

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Development Consent

Section 89E of the *Environmental Planning and Assessment Act 1979*

As delegate for the Minister for Planning, the Planning Assessment Commission of NSW approves the development application referred to in Schedule 1, subject to the conditions in Schedules 2 to 6.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- prevent, minimise and/or offset impacts on controlling provisions and matters protected under the EPBC Act;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

Brian Gilligan
Member of the Commission

Abigail Goldberg
Member of the Commission

David Johnson
Member of the Commission

Sydney 21 September 2015

SCHEDULE 1

Application Number:	SSD_5594
Applicant:	Centennial Springvale Pty Limited
Consent Authority:	Minister for Planning
Land:	See Appendix 1
Development:	Springvale Mine Extension Project

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DEFINITIONS

Adaptive management	Adaptive management includes monitoring subsidence effects and impacts and, based on the results, modifying the mine plan (including potentially modifying mining height, longwall width or any other element of the mine plan) as mining proceeds to ensure that the effects, impacts and/or associated environmental consequences remain within the predicted and/or designated ranges and in compliance with the conditions of this consent
Annual Review	The review required by condition 12 of Schedule 6
Applicant	Centennial Springvale Pty Limited and Springvale SK Kores Pty Limited, or any other person/s who rely on this consent to carry out the development
ANZECC Guidelines	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000), or their latest version
BCA	Building Code of Australia
Built features	Includes any building or work erected or constructed on land, including dwellings, outbuildings and infrastructure such as any formed road, street, path, walk, or driveway and any pipeline, water, sewer, telephone, gas or other service main
CCC	Community Consultative Committee
Cliff	Continuous rock face, including overhangs, having a minimum length of 20 metres, a minimum height of 10 metres and a minimum slope of 2 to 1 (> 63.4°)
Conditions of this consent	Conditions contained in Schedules 2 to 6 inclusive
Construction	The demolition of buildings or works, carrying out of works and erection of buildings covered by this consent
Council	Lithgow City Council
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department	Department of Planning and Environment
Development	Springvale Mine Extension Project, as described in the EIS
DoE	Commonwealth Government Department administering the EPBC Act
DPI	Department of Primary Industries
DPI-Water	Department of Primary Industries - Water
DRE	Division of Resources and Energy, within the Department of Trade & Investment, Regional Infrastructure & Services
DSC	Dams Safety Committee
EEC	Endangered ecological community, as defined under the *Threatened Species Conservation Act 1995*
EIS	Environmental Impact Statement titled *Springvale Mine Extension Project – State significant Development 5594* (dated April 2014) including the associated Response to Submissions (dated September 2014), and the following additional information: - *Additional Simulations of the Regional Water Quality Impact Assessment Model* (25 March 2015) undertaken by Jacobs Group (Australia) Limited. - *Springvale Colliery Mine Extension Project, Economic Impact Assessment* (March 2015) undertaken by Aigis Group.
Environmental consequences	The environmental consequences of subsidence impacts, including: damage to built features; loss of surface water flows to the subsurface; loss of standing pools; adverse water quality impacts; cliff falls; rock falls; damage to Aboriginal heritage sites; impacts on aquatic ecology; and ponding.
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence issued under the POEO Act
Evening	The period from 6 pm to 10 pm
Exploration activities	Prospecting operations, as defined under the *Mining Act 1992*
Feasible	Feasible relates to engineering considerations and what is practical to build or to implement
First workings	Extraction of coal from bord and pillar workings and development of main headings, longwall gate roads, related cut throughs and the like
GDE	Groundwater dependent ecosystem
Heritage item	An item defined under the *Heritage Act 1977* and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974*
Incident	A set of circumstances that: • causes or threatens to cause material harm to the environment; and/or • breaches or exceeds the limits or performance measures/criteria in this consent
INP	*NSW Industrial Noise Policy* (NSW EPA, 2000)

Land	As defined in the EP&A Act, except for where the term is used in the noise and air quality conditions in Schedule 4 of this consent where it is defined to mean the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of this consent
Material harm to the environment	Actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Mine water	Water that accumulates within, or drains from, active mining areas, emplacements, stockpiles, tailings dams and infrastructure areas
Mining operations	Includes the extraction, processing, handling, storage and transportation of coal carried out on the site
Minister	Minister for Planning, or delegate
Minor	Not very large, important or serious
Minor cliff	A continuous rock face, including overhangs, which has a minimum length of 20 metres, a height between 5 metres and 10 metres, and a minimum slope of 2 to 1 (> 63.4°)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Negligible	Small and unimportant, such as to be not worth considering
Night	The period from 10 pm to 7 am, Monday to Saturday, 10 pm to 8 am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Pagoda formations	Smooth or platy conical sandstone formations found in the Blue Mountains Region of NSW
POEO Act	*Protection of the Environment Operations Act 1997*
Privately-owned land	Land that is not owned by a public agency, a mining company (or its subsidiary)
Public infrastructure	Linear and related infrastructure and the like that provides services to the general public, such as roads, railways, water supply, drainage, sewerage, gas supply, electricity, telephone, telecommunications, etc
Reasonable	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Reasonable costs	The costs agreed between the Department and the Applicant for obtaining independent experts to review the adequacy of any aspects of the extraction plan, or where such costs cannot be agreed, the costs determined by a dispute resolution process
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Remediation	Activities associated with partially or fully repairing or rehabilitating the impacts of the development or controlling the environmental consequences of this impact
ROM coal	Run-of-mine coal
RMS	Roads and Maritime Services
Safe, serviceable & repairable	Safe means no danger to users who are present, serviceable means available for its intended use, and repairable means damaged components can be repaired economically
Second workings	Extraction of coal from longwall panels, mini-wall panels or pillar extraction
Secretary	Secretary of the Department, of any person authorised to act on their behalf
Site	Land to which the development consent applies (see Appendix 1)
Springvale Delta Water Transfer Scheme	Existing pipeline that transfers groundwater inflows from the underground workings and dewatering bores to licenced discharge point LDP009 (see also Appendix 2)
Statement of Commitments	The Applicant's commitments set out in Appendix 3
Steep slope	An area of land having a gradient between 1 in 3 (33% or 18.3°) and 2 in 1 (200% or 63.4°)
Subsidence	The totality of subsidence effects, subsidence impacts and environmental consequences of subsidence impacts
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, including both vertical and horizontal displacement, tilt, strain and curvature
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure and upsidence and surface depressions or troughs
TARP	Trigger Action Response Plan
µS/cm EC	Microsiemens per centimetre Electrical Conductivity

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

1. In addition to meeting the specific performance measures and criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

TERMS OF APPROVAL

2. The Applicant shall carry out the development:
   (a) generally in accordance with the EIS;
   (b) in accordance with the Development Layout Plan and the Statement of Commitments; and
   (c) in accordance with the conditions of this consent.

   Notes:
   - *The Development Layout Plan is shown in Appendix 2*
   - *The Applicant's Statement of Commitments is shown in Appendix 3.*

3. If there is any inconsistency between the above documents, the more recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.

4. The Applicant shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:
   (a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this consent;
   (b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with this consent; and
   (c) the implementation of any actions or measures contained in these documents.

LIMITS ON CONSENT

Mining Operations

5. The Applicant may carry out mining operations on the site until 31 December 2028.

   Note: Under this consent, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of both the Secretary and DRE. Consequently this consent will continue to apply in all other respects other than the right to conduct mining operations until the rehabilitation of the site and these additional undertakings have been carried out satisfactorily.

Coal Extraction

6. The Applicant shall not extract more than 4.5 million tonnes of ROM coal from the site per calendar year.

Hours of Operation

7. The Applicant may undertake mining operations 24 hours a day, 7 days a week.

Coal Transport

8. The Applicant shall not transport more than 50,000 tonnes of ROM coal by road from the site to local domestic customers in any calendar year.

Springvale Delta Water Transfer Scheme

9. Nothing in this consent allows duplication of pipelines or other increase in capacity of the Springvale Delta Water Transfer Scheme.

SURRENDER OF EXISTING DEVELOPMENT CONSENTS

10. The Applicant shall surrender all existing development consents for the site in accordance with section 104A of the EP&A Act within 12 months of the date of this consent, unless otherwise agreed by the Secretary.

    Prior to the surrender or lapsing of any existing development consents, the conditions of this consent shall prevail to the extent of any inconsistency with the conditions of these consents.

Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent should not be understood as implying that works legally constructed under a valid consent can no longer be legally maintained or used.

STRUCTURAL ADEQUACY

11. The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

Notes:

- *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works; and*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*

DEMOLITION

12. The Applicant shall ensure that all demolition work is carried out in accordance with *Australian Standard AS 2601-2001: The Demolition of Structures*, or its latest version.

PROTECTION OF PUBLIC INFRASTRUCTURE

13. Unless the Applicant and the applicable authority agree otherwise, the Applicant shall:
    (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and
    (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

Note: This condition does not apply to any damage to roads caused as a result of general road usage.

OPERATION OF PLANT AND EQUIPMENT

14. The Applicant shall ensure that all plant and equipment used on site is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

COMMUNITY ENHANCEMENT

15. From 31 March 2017, the Applicant shall pay a community contribution to LCC of $0.03 per saleable tonne of coal produced from the Springvale, Angus Place and Airly mines capped at a maximum payment of $200,000 in total (ie for all 3 mines collectively). The community contribution shall be paid on an annual basis to LCC and no later than 31 March each year (for the preceding year). The contribution shall be used for long-term community activities and projects to be agreed by both the Applicant and LCC and must be reported publicly.

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS – UNDERGROUND MINING

SUBSIDENCE

Performance Measures – Natural and Heritage Features, etc

1. The Applicant shall ensure that the development does not cause any exceedances of the performance measures in Table 1, to the satisfaction of the Secretary.

Table 1: Subsidence Impact Performance Measures – Natural and Heritage Features, etc

Water Resources	***Performance Measure***
Wolgan River, and other watercourses located outside the site	Negligible subsidence impacts or environmental consequences including: • *negligible* diversion of flows or changes in the natural drainage behaviour of pools; • *negligible* reduction in water quality; • *negligible* increase in bank erosion or sediment load.
Carne Creek, Marrangaroo Creek and Paddys Creek	No greater subsidence impacts or environmental consequences than predicted in the EIS
All other watercourses	No greater subsidence impacts or environmental consequences than predicted in the EIS
Swamps	
Shrub swamps: Sunnyside and Nine Mile	Negligible environmental consequences including: • *negligible* change to the shallow groundwater regime when compared with control swamps; • *negligible* erosion of the surface of the swamp; • *negligible* change in the size of the swamp; • *negligible* change in the ecosystem functionality of the swamp; • *negligible* change to the composition or distribution of species within the swamp; and • *negligible* change to the structural integrity of the bedrock base or any controlling rockbar/s of the swamp.
Hanging swamps	Negligible environmental consequences including: • *negligible* change in the size of the swamp; • *negligible* change in the ecosystem functionality of the swamp; and • *negligible* change to the composition or distribution of species within the swamp.
Land	
Cliffs, minor cliffs, steep slopes and pagoda formations	No greater subsidence impacts or environmental consequences than predicted in the EIS.
Biodiversity	
Threatened species, populations or their habitats and EECs (except Sunnyside East, Carne West, Gang Gang South West, Gang Gang East, Pine, Pine Upper, Paddys, Marangaroo Creek and Marrangaroo Creek Upper Swamps)	Negligible environmental consequences.
Heritage Features	
Aboriginal heritage sites (except sites 45-1-0002, 45-1-005 and 45-1-0065)	Negligible subsidence impact or environmental consequences.
Aboriginal heritage sites 45-1-0002, 45-1-005 and 45-1-0065	No greater subsidence impact or environmental consequences than predicted in the EIS.
Historic heritage sites	Negligible subsidence impact or environmental consequences.
Mine workings	
First workings beneath any feature where performance measures in this table require negligible subsidence impact or environmental consequences. First workings within a 26.5 degree angle of draw of cliffs.	To remain long-term stable and non-subsiding
Second workings	To be carried out only in accordance with an approved Extraction Plan

Notes:

- *These performance measures apply to all mining taking place after the date of this consent.*
- *The Applicant will be required to define more detailed performance indicators (including impact assessment criteria) for each of these performance measures in the various management plans that are required under this consent (see Condition 5 below).*
- *Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.*

2. The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the performance measures in Table 1. Any exceedance of these performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation, notwithstanding actions taken pursuant to paragraphs (a)-(c) or condition 4 below. Where any exceedance of these performance measures has occurred, the Applicant must, at the earliest opportunity:
   (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
   (b) consider all reasonable and feasible options for remediation and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
   (c) implement remediation measures as directed by the Secretary,

   to the satisfaction of the Secretary.

Offsets

3. If the Applicant exceeds the performance measures in Table 1 and the Secretary determines that:
   (a) it is not reasonable or feasible to remediate the subsidence impact or environmental consequence; or
   (b) remediation measures implemented by the Applicant have failed to satisfactorily remediate the subsidence impact or environmental consequence;

   then the Applicant shall provide a suitable offset to compensate for the subsidence impact or environmental consequence, to the satisfaction of the Secretary.

   The offset must give priority to like-for-like physical environmental offsets, but may also consider payment into any NSW Offset Fund established by OEH, or funding or implementation of supplementary measures such as:
   - actions outlined in threatened species recovery programs;
   - actions that contribute to threat abatement programs;
   - biodiversity research and survey programs; and/or
   - rehabilitating degraded habitat.

   Note: Any offset required under this condition must be proportionate with the significance of the impact or environmental consequence.

Swamp Offset Bond for First Swamps Undermined

4. Prior to the commencement of mining, unless otherwise agreed by the Secretary, the Applicant shall lodge a Swamp Offset Bond of $2,000,000 with the Department.

   If, after 12 months of completion of all mining under this consent within 400 metres of either Sunnyside East or Carne West Swamps, monitoring demonstrates that no greater than 'negligible environmental consequences' have resulted to the swamp from mining under this consent, to the satisfaction of the Secretary, then the Secretary will release the half of the Bond that applies to that swamp.

   If monitoring demonstrates that greater than 'negligible environmental consequences' have resulted to either of these shrub swamps from mining under this consent, and that these consequences have stabilised for a period of at least 12 months, then the Applicant must offset the environmental consequences to that swamp to the satisfaction of the Secretary within any period specified by the Secretary.

   The offset liability will be set by the Secretary in consultation with OEH, following consideration of:
   (a) the estimated liability using the Framework for Biodiversity Assessment in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*; and
   (b) advice from the Independent Monitoring Panel that will be established by the Secretary for the development.

   Once the Applicant has offset the environmental consequences to the satisfaction of the Secretary, the relevant proportion of the Swamp Offset Bond will be returned to the Applicant.

   Notes:

   - *Alternative funding arrangements, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement or transfer to conservation reserve estate, can be used as part of the Swamp Offset Bond. A bank guarantee can be lodged in place of a cash bond.*

Swamp Offsets for all other Shrub Swamps

5. Prior to the commencement of mining operations under an approved Extraction Plan which are predicted to cause greater than negligible environmental consequences to either Gang Gang South West, Gang Gang East, Pine, Pine Upper, Paddys, Marangaroo Creek or Marrangaroo Creek Upper Swamp, the Applicant shall demonstrate that it can satisfy the maximum predicted offset liability for the total area of swamp(s) predicted to be impacted under that Extraction Plan.

   If, after 12 months of completion of all mining under this consent within 400 metres of any of these shrub swamps, monitoring demonstrates that no greater than 'negligible environmental consequences' have resulted to the swamp from mining under this consent, to the satisfaction of the Secretary, then the Applicant will not be required to secure the offset or retire the credits relating to that swamp.

   If monitoring demonstrates that greater than 'negligible environmental consequences' have resulted to any of these shrub swamps from mining under this consent, and that these consequences have stabilised for a period of at least 12 months, then the Applicant must offset the environmental consequences to that swamp to the satisfaction of the Secretary within any period specified by the Secretary.

   The offset liability will be set by the Secretary in consultation with OEH, following consideration of:
   (a) the estimated liability using the Framework for Biodiversity Assessment in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*; and
   (b) advice from the Independent Monitoring Panel that will be established by the Secretary for the development.

   Note: Alternative funding arrangements, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement or transfer to conservation reserve estate, can be used as part of the Swamp Offset.

6. As part of each Extraction Plan for mining within 400 metres of the swamps subject to condition 5 above, the Applicant must:
   (a) calculate the maximum predicted offset liability for any environmental consequences on these swamps that may result from the proposed mining using the Framework for Biodiversity Assessment in accordance with the *NSW Biodiversity Offsets Policy for Major Projects*; and
   (b) demonstrate that it has suitable arrangements in place to deal with these liabilities quickly in the event that offsets are required.

Performance Measures – Built Features

7. The Applicant shall ensure that the development does not cause any exceedances of the performance measures in Table 2, to the satisfaction of the Secretary.

Table 2: Subsidence Impact Performance Measures

Built Features	***Performance Measures***
Key public infrastructure: Lithgow Water Supply Dam	No damage or additional risk.
Power transmission lines and associated towers, unsealed roads and road culverts, fire trails, other public infrastructure, fences and other built features	Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated.
Public safety	
Public Safety	Negligible additional risk

Notes:
- *These performance measures apply to all mining taking place after the date of this consent.*
- *The Applicant will be required to define more detailed performance indicators for each of these performance measures in the Built Features Management Plans or Public Safety Management Plan (see condition 10 below).*
- *Measurement and/or monitoring of compliance with performance measures and performance indicators is to be undertaken using generally accepted methods that are appropriate to the environment and circumstances in which the feature or characteristic is located. These methods are to be fully described in the relevant management plans. In the event of a dispute over the appropriateness of proposed methods, the Secretary will be the final arbiter.*
- *Requirements regarding safety or serviceability do not prevent preventative or mitigatory actions being taken prior to or during mining in order to achieve or maintain these outcomes.*

8. Any dispute between the Applicant and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 2 is to be settled by the Secretary, following consultation with DRE. Any decision by the Secretary shall be final and not subject to further dispute resolution under this consent.

First Workings

9. Subject to condition 10 below, the Applicant may carry out first workings within the underground mining area, other than in accordance with an approved Extraction Plan, provided that DRE is satisfied that the first workings are designed to remain stable and non-subsiding in the long-term, except insofar as they may be impacted by approved second workings.

Note: The intent of this condition is not to require an additional approval for first workings, but to ensure that first workings are built to geotechnical and engineering standards sufficient to ensure long term stability, with negligible resulting direct subsidence impacts.

Extraction Plan

10. The Applicant shall prepare and implement an Extraction Plan for all second workings on site to the satisfaction of the Secretary. Each Extraction Plan must:
    (a) be prepared in consultation with DRE and by suitably qualified and experienced persons whose appointment has been endorsed by the Secretary;
    (b) be approved by the Secretary before the Applicant carries out any of the second workings covered by the plan;
    (c) include detailed plans of existing and proposed first and second workings and overlying surface features, including any applicable adaptive management measures;
    (d) include adequate consideration of mine roof and floor conditions, pillar width to height ratio, final pillar design dimensions and the long-term stability of pillars which has been undertaken in consultation with DRE;
    (e) provide revised predictions of the potential subsidence effects, subsidence impacts and environmental consequences of the proposed mining covered by the Extraction Plan, incorporating any relevant information obtained since this consent;
    (f) provide revised predictions for potential environmental consequences on affected shrub swamps and the social and economic costs of avoiding these consequences;
    (g) describe in detail the performance indicators that would be implemented to ensure compliance with the performance measures in Tables 1 and 2, and manage or remediate any impacts and/or environmental consequences consequences to meet the rehabilitation objectives in condition 30 of Schedule 4;
    (h) include a:
        (i) *Subsidence Monitoring Program* which has been prepared in consultation with DRE to:
            - describe the ongoing conventional and non-conventional subsidence monitoring program:
            - provide data to assist with the management of risks associated with conventional and non-conventional subsidence;
            - validate the conventional and non-conventional subsidence predictions;
            - analyse the relationship between the predicted and resulting conventional and non-conventional subsidence effects and predicted and resulting impacts under the plan and any ensuring environmental consequences; and
            - inform the contingency plan and adaptive management process in paragraphs (ix) and (x) below;
        (ii) *Built Features Management Plan* which has been prepared in consultation with DRE, to manage the potential subsidence impacts of the proposed underground workings on built features, and which:
            - has been prepared in consultation with the owner/s of potentially affected feature/s;
            - addresses in appropriate detail all items of key public infrastructure and other public infrastructure and all classes of other built features;
            - recommends appropriate pre-mining mitigation measures to reduce subsidence impacts; and
            - recommends appropriate remedial measures and includes commitments to mitigate, repair, replace or compensate predicted impacts on potentially affected built features in a timely manner;
        (iii) *Water Management Plan* which has been prepared in consultation with DPI-Water, WaterNSW and the Independent Monitoring Panel (required by condition 11), which provides for the management of potential impacts and/or environmental consequences of the proposed underground workings on watercourses and aquifers, including:
            - detailed baseline data on:
                - surface water flows and quality in water bodies that could be affected by subsidence, including Wolgan River, Carne Creek, Marangaroo Creek, Coxs River and all major associated tributaries ;
                - groundwater levels, yield and quality in the region;
            - surface and groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse impacts on water resources or water quality;
            - a surface water monitoring program to monitor and report on:
                - stream flows and quality;
                - stream and riparian vegetation health;
                - channel and bank stability;
            - a groundwater monitoring program to monitor and report on:

- springs, their discharge quantity and quality, as well as associated groundwater dependent ecosystems;
- groundwater inflows to the underground mining operations;
- the height of groundwater depressurization;
- background changes in groundwater yield/quality against mine-induced changes, in particular, on groundwater bore users in the vicinity of the site;
- permeability, hydraulic gradient, flow direction and connectivity of the deep and shallow groundwater aquifers;
- impacts of the development on upland swamps (refer to condition 10 below) and other groundwater dependent ecosystems;

- a description of any adaptive management practices implemented to guide future mining activities in the event of greater than predicted impacts on aquatic habitat;
- a program to validate the surface water and groundwater models for the development, and compare monitoring results with modelled predictions; and
- a plan to respond to any exceedances of the surface water and groundwater assessment criteria;

(iv) *Biodiversity Management Plan* which has been prepared in consultation with OEH and the Independent Monitoring Panel, which provides for the management of potential impacts and/or environmental consequences of the proposed second workings on aquatic and terrestrial flora and fauna, with a specific focus on threatened species, populations and their habitats and EECs, including a management and research program for the Blue Mountains Water Skink (*Eulamprus leuraensis*);

(v) *Swamp Monitoring Program* which has been prepared in consultation with OEH, DPI-Water, WaterNSW and the Independent Monitoring Panel, and which includes (as a minimum):

- further consideration of the location of existing piezometers and the installation of upslope and downslope piezometers in all shrub swamps, in order to better understand the down-slope movement of shallow groundwater;
- installation of flow monitoring points in all shrub swamps;
- measures to record the nature and condition of terrestrial and aquatic flora and fauna within all shrub swamps and selected hanging swamps;
- measures to characterise soils or peat layers within the swamps to determine:
  - porosity;
  - a basis for relating water levels to rainfall and evapotranspiration; and
  - the presence, or absence, of clay materials at the interface with the underlying bedrock;
- a program for monthly review of the water balance of all monitored swamps based on recorded rainfall, estimated evapotranspiration and recorded surface and shallow groundwater levels and outflow measurements;
- detailed performance indicators for the relevant performance measures in Table 1, including performance indicators relating to surface and shallow groundwater levels and outflow measurements;
- assessment of any post-mining impacts on the incision feature in Sunnyside East Swamp;
- specific consideration of subsidence impacts on and environmental consequences to hanging swamps;
- consideration of a minimum of 2 years of baseline data for swamp hydrology and swamp vegetation;
- hydrological and vegetative monitoring which fully satisfies Before After Control Impact (BACI) design principles;
- provision of raw piezometer and other monitoring data to the Department, OEH and the Independent Monitoring Panel, if requested; and
- incorporation of any relevant findings from swamp research projects into the swamp monitoring program;

(vi) *Land Management Plan* which has been prepared in consultation with OEH and any other affected public authorities, which provides for the management of potential impacts and/or environmental consequences of the proposed underground workings on land in general, with a specific focus on cliffs, minor cliffs, pagoda formations, steep slopes and gorges;

(vii) *Heritage Management Plan* which has been prepared in consultation with OEH and relevant stakeholders for both Aboriginal and non-Aboriginal heritage, which provides for the management of potential environmental consequences of the proposed second workings on Aboriginal and non-Aboriginal heritage and includes all requirements under condition 24 of Schedule 4;

(viii) *Public Safety Management Plan* which has been prepared in consultation with DRE and OEH, which ensures public safety and manages access on the site;

(ix) *TARPs* addressing all features in Tables 1 and 2, which contain:

- appropriate triggers to warn of increased risk of exceedance of any performance measure; and
- specific actions to respond to high risk of exceedance of any performance measure to ensure that the measure is not exceeded;
- an assessment of remediation measures that may be required if exceedances occur and the capacity to implement the measures;

(x) *Contingency Plan* that expressly provides for:
- adaptive management where monitoring indicates that there has been an exceedance of any performance measure in Tables 1 and 2, or where any such exceedance appears likely; and
- an assessment of remediation measures that may be required if exceedances occur and the capacity to implement those measures;

(xi) proposes appropriate revisions to the Rehabilitation Management Plan required under condition 32 in Schedule 4; and

(xii) includes a program to collect sufficient baseline data for future Extraction Plans.

Notes:
- *This condition does not apply to first or second workings which are covered by an Extraction Plan or Subsidence Management Plan approved, or submitted for approval, as at the date of this development consent.*
- *In accordance with condition 7 in Schedule 6, the preparation and implementation of Extraction Plans may be staged, with each plan covering a defined area of underground workings. In addition, these plans are only required to contain management plans that are relevant to the specific underground workings that are being carried out.*
- *Due to the sensitive and rugged terrain of the Newnes Plateau, the Applicant may propose remote subsidence monitoring techniques.*

Independent Monitoring Panel

11. An Independent Monitoring Panel for the development will be established by the Secretary, and be comprised of suitably qualified experts in the fields of mining subsidence, upland swamps and landforms of the western Blue Mountains. The role of the Panel is to provide timely, accurate and focussed advice to the Applicant and the Secretary regarding the:
    (a) collection of relevant data to predict and monitor the potential subsidence impacts and environmental consequences of second workings;
    (b) achievement of performance measures in Table 1 in respect of Swamps, Land and Biodiversity, including relevant performance indicators, including avoidance of impacts where reasonable and feasible, rather than relying on remediation and offsets;
    (c) preparation, revision and implementation of Extraction Plans, particularly the Swamp Monitoring Program, Biodiversity Management Plan and Land Management Plan components;
    (d) undertaking iterative risk assessment in Extraction Plans, including consideration of all options for avoiding or minimising damage to swamps and all possible adaptive management measures;
    (e) appropriate implementation of the swamp and groundwater monitoring programs and adaptive management regime throughout the life of the project; and
    (f) calculation of swamp offset liability and verification of calculated swamp offset liability under conditions 4 and 5 of Schedule 3.

PAYMENT OF REASONABLE COSTS

12. The Applicant shall pay all reasonable costs incurred by the Department to:
    (a) engage suitably qualified, experienced and independent persons to review the adequacy of any aspect of an Extraction Plan; and
    (b) establish and operate the Independent Monitoring Panel for the development.

SCHEDULE 4
ENVIRONMENTAL PERFORMANCE CONDITIONS

NOISE

Noise Criteria

1. From the date of this consent until 30 June 2016, the Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 3 at any residence on privately-owned land.

Table 3: Noise Criteria dB(A)

Location Receiver Number	***Day***	***Evening***	***Night***	
	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$	$L_{A1\ (1\ min)}$
S1	44	44	46	52
S2	43	43	46	53
S3	35	35	35	60
All other privately-owned land	35	35	35	45

Note: To interpret the locations referred to in Table 3 see the applicable figure in Appendix 4.

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy*. Appendix 5 details the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.

However, these criteria do not apply if the Applicant has a negotiated agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

2. From 1 July 2016, the Applicant shall ensure that the noise generated by the development does not exceed the criteria in Table 4 at any residence on privately-owned land, or have notified, in accordance with Schedule 5, the owners of residences represented by Receiver Numbers S1 and S2 that they are entitled to acoustic treatment of their residence.

Table 4: Noise Criteria dB(A)

Location Receiver Number	***Day***	***Evening***	***Night***	
	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$	$L_{Aeq\ (15\ min)}$	$L_{A1\ (1\ min)}$
S1	44	44	42	52
S2	43	43	43	53
S3	35	35	35	60
All other privately-owned land	35	35	35	45

Note: To interpret the land referred to in Table 4 see the applicable figure in Appendix 4.

Operating Conditions

3. The Applicant shall:
   (a) implement best management practice to minimise the construction, operational and road noise of the development;
   (b) minimise the noise impacts of the development during meteorological conditions under which the noise limits in this consent do not apply (see Appendix 5); and
   (c) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent,
   (d) regularly assess noise monitoring data and modify and/or stop operations on site to ensure compliance with the relevant conditions of this consent,

   to the satisfaction of the Secretary.

Noise Management Plan

4. The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must:
   (a) be prepared in consultation with EPA, and submitted to the Secretary for approval within three months of the date of this consent, unless otherwise agreed by the Secretary;
   (b) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions of this consent;
   (c) describe the proposed noise management system in detail;
   (d) include an investigation into the generation and perception of low frequency noise by the project;
   (e) include a noise monitoring program that:
      - evaluates and reports on:
         - the effectiveness of the on-site noise management system;
         - compliance against the noise criteria in this consent; and
         - compliance against the operating conditions in condition 3 above;
      - defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents; and
      - outlines procedures to manage responses to any complaints or issues raised by the owners of affected residences

AIR QUALITY & GREENHOUSE GAS

Air Quality Criteria

5. The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria in Table 5 at any residence on privately-owned land.

Table 5: Air quality criteria

Pollutant	***Averaging Period***	***Criterion***	
Particulate matter < 10 µm (PM_{10})	Annual	[a,d] 30 µg/m^3	
Particulate matter < 10 µm (PM_{10})	24 hour	[a] 50 µg/m^3	
Total suspended particulates (TSP)	Annual	[a,d] 90 µg/m^3	
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a,d] 4 g/m^2/month

Notes to Table 5:
a Cumulative impact (ie increase in concentrations due to the development plus background concentrations due to all other sources).
b Incremental impact (ie increase in concentrations due to the development alone, with zero allowable exceedances of the criteria over the life of the development.
c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.
e "Reasonable and feasible avoidance measures" includes, but is not limited to, the operational requirements in conditions 6 and 7 to develop and implement an air quality management system that ensures operational responses to the risks of exceedance of the criteria.

Operating Conditions

6. The Applicant shall:
   (a) implement all reasonable and feasible measures to minimise the:
      - odour, fume and dust emissions of the development; and
      - release of greenhouse gas emissions from the development;
   (b) minimise any visible off-site air pollution generated by the development;
   (c) minimise the surface disturbance of the site generated by the development;
   (d) regularly assess the air quality monitoring data, and modify operations on site to ensure compliance with the relevant conditions of this consent;
   (e) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note *d* to Table 5 above),

   to the satisfaction of the Secretary.

Air Quality & Greenhouse Gas Management Plan

7. The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must:
   (a) be prepared in consultation with the EPA, and submitted to the Secretary within 3 months of the date of this consent, unless otherwise agree by the Secretary;
   (b) describe all reasonable and feasible measures which would be implemented to ensure compliance with the air quality criteria and operating conditions of this consent;
   (c) describe the air quality management system in detail;
   (d) include an air quality monitoring program that:
      - uses monitors to evaluate the performance of the development against the air quality criteria in this consent;
      - adequately supports the air quality management system;
      - evaluates and reports on the:
         - the effectiveness of the air quality management system; and
         - compliance with the air quality criteria and operating conditions in condition 6 above; and
      - defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.

Meteorological Monitoring

8. Within 6 months of the date of this consent and for the life of the development, the Applicant shall ensure that there is a meteorological station in the vicinity of the site that:
   (a) complies with the requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline and the *NSW Industrial Noise Policy;* and
   (b) is capable of continuous real-time measurement of atmospheric stability category determined by the sigma theta method in accordance with the *NSW Industrial Noise Policy*.

WATER

Water Supply

9. The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations on site to match its available water supply.

   Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain the necessary water licences for the development.

Water Pollution

10. Unless an EPL authorises otherwise, the Applicant shall comply with section 120 of the POEO Act.

Compensatory Water Supply

11. The Proponent shall provide a compensatory water supply to any landowner of privately owned land whose water supply is adversely and directly impacted (other than an impact that is negligible) as a result of the project, in consultation with DPI-Water, and to the satisfaction of the Secretary.

    The compensatory water supply measures must provide an alternative long-term supply of water that is equivalent to the loss attributed to the project. Equivalent water supply should be provided (at least on an interim basis) within 24 hours of the loss being identified.

    If the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

    If the Proponent is unable to provide an alternative long-term supply of water, then the Proponent shall provide alternative compensation to the satisfaction of the Secretary.

Water Management Performance Measures

12. The Applicant shall comply with the performance measures in Table 6 to the satisfaction of the Secretary.

Table 6: Water Management Performance Measures

Feature	***Performance Measure***
Water Management – General	• Minimise the use of clean water on site • Minimise the use of water from external sources
Construction and	• Design, install and maintain erosion and sediment controls generally in

operation of infrastructure	accordance with the series *Managing Urban Stormwater: Soils and Construction* including *Volume 1, Volume 2A – Installation of Services* and *Volume 2C – Unsealed Roads* • Design, install and maintain the infrastructure within 40 m of watercourses generally in accordance with the *Guidelines for Controlled Activities on Waterfront Land (DPI 2012)*, or its latest version • Design, install and maintain creek crossings generally in accordance with the *Policy and Guidelines for Fish Friendly Waterway Crossings* (NSW Fisheries, 2003) and *Why Do Fish Need To Cross The Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003), or their latest versions
Clean water diversion	• Maximise as far as reasonable and feasible the diversion of clean water around disturbed areas on site, except where clean water is captured for use on site
Sediment dams	• Design, install and maintain the new dams generally in accordance with the series *Managing Urban Stormwater: Soils and Construction – Volume 1* and *Volume 2E – Mines and Quarries*
Mine water storages	• Design, install and maintain mine water storage infrastructure to ensure no unlicensed or uncontrolled discharge of mine water off-site • Minimise discharges to surface waters as far as reasonable and practicable • New storages (mine infrastructure dams, groundwater storage and treatment dams) are suitably treated to comply with a permeability standard of < 1 x 10^{-9} m/s
Mine water discharges	• Discharge all groundwater inflow mine water (except from the Renoun workings) through the Springvale Delta Water Transfer Scheme • Meet limits for salinity of 700 (50th percentile), 900 (90th percentile) and 1,000 (100th percentile) µS/cm EC by 30 June 2017 • Meet a limit for salinity of 500 (90th percentile) µS/cm EC by 30 June 2019 • Eliminate acute and chronic toxicity from LDP009 discharges to aquatic species by 30 June 2017, with acute toxicity defined as >10% effect relative to the control group and chronic toxicity defined as >20% effect relative to the control group
Aquatic and riparian ecosystems	• Maintain or improve baseline channel stability • Develop site-specific water quality objectives in accordance with the ANZECC Guidelines and *Using the ANZECC Guidelines and Water Quality Objectives in NSW* procedures (DECC 2006), or its latest version
Chemical and petroleum storage	• Chemical and hydrocarbon products to be stored in bunded areas in accordance with the relevant Australian Standards

Upper Coxs River Action & Monitoring Plan

13. The Applicant shall prepare an Upper Coxs River Action & Monitoring Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be prepared in consultation with DPI-Water, WaterNSW, EPA and Energy Australia;
    (b) be submitted to the Secretary for approval by 30 June 2016, unless otherwise agreed by the Secretary;
    (c) identify all available water management measures designed to achieve the mine water discharge criteria and associated timeframes required by condition 12 above, including potential transfer of mine water to Mt Piper Power Station and consideration of all licensed discharge points within the Upper Coxs River catchment (including at Springvale Mine, Lidsdale Siding, Western Coal Services and Angus Place Colliery);
    (d) include a financial justification and timetable for achieving reductions in salinity in the Upper Coxs River to 500 (90th percentile) µS/cm EC by June 2019 and identify enforceable mechanisms for the implementation of the proposed measures;
    (e) include a monitoring program which is based on:
        • water quality, macroinvertebrate and ecotoxicology monitoring across the Coxs River Catchment to measure performance against a long term water quality objective of 350 µS/cm EC and the impacts of salinity and toxicity changes on the aquatic ecology and ecosystem health of the Cox River;
        • water quality parameters to be monitored at all existing and proposed licensed discharge points (focusing on those parameters that have been identified as having potential to cause harm to the environment, the frequency of monitoring and concentration limits required by condition 12 above and any EPL that applies to the site);
        • a TARP identifying actions to be implemented should any concentration limits be exceeded (focusing on the extent to which exceedances might affect aquatic ecology); and
    (f) provide for status reports, to be submitted to the EPA and WaterNSW by 30 June 2017 and 30 September 2020, on the impact of the mine water discharges on the aquatic environment.

Water Management Plan

14. The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be prepared in consultation with DPI-Water, WaterNSW, OEH and the EPA, by suitably qualified and experienced person/s whose appointment has been approved by the Secretary;
    (b) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary;
    (c) include detailed performance criteria and describes measures to ensure that the Applicant complies with the Water Management Performance Measures (see Table 6);
    (d) in addition to the standard requirements for management plans (see condition 2 of Schedule 6), this plan must include a:
        (i) Site Water Balance that:
            - includes details of:
                - sources and security of water supply, including contingency planning for future reporting periods;
                - water use and management on site;
                - any off-site water discharges; and
                - reporting procedures, including the preparation of a site water balance for each calendar year; and
            - investigates and implements all reasonable and feasible measures to minimise water use on site;
        (ii) Surface Water Management Plan, that includes:
            - detailed baseline data on water flows and quality in the waterbodies that could be affected by the development, including Wolgan River, Carne Creek, Marrangaroo Creek and Paddys Creek, Coxs River, Lake Lyell, Lake Wallace, Lake Burragorang and associated tributaries;
            - a detailed description of the water management systems on site, including the:
                - clean water diversion systems;
                - erosion and sediment controls; and
                - mine water management systems;
            - detailed objectives and performance criteria, including trigger levels for investigating any potentially adverse impacts associated with the development for:
                - the water management system;
                - downstream surface water quality;
                - downstream flooding impacts; and
                - stream and riparian vegetation health for rivers and creeks and their tributaries potentially impacted by the development;
                - design and management for the emplacement of coal reject materials;
                - restoration of an appropriate drainage network on the rehabilitated areas of the site; and
                - control of any potential water pollution from the rehabilitated areas of the site;
            - a program to monitor and report on:
                - the performance measures listed in Table 6;
                - the effectiveness of the water management system;
                - surface water flows, quality and geomorphology of the watercourses potentially affected by the development within and immediately outside of the site;
                - the seepage/leachate from on-site water storages; and
                - downstream flooding impacts;
            - consideration of any EPA review of licensed discharge points for the development and any further advice from WaterNSW in relation to water discharges;
            - an updated Regional Water Quality Impact Assessment Model having regard for variations in Lake Burragorang (salinity and volume) and spillages from Lake Lyell;
            - reporting procedures for the results of the monitoring program;
            - a program to validate the Regional Water Quality Impact Assessment Model, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions; and
            - a plan to respond to any exceedances of the performance measures, and repair, mitigate and/or offset any adverse surface water impacts of the development; and
        (iii) Groundwater Management Plan, which is consistent with DPI-Water's guideline entitled *Groundwater Monitoring and Modelling Plans – Introduction for prospective mining and petroleum activities*, and includes:
            - detailed baseline data of groundwater levels, yield and quality in the region that could be affected by the development, including licensed privately-owned groundwater bores and a detailed survey/schedule of groundwater dependent ecosystems;
            - groundwater assessment criteria including trigger levels for investigating any potentially adverse groundwater impacts;

- a program to monitor and report on:
  - springs and their discharge quantity and quality;
  - groundwater inflows transferred to the surface water management system;
  - the seepage/leachate from water storages and emplacements;
  - impacts of the development on:
    - regional and local (including alluvial) aquifers;
    - groundwater supply of potentially affected landowners; and
    - groundwater dependent ecosystems (including rules for the management of groundwater level impacts to protect GDEs), and riparian vegetation;
- a program to validate the groundwater model for the development, including an independent review of the model every 3 years, and comparison of monitoring results with modelled predictions; and
- a plan to respond to any exceedances of the performance measures.

BIODIVERSITY

Biodiversity Offset Strategy

15. By the end of December 2016, the Applicant shall update the *Western Projects Biodiversity Strategy* (RPS Australia East Pty Ltd, 1 October 2014) to provide a suitable offset for:
    (a) the clearing of 4 hectares of native vegetation associated with the construction of Bore 8; and
    (b) the clearing of 8.94 hectares of native vegetation associated with surface infrastructure for the development;
    to the satisfaction of OEH and the Secretary.

    These offsets must be developed in accordance with the *NSW Biodiversity Offset Policy for Major Projects*, or its current version.

Long Term Security of Offset

16. By the end of December 2016, unless the Secretary agrees otherwise, the Applicant shall make suitable arrangements to protect the biodiversity offset areas referred to in condition 15(a)&(b) above in perpetuity, to the satisfaction of the Secretary.

Stygofauna Assessment

17. The Applicant shall prepare and implement a Regional Stygofauna Monitoring and Assessment Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be prepared in consultation with OEH, and be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary;
    (b) provide for ongoing monitoring for stygofauna in at least one borehole in each aquifer where stygofauna are known to occur;
    (c) monitor for the presence of stygofauna in the deep aquifer system (AQ1 to AQ3);
    (d) collate existing available information on groundwater bores, water quality and characteristics in Centennial Coal's mines throughout the Western Coalfield;
    (e) use this information to form a prioritisation list of likely areas for GDEs to occur;
    (f) use the prioritisation protocol to identify bores that can be sampled to provide data on the presence and significance of fauna both within and outside mine areas;
    (g) identify any stygofauna found to a minimum of Family level;
    (h) advise on the significance of the findings; and
    (i) examine relationship between bore characteristics and presence of stygofauna

Biodiversity Management Plan

18. The Applicant shall prepare and implement a Biodiversity Management Plan for the development to the satisfaction of the Secretary. This plan must:
    (a) be prepared in consultation with OEH, Forestry Corporation of NSW and DoE and be submitted to the Secretary for approval by the end of December 2016, unless otherwise agreed by the Secretary;
    (b) establish baseline data for existing remnant vegetation and habitat on site;
    (c) describe the short, medium, and long-term measures to be implemented to manage remnant vegetation and habitat on the site, including upland swamps;
    (d) describe an ongoing monitoring program and TARP for upland swamps and EECs with a particular focus on subsidence-related changes to surface and ground water drainage;
    (e) include a detailed description of the measures that would be implemented to:
        - minimise impacts to fauna on site, including undertaking pre-clearance surveys;
        - control weeds and feral pests (including goats, rabbits, foxes, cats and pigs);
        - control erosion;

- control access; and
- manage bushfire risk;

(f) include a program to monitor and report on the effectiveness of these measures and progress against detailed performance and completion criteria; and

(g) include details of who would be responsible for monitoring, reviewing, and implementing the plan.

TRANSPORT

Monitoring of Coal Transport

19. The Applicant shall monitor and report on:
    (a) the amount of coal transported from the site by conveyor, private haul roads and, if used, public roads (on a daily basis);
    (b) make these records publicly available on its website at the end of each calendar quarter.

    to the satisfaction of the Secretary.

Road Transport Restrictions

20. The Applicant shall ensure that any truck leaving the site:
    (a) does not carry dirt or mud onto public roads; and
    (b) is free of material that may fall on the road and create a road safety hazard or public nuisance,

    to the satisfaction of the Secretary.

Mine Access Road Intersection Upgrade

21. Unless the Secretary agrees otherwise, when peak two-way traffic volume on the Castlereagh Highway at its intersection with the Mine Access Road exceeds 400 vehicles per hour, the Applicant shall upgrade that intersection to include a Channelised Right Turn in accordance with Austroads standards, to the satisfaction of RMS.

    Note: Circumstances in which the Secretary may agree to vary the requirement to upgrade the intersection include limited remaining life for mining operations under this consent.

Forestry Roads

22. The Applicant shall maintain forestry access roads when being used for construction and/or exploration activities, to the satisfaction of the Forestry Corporation of NSW.

HERITAGE

Protection of Aboriginal Heritage Items

23. Unless otherwise authorised under the *National Parks and Wildlife Act 1974*, the Applicant shall ensure that the development does not cause any direct or indirect impact on identified Aboriginal heritage items located outside approved disturbance areas on the site.

    Note: Identified Aboriginal heritage items are shown on the figure in Appendix 6.

Heritage Management Plan

24. The Applicant shall prepare and implement a Heritage Management Plan for the development to the satisfaction of the Secretary. This Plan must:
    (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
    (b) be prepared in consultation with OEH, Council and local Aboriginal stakeholders (in relation to management of Aboriginal heritage values);
    (c) be submitted to the Secretary for approval within 6 months of the date of this consent, unless the Secretary agrees otherwise;
    (d) include a description of the measures that would be implemented for:
        - managing the discovery of human remains or previously unidentified heritage items, including historic heritage items, on site;
        - ensuring any workers on site receive suitable heritage inductions prior to carrying out any development on site, and that suitable records are kept of these inductions;
    (e) include the following for the management of Aboriginal heritage:
        - a description of the measures that would be implemented for:
            - protecting, monitoring and/or managing the heritage items identified in Table 1 (including any proposed archaeological investigations and/or salvage measures);
            - managing the discovery of previously unidentified Aboriginal items on site;

- conserving the sites outside approved disturbance areas (see Appendix 6), including measures that would be implemented to secure, analyse and record any sites at risk of subsidence impacts;
- maintaining and managing reasonable access for Aboriginal stakeholders to heritage items on site;
- ongoing consultation with the Aboriginal stakeholders in the conservation and management of Aboriginal cultural heritage on site; and

(f) include the following for the management of non-Aboriginal heritage items:

- a description of the measures that would be implemented for:
  - protecting, monitoring and managing the heritage items identified in Appendix 6; and
  - managing the discovery of previously unidentified cultural heritage items on site.

Note: This plan can be incorporated with any Aboriginal Cultural Heritage Management Plan for Centennial Coal's other mines and mine infrastructure in the Lithgow Local Government Area.

VISUAL

Visual and Lighting

25. The Applicant shall:
    (a) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development;
    (b) ensure that all external lighting associated with the development complies with *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting*, or its latest version;
    (c) ensure that the visual appearance of all buildings, structures, facilities or works (including paint colours and specifications) is aimed at blending as far as possible with the surrounding landscape,

    to the satisfaction of the Secretary.

BUSHFIRE MANAGEMENT

26. The Applicant shall:

    (a) ensure that the development is suitably equipped to respond to any fires on site; and
    (b) assist the Rural Fire Service and emergency services as much as possible if there is a fire in the surrounding area.

WASTE

27. The Applicant shall:
    (a) implement all reasonable and feasible measures to minimise the waste (including coal reject) generated by the development;
    (b) ensure that the waste generated by the development is appropriately stored, handled and disposed of; and
    (c) monitor and report on effectiveness of the waste minimisation and management measures in the Annual Review,

    to the satisfaction of the Secretary.

EXPLORATION ACTIVITIES & SURFACE INFRASTRUCTURE

Exploration Activities and Minor Surface Infrastructure Management Plan

28. The Applicant shall prepare and implement an Exploration Activities and Minor Surface Infrastructure Management Plan for the development to the satisfaction of the Secretary. This Plan must:
    (a) be prepared by suitably qualified and experienced person/s whose appointment has been endorsed by the Secretary;
    (b) be prepared in consultation with DRE and the Forestry Commission of NSW;
    (c) be submitted to the Secretary for approval within 6 months of the date of this consent or prior to carrying out exploration activities causing surface disturbance or constructing surface infrastructure (whichever is the earlier), unless the Secretary agrees otherwise;
    (d) include a description of the measures that would be implemented for:
        - managing exploration activities;
        - managing construction and operation of minor surface infrastructure (including minewater drainage bores, service boreholes and infrastructure corridors) and associated access tracks;
        - consulting with and compensating affected landowners;
        - avoiding threatened species, populations or their habitats and EECs;
        - minimising clearance and disturbance of native vegetation;
        - minimising erosion and sedimentation;
        - achieving applicable standards and goals; and
        - rehabilitating disturbed areas.

Note: This condition does not apply to the construction of approved surface infrastructure in the Springvale Pit Top area.

REHABILITATION

Rehabilitation Objectives

30. The Applicant shall rehabilitate the site to the satisfaction of DRE. This rehabilitation must be generally consistent with the proposed rehabilitation strategy described in the EIS, and comply with the objectives in Table 7.

Table 7: Rehabilitation Objectives

Feature	***Objective***
Mine site (as a whole)	• Safe, stable & non-polluting
Rehabilitation materials	• Materials from areas disturbed under this consent (including topsoils, substrates and seeds) are to be recovered, managed and used as rehabilitation resources
Surface infrastructure	• To be decommissioned and removed unless DRE agrees otherwise • All surface infrastructure sites are to be revegetated with suitable local native plant species to a landform consistent with the surrounding environment
Portals and vent shafts	• To be decommissioned and made safe and stable • Retain habitat for threatened species (eg bats), where practicable
Revegetated final landforms	• Stable and sustain the intended land use • Consistent with surrounding topography to minimise visual impacts • Incorporate relief patterns and design principles consistent with natural drainage
Native flora and fauna	• Flora species used in rehabilitation selected to re-establish and complement local and regional biodiversity • Rehabilitated areas contribute to achieving self-sustaining biodiversity habitats
All watercourses subject to mine-water discharges and/or subsidence impacts	• Hydraulically and geomorphologically stable, with aquatic ecology and riparian vegetation that is the same, or better than prior to grant of this consent
Cliffs, minor cliffs and steep slopes	• No additional risk to public safety compared to prior to mining
Other land affected by the development	• Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems comprised of local native plant species (unless DRE agrees otherwise)
Built features damaged by mining operations	• Repair to pre-mining condition or equivalent unless the: - owner agrees otherwise; or - damage is fully restored, repaired or compensated for under the *Mine Subsidence Compensation Act 1961*
Community	• Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure

Notes:

- *These rehabilitation objectives apply to all subsidence impacts and environmental consequences caused by mining taking place after the date of this consent; and to all surface infrastructure parts of the development, whether constructed prior to or following the date of this consent.*

Progressive Rehabilitation

31. The Applicant shall rehabilitate the site progressively, that is, as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time.

Rehabilitation Management Plan

32. The Applicant shall prepare and implement a Rehabilitation Management Plan to the satisfaction of DRE. This plan must:

(a) be prepared in consultation with the Department, DPI-Water, OEH, Council, WaterNSW and the CCC;
(b) be submitted to DRE for approval within 6 months of the date of this consent, unless DRE agrees otherwise;
(c) be prepared in accordance with any relevant DRE guideline;
(d) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);

(e) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform and final land use;
(f) include interim rehabilitation where necessary to minimise the area exposed for dust generation;
(g) include a program to monitor and report on the effectiveness of the rehabilitation measures and progress against the detailed performance and completion criteria; and
(h) build to the maximum extent practicable on the other management plans required under this consent.

Note: The Biodiversity Management Plan and Rehabilitation Management Plan require substantial integration to achieve biodiversity objectives for the rehabilitated mine site.

SCHEDULE 5

ADDITIONAL PROCEDURES

NOTIFICATION OF LANDOWNERS

1. As soon as practicable after obtaining monitoring results showing:
   (a) an exceedance of any relevant criteria in Schedule 4, the Applicant shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to these landowners until the development is again complying with the relevant criteria; and
   (b) an exceedance of any relevant air quality criteria in Schedule 4, the Applicant shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).

INDEPENDENT REVIEW

2. If an owner of privately-owned land considers the development to be exceeding the relevant criteria in Schedule 4, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land.

   If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Applicant shall:
   (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to:
      - consult with the landowner to determine his/her concerns;
      - conduct monitoring to determine whether the development is complying with the relevant criteria in Schedule 4;
      - if the development is not complying with these criteria then identify the measures that could be implemented to ensure compliance with the relevant criteria; and
   (b) give the Secretary and landowner a copy of the independent review.

SCHEDULE 6
ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

1. The Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:
   (a) be submitted to the Secretary for approval within 6 months of the date of this consent, unless the Secretary agrees otherwise;
   (b) provide the strategic framework for the environmental management of the development;
   (c) identify the statutory approvals that apply to the development;
   (d) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;
   (e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the development;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the development;
      - respond to any non-compliance;
      - respond to emergencies; and
   (f) include:
      - copies of any strategies, plans and programs approved under the conditions of this consent; and
      - a clear plan depicting all the monitoring required to be carried out under the conditions of this consent.

Management Plan Requirements

2. The Applicant shall ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:
   (a) detailed baseline data;
   (b) a description of:
      - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
      - any relevant limits or performance measures/criteria;
      - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;
   (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
   (d) a program to monitor and report on the:
      - impacts and environmental performance of the development;
      - effectiveness of any management measures (see c above);
   (e) a contingency plan to manage any unpredicted impacts and their consequences;
   (f) a program to investigate and implement ways to improve the environmental performance of the development over time;
   (g) a protocol for managing and reporting any:
      - incidents;
      - complaints;
      - non-compliances with statutory requirements; and
      - exceedances of the impact assessment criteria and/or performance measures; and
   (h) a protocol for periodic review of the plan.

   Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

Application of Existing Management Plans

3. Prior to the approval of management plans under this consent, the Applicant shall manage development undertaken pursuant to this consent in accordance with any equivalent or similar management plan/s required under consent DA 11/92.

Relationships between Management Plans

4. The Upper Coxs River Action & Monitoring, Water, Biodiversity and Heritage Management Plans required by conditions 13, 14, 18 and 24 of Schedule 4, respectively, are to be prepared in respect of all parts of the development that are not covered by an Extraction Plan approved under condition 10 of Schedule 3. In particular, those management plans should address all areas subject to existing or proposed surface disturbance associated with the development.

Consolidation of Strategies, Plans or Programs

5. With the approval of the Secretary, the Applicant may incorporate any strategies, plans or programs required by this consent (except those required under condition 10 of Schedule 3) with the strategies, plans and programs required for Centennial Coal's mining operations in the Lithgow Local Government Area.

Revision of Strategies, Plans and Programs

6. Within 3 months of:
   (a) the submission of an incident report under condition 10 below;
   (b) the submission of an annual review under condition 12 below;
   (c) the submission of an audit under condition 13 below; or
   (d) any modification to the conditions of this consent (unless the conditions require otherwise),

   the Applicant shall review the strategies, plans, and programs required under this consent, to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Secretary.

   Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

Updating & Staging Strategies, Plans or Programs

7. To ensure that strategies, plans and programs required under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.

   With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent.

   Notes:
   - *While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times.*
   - *If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program.*

Adaptive Management

8. The Applicant shall assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in Schedules 3 and 4. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation.

   Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity:
   (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
   (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
   (c) implement remediation measures as directed by the Secretary,

   to the satisfaction of the Secretary.

Community Consultative Committee

9. The Applicant shall operate a Community Consultative Committee (CCC) for the development to the satisfaction of the Secretary. This CCC must be operated in accordance with the *Guidelines for Establishing and Operating Community Consultative Committees for Mining Developments* (Department of Planning, 2007), or its latest version or replacement.

   Notes:
   - *The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent;*
   - *In accordance with the guideline, the Committee should be comprised of an independent chair and appropriate representation from the Applicant, Council, recognised environmental groups and the local community;*
   - *The requirement for this CCC may be fulfilled by the operation of a regional CCC for Centennial Coal's mines and mine infrastructure in the Lithgow Local Government Area, and*
   - *The Department will accept the continued representation from existing CCC members.*

REPORTING

Incident Reporting

10. The Applicant shall immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

Regular Reporting

11. The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent, and to the satisfaction of the Secretary.

ANNUAL REVIEW

12. By the end of March each year, unless the Secretary agrees otherwise, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must:
    (a) describe the development (including any rehabilitation) that was carried out in the past calendar year, and the development that is proposed to be carried out over the current calendar year;
    (b) include a comprehensive review of the monitoring results and complaints records of the development over the past calendar year, which includes a comparison of these results against the:
        - the relevant statutory requirements, limits or performance measures/criteria;
        - the monitoring results of previous years; and
        - the relevant predictions in the EIS;
    (c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance;
    (d) identify any trends in the monitoring data over the life of the development;
    (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and
    (f) describe what measures will be implemented over the next year to improve the environmental performance of the development.

INDEPENDENT ENVIRONMENTAL AUDIT

Independent Environmental Review

13. Prior to 30 June 2016, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:
    (a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
    (b) include consultation with the relevant agencies;
    (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any other relevant approval, relevant EPL/s or Mining Lease/s (including any assessment, plan or program required under these approvals);
    (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; and
    (e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under these approvals.

    Note: This audit team must be led by a suitably qualified auditor and include experts in any fields specified by the Secretary.

14. Within 6 weeks of the completion of this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report.

ACCESS TO INFORMATION

15. Within 3 months from the date of this consent, the Applicant shall:
    (a) make copies of the following publicly available on its website:
        - the EIS;
        - all current statutory approvals for the development;
        - approved strategies, plans and programs required under the conditions of this consent;
        - a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
        - a complaints register, which is to be updated on a monthly basis;
        - minutes of CCC meetings;

- the last five annual reviews;
- information provided to and recommendations made by the Independent Monitoring Panel;
- any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit;
- any other matter required by the Secretary; and

(b) keep this information up-to-date,

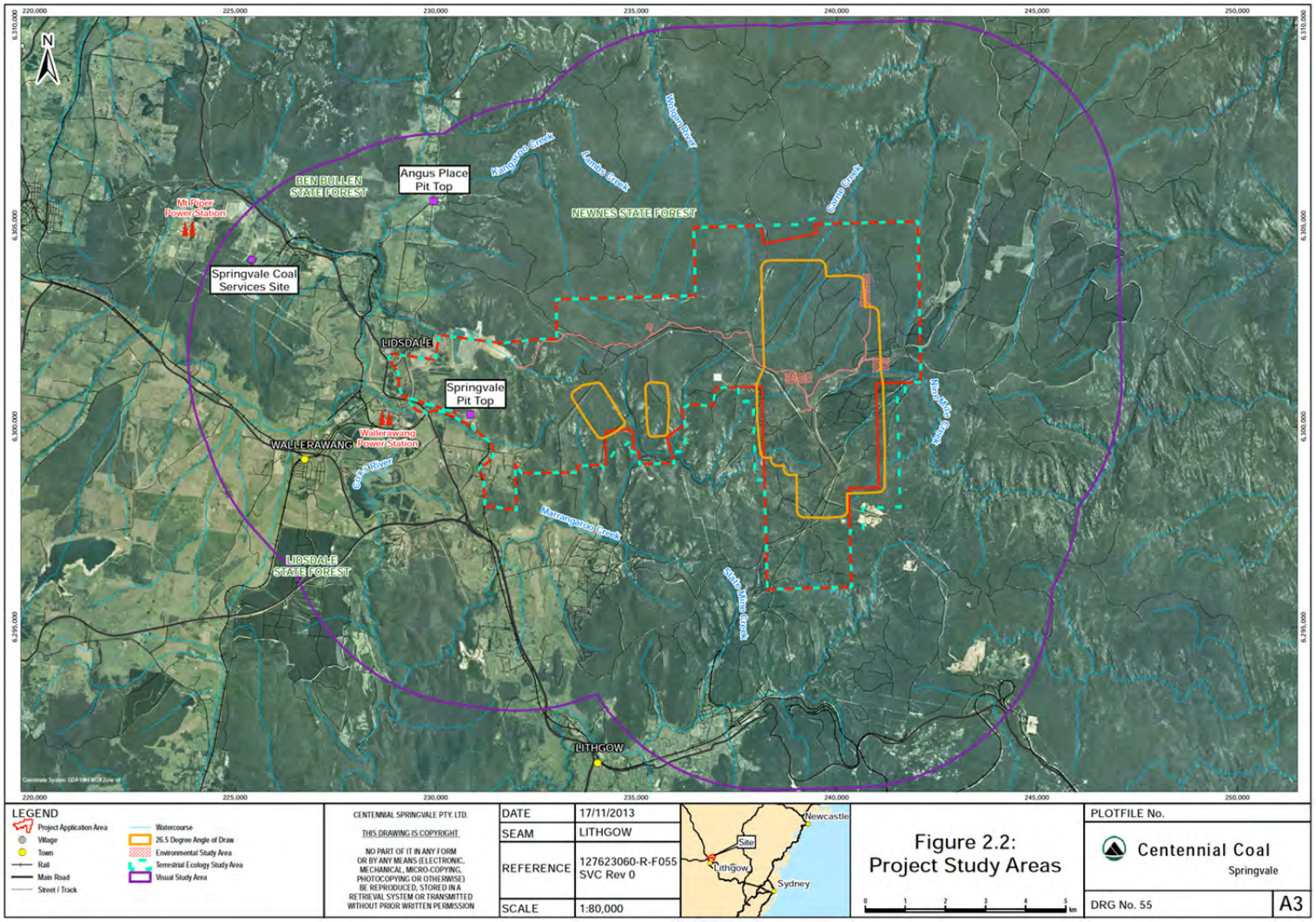
to the satisfaction of the Secretary.

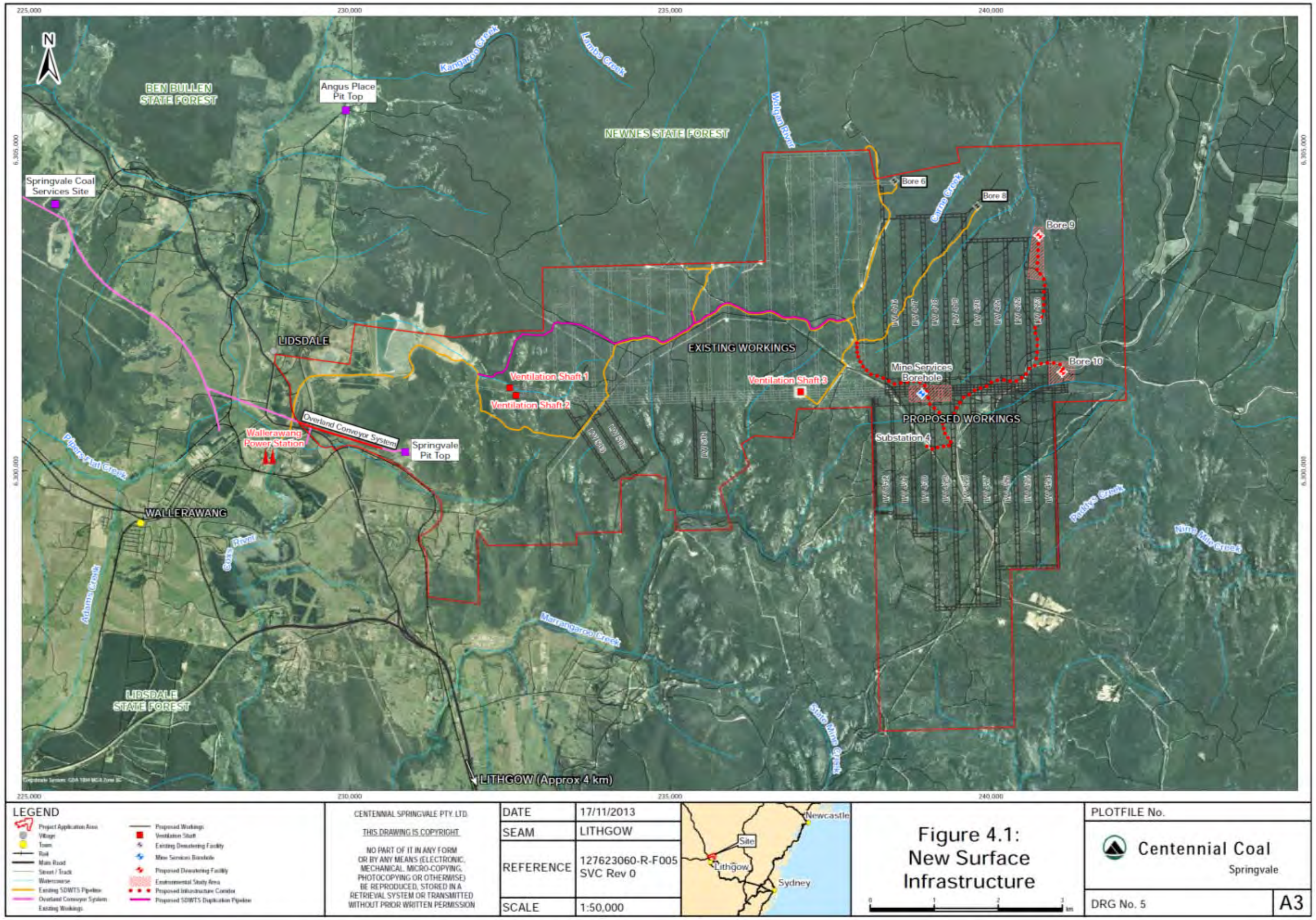
APPENDIX 1: SCHEDULE OF LAND

Land_Status	Created_date	Last_Update	Lot__DP
FREEHOLD	19930804	20041126	9//16283
FREEHOLD	19930804	20041126	10//16283
FREEHOLD	19930804	20041126	26//16283
FREEHOLD	19930804	20041126	23//16283
FREEHOLD	19930804	20041126	B//417872
FREEHOLD	19930804	20041126	14//16283
FREEHOLD	19930804	20041126	1//551636
FREEHOLD	19930804	20041126	19//16283
FREEHOLD	19930804	20041126	2//607402
FREEHOLD	19930804	20041126	28//16283
FREEHOLD	19930804	20041126	30//16283
FREEHOLD	19930804	20041126	1//421721
FREEHOLD	20010504	20041126	2//1018958
FREEHOLD	19930804	20041126	18//16283
FREEHOLD	19930804	20041126	8//16283
FREEHOLD	20000308	20041126	101//829410
FREEHOLD	19930804	20041126	1//607402
FREEHOLD	19960418	20041126	1//825124
FREEHOLD	19940418	20041126	3//829137
FREEHOLD	19930804	20041126	16//16283
FREEHOLD	19930804	20041126	24//16283
FREEHOLD	19930804	20041126	20//16283
FREEHOLD	19930804	20041126	29//16283
FREEHOLD	19930804	20041126	25//16283
FREEHOLD	19930804	20041126	3//607402
FREEHOLD	19930804	20041126	A//417872
FREEHOLD	19930804	20041126	12//16283
FREEHOLD	19930804	20041126	15//16283
FREEHOLD	19940418	20041126	2//829137
FREEHOLD	19930804	20041126	11//16283
FREEHOLD	19930804	20041126	C//417872
FREEHOLD	19930804	20041126	7//16283
FREEHOLD	19930804	20041126	17//16283
FREEHOLD	19930804	20041126	13//16283
FREEHOLD	19930804	20041126	27//16283
FREEHOLD	20060925	20060925	23//1101696
FREEHOLD	20060925	20060925	21//1101696
FREEHOLD	20060925	20060925	22//1101696
FREEHOLD	20081023	20081023	228//1131953
FREEHOLD	20090712	20090715	10//1139978
FREEHOLD	20090712	20090715	11//1139978
FREEHOLD	20010504	20041126	1//1018958
FREEHOLD	19940418	20041126	1//175470
FREEHOLD	19930804	20041126	4//805024
FREEHOLD	19930804	20041126	33//751655
FREEHOLD	19930804	20041126	32//751655
FREEHOLD	19930804	20041126	39//751655
FREEHOLD	19930804	20090407	72//751651
FREEHOLD	19930804	20090407	302//751651

FREEHOLD	19930804	20090407	68//751651
FREEHOLD	19930804	20090411	407//751651
CROWN	19930804	20090906	195//751651
FREEHOLD	19951010	20111223	1//787242
FREEHOLD	19990823	20111223	67//1004747
FREEHOLD	19930804	20041126	37//751655
FREEHOLD	19940418	20041126	5//829137
FREEHOLD	19930804	20041126	30//751655
FREEHOLD	19970520	20041126	21//868170
FREEHOLD	19960222	20041126	38//751655
FREEHOLD	19970415	20041126	2//226790
FREEHOLD	19970415	20041126	3//226790
FREEHOLD	19930804	20041126	3//805024
FREEHOLD	19970415	20041126	1//226790
FREEHOLD	19930804	20041126	26//751655
FREEHOLD	19930804	20041126	31//751655
FREEHOLD	19930804	20041126	99//751655
FREEHOLD	19950215	20041126	2//835651
FREEHOLD	19970520	20041126	22//868170
FREEHOLD	19930804	20090411	73//751651
CROWN	19930804	20090829	129//751651
CROWN	20100322	20100617	7318//1149348
FREEHOLD	19930804	20100903	125//751651
STATE FORESTS OF NSW	19930804	20110313	201//751655
STATE FORESTS OF NSW	19930804	20110313	84//751655
FREEHOLD	19940415	20041126	1//576152
FREEHOLD	19930804	20041126	1//113040
FREEHOLD	19930804	20041126	50//751655
FREEHOLD	19930804	20041126	47//751655
STATE FORESTS OF NSW	19930804	20110313	35//751634
STATE FORESTS OF NSW	19930804	20110313	203//751655
STATE FORESTS OF NSW	19930804	20110313	52//751655
STATE FORESTS OF NSW	19930804	20110313	53//751655
STATE FORESTS OF NSW	19940810	20110313	51//751655
STATE FORESTS OF NSW	19930804	20110313	202//751655
STATE FORESTS OF NSW	19930804	20110313	54//751655

APPENDIX 2: DEVELOPMENT LAYOUT PLAN




BEN BULLEN STATE FOREST
Angus Place Pit Top
NEWNES STATE FOREST
Springvale Coal Services Site
Kangaroo Creek
Lambs Creek
Wolgan River
Bore 6
Bore 8
Bore 9
Bore 10
Carne Creek
LIDSDALE
EXISTING WORKINGS
Ventilation Shaft 1
Ventilation Shaft 2
Ventilation Shaft 3
Mine Services Borehole
PROPOSED WORKINGS
Substation 4
Wallerawang Power Station
Overland Conveyor System
Springvale Pit Top
Pipers Flat Creek
WALLERAWANG
Coxs River
Farmers Creek
Marrangaroo Creek
Paddys Creek
Nine Mile Creek
State Mine Creek
LIDSDALE STATE FOREST
LITHGOW (Approx 4 km)
LEGEND
CENTENNIAL SPRINGVALE PTY. LTD.
THIS DRAWING IS COPYRIGHT
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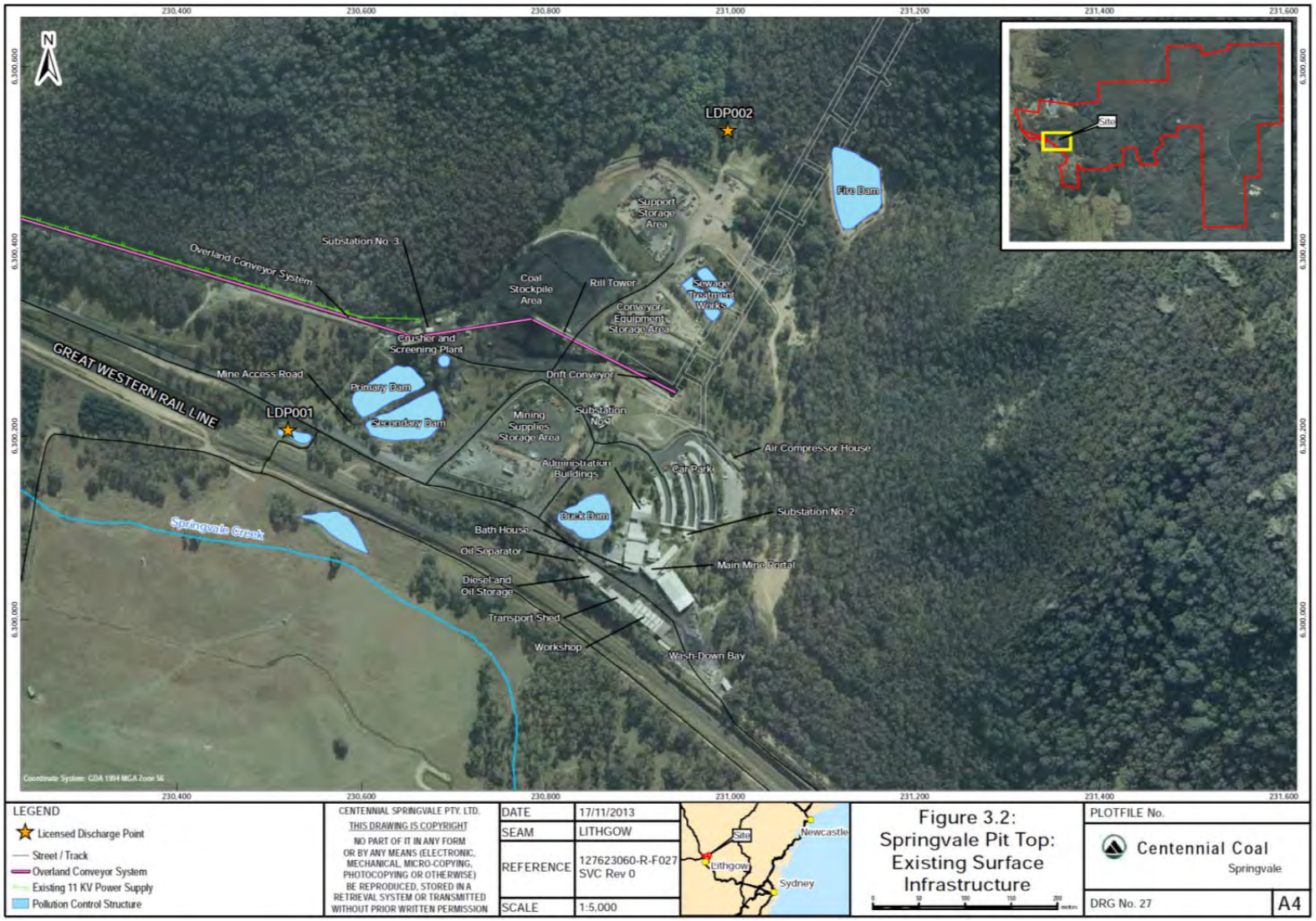
DATE 17/11/2013
SEAM LITHGOW
REFERENCE 127623060-R-F005 SVC Rev 0
SCALE 1:50,000
Newcastle
Site
Lithgow
Sydney
Figure 4.1: New Surface Infrastructure
PLOTFILE No.
Centennial Coal
Springvale
DRG No. 5
A3



Pit Top Surface Facility

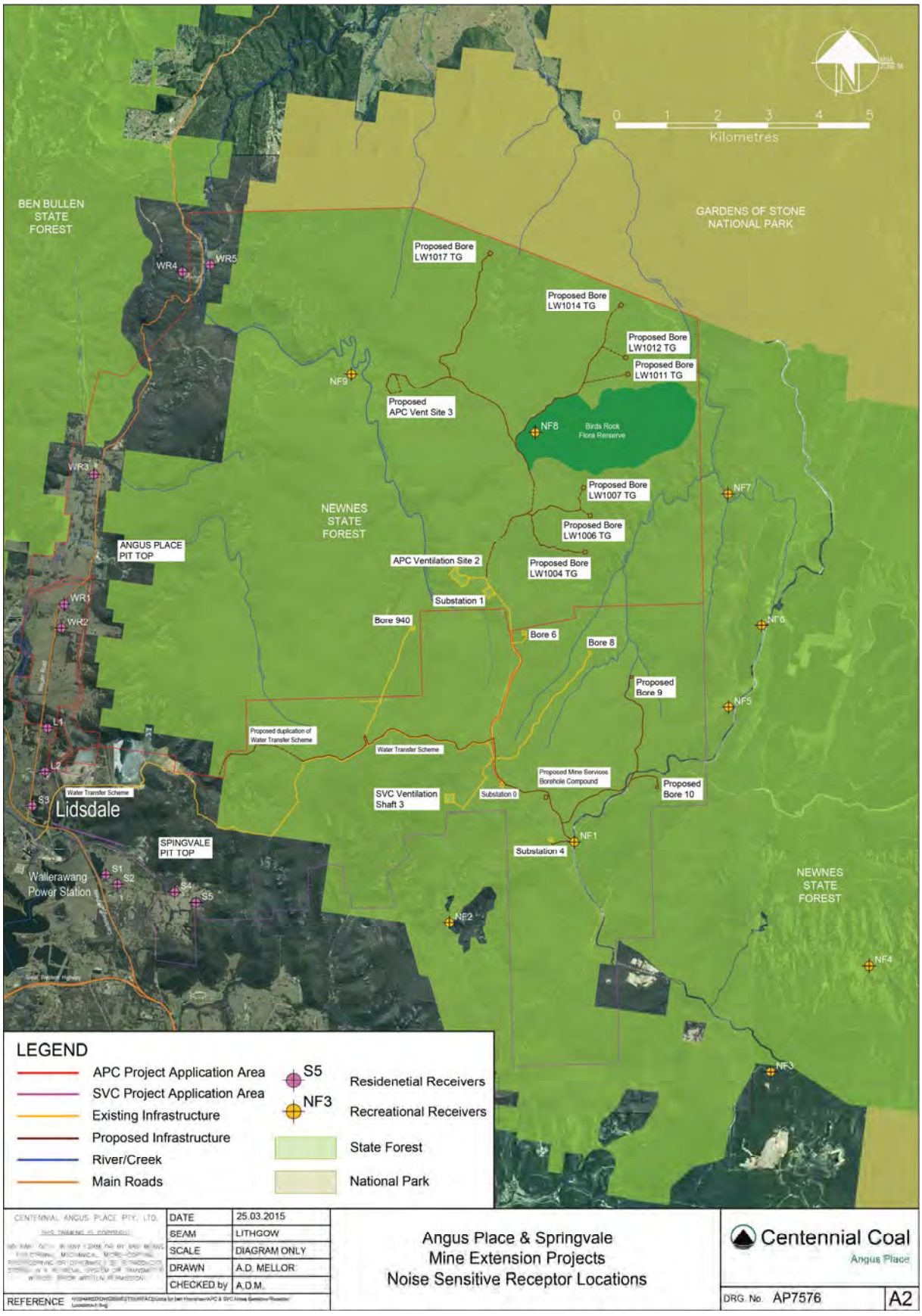
APPENDIX 3: STATEMENT OF COMMITMENTS

Desired Outcome	Action
1. General	
All operations are undertaken in a manner that will minimise the environmental impacts associated with the Project.	Operations will be undertaken in accordance with the description provided in this EIS. As the required exploration drill holes are determined, Springvale Coal will undertake a series of due diligence assessments to consider key impacts as relevant. The general approach of the due diligence assessments will be to conduct site investigations to ensure that significant impacts are avoided. Springvale Coal will develop Trigger Action Response Plans as part of the development of the certain management plans which will detail the response to be taken if mining induced impacts occur.
2. Development Phase	
All construction operations are appropriately undertaken to minimise potential impacts to the environment.	Prior to construction of surface facilities on the Newnes Plateau, a Construction Environmental Management Plan will be developed in consultation with the Forestry Corporation of NSW. This plan will include noise management in accordance with the Project Specific Noise Criteria detailed in Section 10.6.3 of the EIS. A copy of the Construction Environmental Management Plan will be provided to Lithgow City Council for their consideration.
3. Exploration	
All exploration activities are appropriately undertaken to minimise potential impacts to the environment.	Proposed exploration activities will be notified to DRE and where applicable to the Forestry Corporation of NSW. All required approvals will be obtained prior to the commencement of any exploration activities. Copies of any due diligence assessments will also be provided to DRE and Forestry Corporation (where applicable).
4. Hours of Operation	
All operations are undertaken within the approved operating hours.	Operations will be undertaken 24 hours a day 7 days a week, 52 weeks per year.
5. Surface Water, Groundwater, Geomorphology and Aquatic	
All surface water groundwater and aquatic impacts are minimised to the greatest extent possible.	Within six (6) months of development consent, a Water Management Plan will be developed that includes the monitoring requirements identified in Section 10.2.5 of the EIS. The Water Management Plan will be developed in consultation with the NSW Office of Water. Groundwater models will be updated every 6 months and a review will be included in the Annual Review. Copies of the Annual Review will continue to be provided to NOW. Throughout the life of the Project, stygofauna will be monitored using standing water levels within one borehole in each aquifer where stygofauna are known to occur (AQ4 to AQ6). Where available, monitoring of the deep aquifer system, AQ 1 to AQ3 will be undertaken to establish presence of stygofauna. Centennial Coal will undertake a regional stygofauna assessment which will: • Collate existing available information on groundwater bores, water quality and characteristics in Centennial Coal's area of operations throughout the

Desired Outcome	Action
	Western Coalfield. • Use this information to form a prioritisation list of likely areas for GDE to occur. • Use the prioritisation protocol to identify bores that can be sampled to provide data on the presence and significance of fauna both within and outside mine areas. • Identify any stygofauna found to a minimum of Family level. • Advise on the significance of the findings. • Examine relationship between bore characteristics and presence of stygofauna. Springvale Coal have commenced the process to secure the required surface water licences for the Project. Springvale Coal will commit to notify NSW Fisheries if any monitoring detects significant impacts to third order drainage lines as a result of subsidence. Springvale Coal will undertake further investigations into the toxicity of LDP009 water discharge to identify the cause of the toxicity. Springvale Coal will develop and implement a management program that includes: a) Water quality, macroinvertebrate and ecotoxicology monitoring across the Coxs River Catchment to measure the performance against the long term water quality objective and the impacts of change on the aquatic ecology and ecosystem health of the Coxs River. b) The water quality parameters to be monitored at all proposed Licenced Discharge Points, the frequency of monitoring and concentration limits focussed on those that have been identified as having potential to cause harm to the environment. c) A Trigger Action Response Plan should concentration limits be exceeded that focusses on the extent to which an exceedance of quality limits might affect aquatic ecology of the Coxs River catchment.
6. Terrestrial and Aquatic Ecology	
	Within two (2) years of development consent, a Biodiversity Management Plan will be developed and implemented. The Plan will be developed in consultation with DPE, OEH, DoE, Forestry Corporation of NSW, NPWS and will include the outcomes of the Research Strategy.
7. Aboriginal Heritage Management	
Ensure that identified and unidentified Aboriginal Sites are appropriately managed.	Aboriginal Heritage will be monitored and managed in accordance with Table 8.2 of this EIS. Within 6 months of the date of approval, the Cultural Heritage Management Plan will be updated.
8. Traffic and Transport	
Project-related impacts on the road network are limited.	Prior to the commencement of construction activities, a Construction Traffic Management Plan will be developed and implemented. The Plan will be developed in consultation with Lithgow City Council and Forestry Corporation of NSW.
9. Noise and Vibration	
All noise impacts are minimised to the greatest	The existing Noise Management Plan will be updated to include the noise criteria for the Project and a noise monitoring programme for the sensitive receptors identified in Figure 10.25 of the EIS. The noise monitoring programme will include continuous,

Desired Outcome	Action
extent possible.	unattended noise monitoring and operator attended quarterly noise monitoring.
10. Air Quality and Greenhouse Gas	
All air quality impacts are minimised to the greatest extent possible.	Within six (6) months of development consent, the Air Quality Management Plan will be updated to include the mitigation measures identified in Section 10.7 of the EIS. An additional TEOM will be installed as part of a regional air quality monitoring programme that is currently being developed by Centennial Coal.
11. Soils and Land Capability	
All soil and land impacts are minimised to the greatest extent possible	Soil stripping will be undertaken in accordance with the soil stripping depths in the Soils and Land Capability Report appended to this EIS. The following topsoil management measures will be applied: • topsoil will be stripped to depths in Table 10.44 of the EIS only when moist and stockpiled a maximum of 3 m high; • topsoil stripping will immediately precede construction to minimise the time that bare subsoils are exposed; • ameliorants for each soil type will be applied as per the Soils and Land Capability Report; • topsoil that is to be stockpiled for longer than 3 months with be stabilised with an annual cover crop; and • prior to re-spreading stockpiled topsoil, weeds will be removed.
12. Life of Mine and Rehabilitation	
Rehabilitation of the Springvale Coal Services Site is conducted in accordance with Industry Standards.	Progressive rehabilitation will be undertaken in accordance with the Rehabilitation Strategy appended to this EIS. Within 6 months of approval, the Mining Operations Plan will be updated to include the rehabilitation requirements outlined in the Rehabilitation Strategy of this EIS.
13. Hazards	
Safety of the underground personnel from the underground strata will be maintained.	The existing Hazard Plan, being part of the Strata Failure Management System, will be maintained and updated on an ongoing basis as required, in accordance with the Clause 28b (ii) of the *Coal Mine Health and Safety Regulation 2006*.
14. Community Contributions	
Meet Centennial's corporate social responsibility objectives	Centennial Coal will contribute three cents per saleable tonne of coal (exclusive of GST) produced from the Springvale, Angus Place and Airly Mines, as a 'Community Contribution' to Lithgow City Council. This Community Contribution will be capped at $200,000 annually and the funds allocated to long-term community activities and projects agreed by both parties and reported publicly. Commencement of the 'Community Contribution' will be from the date the first of the above three mines is granted consent.

APPENDIX 4: NOISE RECEIVER LOCATION PLAN



APPENDIX 5
NOISE COMPLIANCE ASSESSMENT

Applicable Meteorological Conditions

1. The noise criteria in Tables 3 and 4 in Schedule 4 are to apply to a receiver under all meteorological conditions except under:
   (a) wind speeds greater than 3 m/s at 10 m above ground level; or
   (b) stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10 m above ground level; or
   (c) stability category G temperature inversion conditions.

Determination of Meteorological Conditions

2. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 8 of Schedule 4.

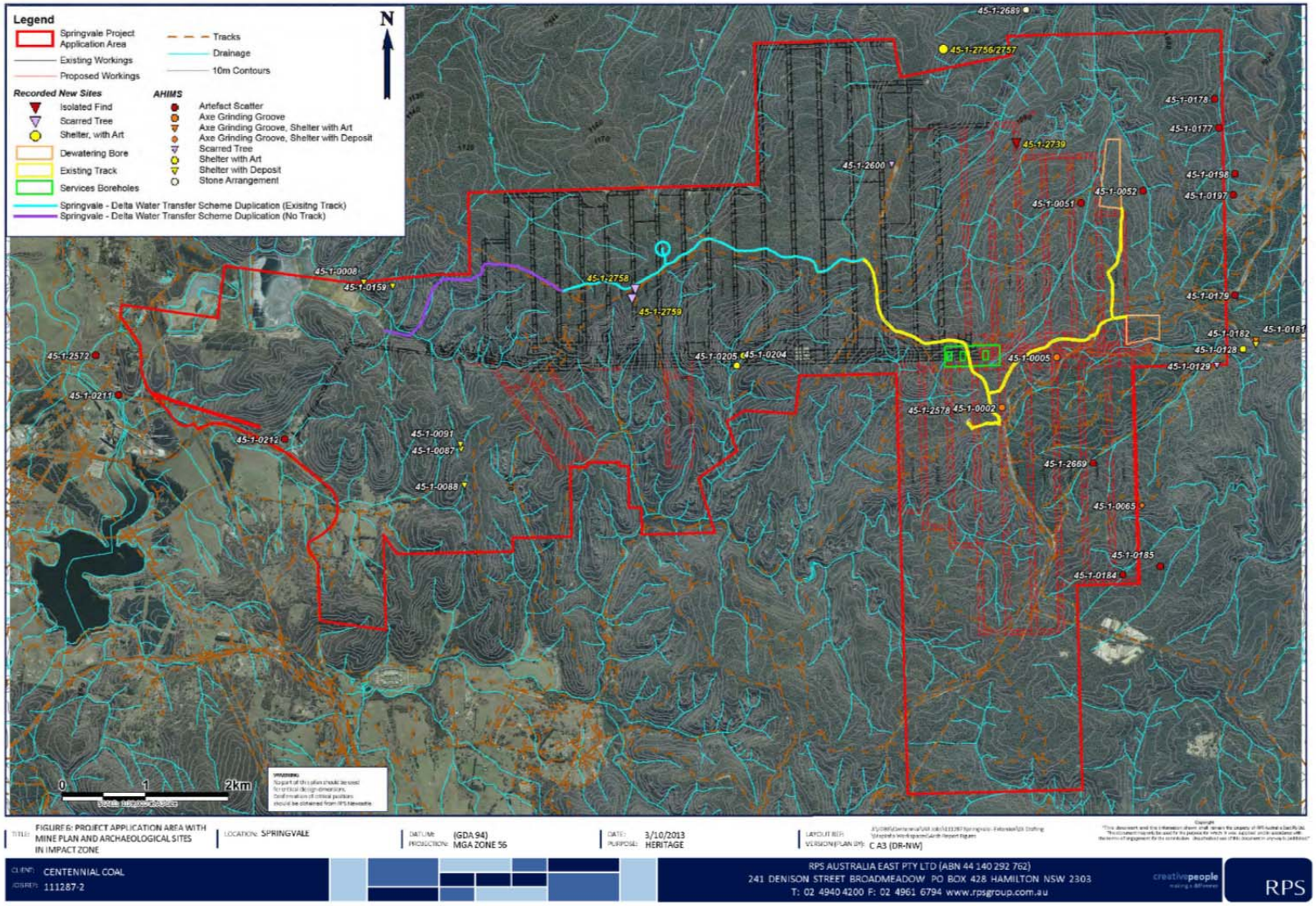
Compliance Monitoring

3. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this consent.

4. This monitoring must be carried out at least 4 times in each calendar year (ie at least once in every quarter), unless the Secretary directs otherwise.

5. Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the *NSW Industrial Noise Policy* (as amended from time to time), in particular the requirements relating to:
   (a) monitoring locations for the collection of representative noise data;
   (b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment;
   (c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration; and
   (d) the use of an appropriate modifying factor for low frequency noise to be applied during compliance testing at any individual residence if low frequency noise is present (in accordance with the INP) and before comparison with the specified noise levels in the consent.

APPENDIX 6: ABORIGINAL HERITAGE SITES



Australian Government
Department of the Environment

Approval decision

Springvale Mine Extension Project, New South Wales (EPBC 2013/6881)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted	Springvale Coal Pty Ltd
proponent's ACN	ACN 052 096 769
proposed action	To expand underground mining operations at the existing Springvale Mine in the Western Coalfields of New South Wales, 8 kilometres north-east of Lithgow, New South Wales [see referral EPBC 2013/6881 and variation request letter dated 9 July 2014].

Approval of decision

Controlling provision	Decision
listed threatened species and communities (Sections 18 and 18A)	approved
listed migratory species (Sections 20 and 20A)	approved
World Heritage properties (Sections 12 and 15A)	approved
National Heritage places (Sections 15B and 15C)	approved
a water resource, in relation to coal seam gas development and large coal mining development (Sections 24D and 24E)	approved

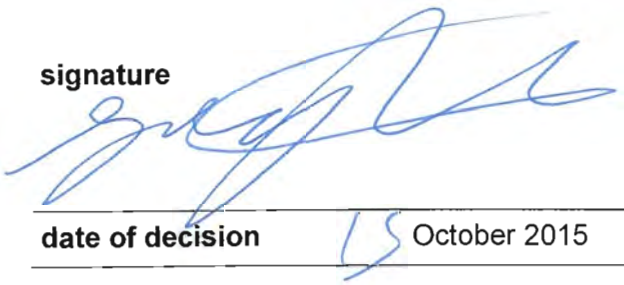
conditions of approval
This approval is subject to the conditions specified below.

expiry date of approval
This approval has effect until 8 October 2035.

Decision-maker

name and position	The Hon Greg Hunt MP Minister for the Environment

signature



date of decision	15 October 2015

Conditions attached to the approval

Compliance with conditions on the ***New South Wales development consent***

1. To minimise and compensate for impacts to **listed threatened species and communities**, the **approval holder** must comply with the following conditions of the **New South Wales development consent**:

schedule	condition	subject
3	1	general performance measures
4	15	biodiversity offset strategy
	16	long-term security of offsets
	18	biodiversity management plan
	30	rehabilitation
	31	
	32	
5	all	notification of landowners and independent review

2. To minimise and compensate for impacts on **Temperate Highland Peat Swamps**, the **approval holder** must comply with the following conditions on the **New South Wales development consent**:

schedule	condition	subject
3	1	general performance measures and risk management and assessment
	2	
	3	offsets for breach of performance measures
	4	offsets for first **undermined** swamps
	5	offsets for other **undermined** swamps
	6	
	10	extraction plans
	11	Independent Monitoring Panel
5	all	notification of landowners and independent review

3. To minimise impacts on **water resources**, the **approval holder** must comply with the following conditions on the **New South Wales development consent**:

schedule	condition	subject
3	1	general performance measures
	10(h)(iii)	water management plan
4	9	water supply
	10	water pollution
	12	water management performance measures
	14	water management plan
5	all	notification of landowners and independent review

Temperate Highland Peat Swamps

4. To minimise impacts on **Temperate Highland Peat Swamps**, in addition to Condition 1 (Schedule 3) on the **New South Wales development consent**, the **approval holder** must ensure that the action does not have greater than **negligible** environmental consequences on any **Temperate Highland Peat Swamps** within the **project area**, including in relation to their size, ecological functionality and species composition or distribution, unless those consequences are addressed through Condition 5.

5. To minimise impacts on **Temperate Highland Peat Swamps**, in addition to Conditions 4, 5 and 6 (Schedule 3) on the **New South Wales development consent**:

   a. Greater than **negligible** environmental consequences on **Temperate Highland Peat Swamps**, and therefore offset liabilities, must be initially determined based on changes to the shallow groundwater aquifer as measured using piezometers in accordance with Conditions 6 to 10.

   b. Where monitoring identifies a change to the shallow groundwater aquifer below an **undermined Temperate Highland Peat Swamp** and that change cannot be reasonably attributed to other specific factors to the satisfaction of the **Minister**, the swamp will be considered to have experienced a greater than **negligible** environmental consequence of the action.

   c. 90 *per cent* (by area) of offset liabilities for **Temperate Highland Peat Swamps** must be met with direct offsets, within the meaning of the **Commonwealth offsets policy**.

   d. If after five (5) years, the **approval holder** can demonstrate to the satisfaction of the **Minister** that a greater than **negligible** environmental consequence on **Temperate Highland Peat Swamps** identified under Condition 5a has been reversed, has not eventuated or has only partially eventuated, whether due to active remediation or passive (natural) equilibration, any offsets already provided in relation to that identified consequence may be held by the **approval holder** and used to offset future liabilities.

   e. Except in relation to **Sunnyside East** and **Carne West Swamps**, **the approval holder** must not **commence longwall mining** before the corresponding maximum predicted offset liability has been determined in accordance with Conditions 4 and 5 (Schedule 3) on the **New South Wales development consent** and approved in writing by the **Minister**.

6. This condition applies to all longwalls except **LW418** and **LW419**.

To minimise impacts on **Temperate Highland Peat Swamps**, in addition to Condition 10(h)(v) (Schedule 3) on the **New South Wales development consent**, swamp monitoring programs (or similar documents) must:

a. be capable of detecting any greater than **negligible** environmental consequence on any **Temperate Highland Peat Swamps** within the **project area**

b. include at least three (3) control swamps for each swamp to which the program applies, matched in terms of vegetation, geomorphology, hydrology and size, which must be monitored according to the same standards and protocols (a swamp may serve as a control for any number of suitably matched swamps to which the program applies)

c. have installed for each swamp to which the program applies and for each control swamp:

   i. a configuration of at least two (2) intersecting piezometer transects, the first along a line from the highest area of the swamp to the swamp outflow point and the second perpendicular to the first, located directly above a long wall panel, with each transect comprising at least three (3) piezometers (piezometers should not be installed immediately above longwall pillars); and

   ii. piezometers (at least one (1)) installed at the deepest point in the swamp's sediments and any other significant deep points to better understand potential mine-induced drainage; and

d. establish for each swamp proposed for **undermining** a monitoring regime that includes daily data collection from each swamp with data review at least weekly during **undermining** operations and at least monthly at all other times

The **approval holder** must not **commence longwall mining** before the corresponding swamp monitoring program has been approved in writing by the **Minister**. Each approved swamp monitoring program must be implemented for no less than five (5) years from the approval of the program.

7. This condition applies to longwalls **LW418** and **LW419**.

To minimise impacts on **Temperate Highland Peat Swamps**, in addition to Condition 10(h)(v) (Schedule 3) on the **New South Wales development consent**, swamp monitoring programs (or similar documents) must:

a. be capable of detecting any greater than **negligible** environmental consequence on any **Temperate Highland Peat Swamps** within the **project area**

b. include at least three (3) control swamps for each swamp to which the program applies, matched in terms of vegetation, geomorphology, hydrology and size, which must be monitored according to the same standards and protocols (a swamp may serve as a control for any number of suitably matched swamps to which the program applies)

c. have installed for each swamp to which the program applies and for each control swamp:

   i. a configuration of at least two (2) intersecting piezometer transects, the first along a line from the highest area of the swamp to the swamp outflow point and the second perpendicular to the first, located directly above a long wall panel, with each transect comprising at least three (3) piezometers (piezometers should not be installed immediately above longwall pillars); and

   ii. piezometers (at least one (1)) installed at the deepest point in the swamp's sediments and any other significant deep points to better understand potential mine-induced drainage; and

d. establish for each swamp proposed for **undermining** a monitoring regime that includes daily data collection from each swamp with data review at least weekly during **undermining** operations and at least monthly at all other times

The **approval holder** must not continue **longwall mining** beyond 31 March 2016 until the swamp monitoring program(s) has been approved in writing by the **Minister**. Each approved swamp monitoring program must be implemented for no less than five (5) years from the approval of the program.

8. Until Condition 7 has been met, the **approval holder** must monitor **LW418** and **LW419** consistent with *Temperate Highland Peat Swamps on Sandstone Monitoring and Management Plan for LW418*, August 2015, except that data collection must be consistent with Condition 7d from the **commencement** of **longwall mining** in **LW418** and **LW419**.

9. This condition applies to all longwalls except **LW418**.

To minimise impacts on **Temperate Highland Peat Swamps**, in addition to Condition 10(h)(ix) (Schedule 3) on the **New South Wales development consent**, trigger action response plans (or similar documents) must:

a. define specific triggers (exceedence thresholds), with reference to baseline data and control swamps, which will apply to each **Temperate Highland Peat Swamp** within the **project area**

b. define specific cease-work triggers, with reference to baseline data and control swamps, to respond to cases of sudden, unexpected or persistent exceedences, after which work may not recommence until the impact has been explained or offset to the satisfaction of the **Minister**

c. define protocols for investigation and appropriate treatment of early warning and cease-work triggers in a timely fashion

d. establish a protocol for reporting exceedences promptly to the **Department**; and

e. explain how the measures described in the trigger action response plan will protect **Temperate Highland Peat Swamps**.

The **approval holder** must not **commence longwall mining** before the corresponding trigger action response plan has been approved in writing by the **Minister**. The approved trigger action response plan must be implemented.

10. This condition applies to **LW418**, for which a trigger action response plan already exists.

At any time after an exceedence has been reported to the **Department**, the **Minister** may order the **approval holder** to cease work, after which work may not recommence until the exceedence has been explained or offset to the satisfaction of the **Minister**.

Biodiversity

11. To minimise impacts on **listed threatened species and communities**, the **approval holder** must not clear more than 13 hectares of habitat for threatened species within the **project area**.

12. This condition applies to all longwalls except **LW418**.

To minimise impacts on **listed threatened species and communities**, in addition to Condition 18 (Schedule 4) on the **New South Wales development consent**, the biodiversity management plan (or similar document) must:

a. include measures to avoid and / or mitigate impacts on **listed threatened species and communities** that may occupy landform habitats including cliffs, minor cliffs, pagodas and gorges – these measures must include pre-mining surveys and translocation and / or cease work protocols if any sites with potential as nursery caves for **Large-eared Pied Bat** are identified

b. include measures to control the spread of pathogens including chytrid fungus and *Phytophtora cinnamomi*

c. explain how the mitigation and management measures described will protect *specific* **listed threatened species and communities**; and

d. specify clear timeframes for all management and mitigation measures described.

The **approval holder** must not **commence** the action before the biodiversity management plan has been approved in writing by the **Minister**. The approved biodiversity management plan must be implemented.

13. The **approval holder** must prepare a management and research program for the **Blue Mountains Water Skink** at **Carne West Swamp**, including specific measures for monitoring that population and response measures to be implemented if a decline is detected. The **approval holder** must not **commence undermining** of **Carne West Swamp** before the management and research program has been approved in writing by the **Minister**. The approved management and research program must be implemented.

Administrative conditions

14. The **approval holder** must provide the **Department** with details of each offset area secured in accordance with Conditions 3 to 5 (Schedule 3) or Conditions 15 and 16 (Schedule 4), on the **New South Wales development consent**, within twenty (20) business days of securing each offset. Details to be provided must include but are not necessarily limited to:

    - textual descriptions and maps to clearly define the location and boundaries of the offset areas
    - written evidence of legal protection
    - management plans
    - **offset attributes** and **shapefiles**

15. Within ten (10) days after the **commencement** of the action, the **approval holder** must advise the **Department** in writing of the actual date of **commencement** of the action.

16. The **approval holder** must maintain accurate records substantiating all activities associated with or relevant to the conditions of this approval, including measures taken to implement **management documents** required by this approval, and make them available on request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the **EPBC Act**, or used to verify compliance with the conditions of this approval. Summaries of audits will be posted on the **Department**'s website. The results of audits may also be publicised through the general media.

17. The **approval holder** must report potential non-compliance with any of the conditions of this approval to the **Department** within two (2) business days of becoming aware of the non-compliance.

18. Before 31 March each year, the **approval holder** must publish a report on its website addressing compliance with each of the conditions of this approval, including implementation of any **management documents** as specified in the conditions during the previous calendar year. Documentary evidence of the date of publication of the compliance report, as well as details of any reported potential non-compliance, must be provided to the **Department** at the same time as the compliance report is published.

19. Upon the direction of the **Minister**, the **approval holder** must ensure that an independent audit of compliance with the conditions of this approval is conducted and a report submitted to the **Minister**. The audit must not **commence** until the independent auditor and audit criteria have been approved by the **Minister**. The audit report must address the criteria to the satisfaction of the **Minister**.

20. The **approval holder** may choose to revise a **management document** approved by the **Minister** under Conditions 6, 7, 9 12 or 13 without submitting it for approval under Section 143A of **the EPBC Act**, if the taking of the action in accordance with the revised **management document** would not be likely to have a new or increased impact on a matter protected under the conditions of this approval. If the **approval holder** makes this choice, it must:

    a. notify the **Department** in writing that the approved **management document** has been revised and provide the **Department** with an electronic copy of the revised **management document**

    b. implement the revised **management document** from the date that it is submitted to the **Department**; and

    c. for the life of this approval, maintain a record of the reasons the **approval holder** considers that taking the action in accordance with the revised **management document** would not be likely to have a new or increased impact on a matter protected under the conditions of this approval.

21. The **approval holder** may revoke its choice under Condition 20 at any time by notice to the **Department**. If the **approval holder** revokes the choice to implement a revised **management document**, without approval under section 143A of the **EPBC Act**, the **approval holder** must implement the **management document** most recently approved by the **Minister**.

22. Condition 20 does not apply if the revisions to the approved **management document** include changes to offsets established under the conditions of the approval, unless otherwise agreed in writing by the **Minister**. This does not otherwise limit the circumstances in which the taking of the action in accordance with a revised **management document** would, or would not, be likely to have new or increased impacts.

23. If the **Minister** gives a notice to the **approval holder** that the **Minister** is satisfied that the taking of the action in accordance with the revised **management document** would be likely to have a new or increased impact on a matter protected by the conditions of this approval, then:

    a. Condition 20 does not apply, or ceases to apply, in relation to the revised **management documents**; and

    b. the **approval holder** must implement the **management documents** most recently approved by the **Minister**.

    At the time of giving the notice, the **Minister** may also notify that for a specified period of time that Condition 20 does not apply for one or more specified plans, programs or strategies required under the approval.

    To avoid any doubt, this condition does not affect any operation of Conditions 20 to 22 in the period before the day after the notice is given.

24. Conditions 20 to 23 are not intended to limit the operation of section 143A of the **EPBC Act** which allows the **approval holder** to submit a revised **management document** to the **Minister** for approval.

25. The **approval holder** must not **commence longwall mining** at any time after five (5) years from the date of this approval without the written agreement of the **Minister**.

26. Unless otherwise agreed to in writing by the **Minister**, the **approval holder** must publish all **management documents** on their website. Each **management document** must be published

on the website within one (1) month of being approved by the **Minister** or being submitted under Condition 20.

Definitions

Approval holder means the person to whom the approval is granted, or to whom the approval is transferred under section 145B of **the EPBC Act**.

Blue Mountains Water Skink means the species Eulamprus leuraensis, listed as endangered under the **EPBC Act**.

Carne West Swamp is identified on the map at Annexure 1.

Commencement (also **commence**) means the first instance of an activity. In relation to the action generally, it includes any vegetation clearing, demolition, construction, excavation or other earthworks associated with the action, excluding the erection of fences or signs and the conduct of environmental or other low impact surveys.

Commonwealth offsets policy is *Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy*, October 2012.

Department means the Australian Government department responsible for administration of **the EPBC Act**.

EPBC Act means the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999*.

First workings has the meaning given in the **New South Wales development consent**.

Large-eared Pied Bat means the species Chalinolobus dwyeri, listed as vulnerable under the **EPBC Act**.

Listed threatened species and communities includes at least the following:

- the Temperate Highland Peat Swamps on Sandstone community, listed as endangered under the **EPBC Act**
- Austral Toadflax (*Thesium australe*), listed as vulnerable under the **EPBC Act**
- Deane's Boronia (*Boronia deanei*), listed as vulnerable under the **EPBC Act**
- Giant Burrowing Frog (*Heleioporus australiacus*), listed as vulnerable under the **EPBC Act**
- Stuttering Frog (*Mixophyes balbus*), listed as vulnerable under the **EPBC Act**
- Blue Mountains Water Skink (*Eulamprus leuraensis*), listed as endangered under the **EPBC Act**
- Broad-headed Snake (*Hoplocephalus bungaroides*), listed as vulnerable under the **EPBC Act**
- Regent Honeyeater (*Anthochaera phrygia*), listed as endangered under the **EPBC Act** (at the time of determination of controlling provisions).
- Spot-tailed Quoll [south-eastern mainland population] (*Dasyurus maculatus* subsp. *maculatus*) listed as endangered under the **EPBC Act**
- Southern Brown Bandicoot (*Isoodon obesulus* subsp. *obesulus*), listed as endangered under the **EPBC Act**
- Brush-tailed Rock Wallaby (*Petrogale penicillata*), listed as vulnerable under the **EPBC Act**
- Koala [combined populations of Queensland, New South Wales and the Australian Capital Territory] (*Phascolarctos cinereus*), listed as vulnerable under the **EPBC Act**
- Large-eared Pied Bat (*Chalinolobus dwyeri*), listed as vulnerable under the **EPBC Act**
- New Holland Mouse (*Pseudomys novaehollandiae*), listed as vulnerable under the **EPBC Act**

Longwall mining means any extraction of coal that is not defined as **first workings**.

LW418 and **LW419** are specific longwalls identified on the map at Annexure 1.

Management document(s) are any program, plan or other document explicitly required (whether directly or through a subordinate document) in fulfilment of the conditions of this approval.

Minister means the Australian Government minister responsible for administration of the **EPBC Act** and includes delegates.

Negligible, in the sense of environmental consequences, has the meaning given in the **New South Wales development consent**.

New South Wales development consent means the document recording the decision of the New South Wales Government to grant development approval to the Springvale Mine Extension Project under Section 89E of the (New South Wales) *Environmental Planning & Assessment Act 1979*, dated 21 September 2015.

Offset attributes means an '.xls' file capturing relevant attributes of the offset site, including the EPBC reference number, physical address, coordinates of the boundary points in decimal degrees, **listed threatened species and communities** for which the offset was established, other relevant biodiversity attributes and area in hectares.

Project area is defined by the boundary shown as a red line on the map at Annexure 1.

A **shapefile** is an ESRI Shapefile containing '.shp', '.shx' and '.dbf' files and other files capturing attributes including at least the EPBC reference ID number and EPBC protected matters present at

the relevant site. Attributes should also be captured in '.xls' format. A geographically referenced raster 'img' file/s must be provided to provide context for the shapefiles.

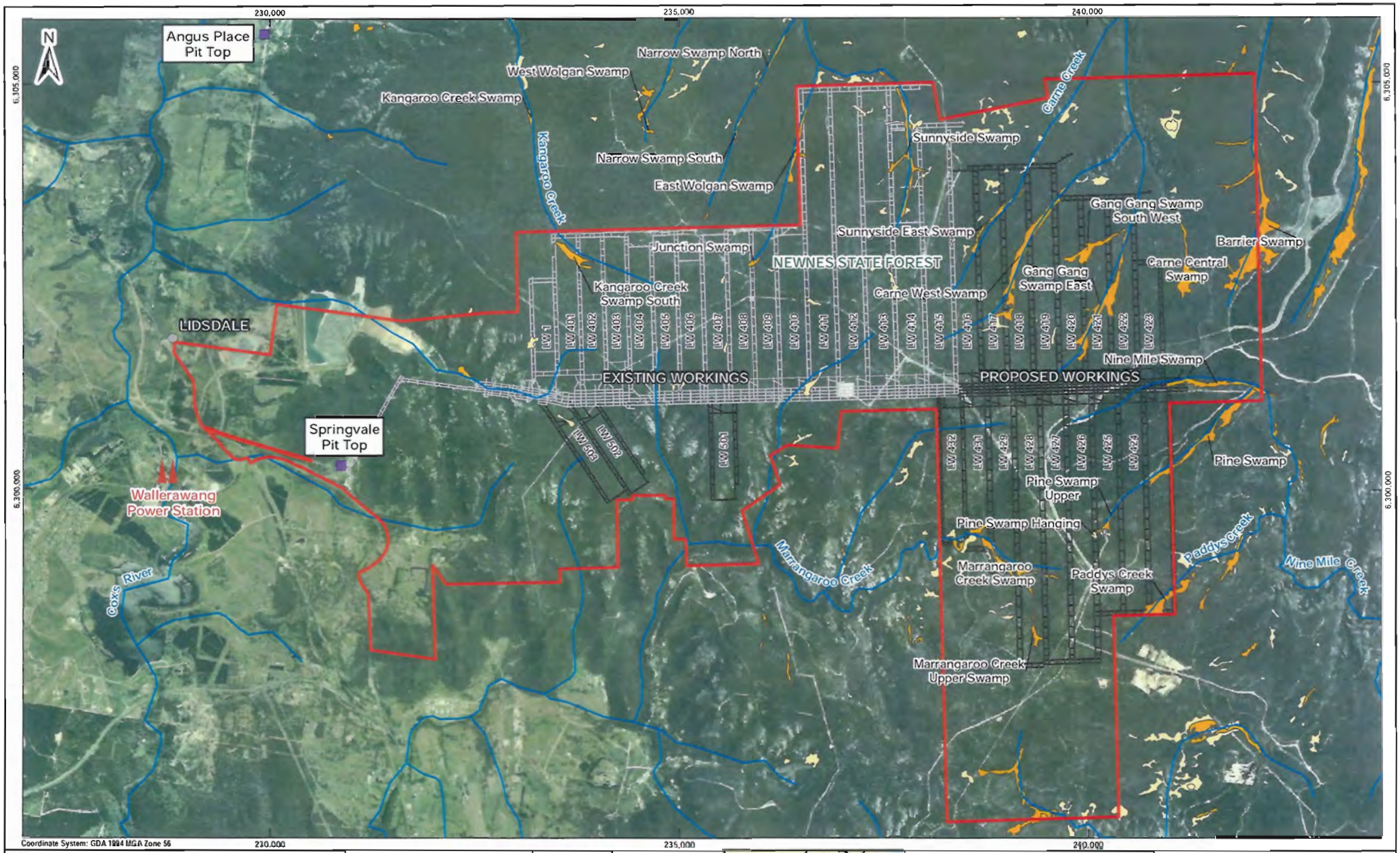
Sunnyside East Swamp is identified on the map at Annexure 1.

Temperate Highland Peat Swamps means the Temperate Highland Peat Swamp on Sandstone community listed as endangered under the **EPBC Act** and for the purposes of these conditions includes the following associated species:

- Deane's Boronia (*Boronia deanei*), listed as vulnerable under the **EPBC Act**
- Giant Burrowing Frog (*Heleioporus australiacus*), listed as vulnerable under the **EPBC Act**
- Blue Mountains Water Skink (*Eulamprus leuraensis*), listed as endangered under the **EPBC Act**

An **undermined** (also **undermine**, **undermining**) swamp is a swamp with an active or extracted longwall panel within a 26.5° angle of draw (or other angle of draw as defined in an approved management plan).

Water resources has the meaning given in the (Commonwealth) *Water Act 2007.*



LEGEND

- Project Application Area
- Village
- Watercourse
- Shrub Swamp
- Hanging Swamp
- Existing Workings
- Proposed Workings

DATE	17/11/2013
SEAM	LITHGOW
REFERENCE	127623060-R-F060 SVC Rev 0
SCALE	1:60,000

Figure 10.1:
Swamp Distribution Relative to Proposed Workings

0 1 2 km

PLOTFILE No.

Centennial Coal
Springvale

DRG No. 60 | A4

Annexure 1

Schedule of Lands
SSD 5594

APPENDIX – B

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Springvale Mine Extension Project SSD 5594 - Schedule of Lands

Land_Status	Created_date	Last_Update	Lot__DP
FREEHOLD	19930804	20041126	9//16283
FREEHOLD	19930804	20041126	10//16283
FREEHOLD	19930804	20041126	26//16283
FREEHOLD	19930804	20041126	23//16283
FREEHOLD	19930804	20041126	B//417872
FREEHOLD	19930804	20041126	14//16283
FREEHOLD	19930804	20041126	1//551636
FREEHOLD	19930804	20041126	19//16283
FREEHOLD	19930804	20041126	2//607402
FREEHOLD	19930804	20041126	28//16283
FREEHOLD	19930804	20041126	30//16283
FREEHOLD	19930804	20041126	1//421721
FREEHOLD	20010504	20041126	2//1018958
FREEHOLD	19930804	20041126	18//16283
FREEHOLD	19930804	20041126	8//16283
FREEHOLD	20000308	20041126	101//829410
FREEHOLD	19930804	20041126	1//607402
FREEHOLD	19960418	20041126	1//825124
FREEHOLD	19940418	20041126	3//829137
FREEHOLD	19930804	20041126	16//16283
FREEHOLD	19930804	20041126	24//16283
FREEHOLD	19930804	20041126	20//16283
FREEHOLD	19930804	20041126	29//16283
FREEHOLD	19930804	20041126	25//16283
FREEHOLD	19930804	20041126	3//607402
FREEHOLD	19930804	20041126	A//417872
FREEHOLD	19930804	20041126	12//16283
FREEHOLD	19930804	20041126	15//16283
FREEHOLD	19940418	20041126	2//829137
FREEHOLD	19930804	20041126	11//16283
FREEHOLD	19930804	20041126	C//417872
FREEHOLD	19930804	20041126	7//16283
FREEHOLD	19930804	20041126	17//16283
FREEHOLD	19930804	20041126	13//16283
FREEHOLD	19930804	20041126	27//16283
FREEHOLD	20060925	20060925	23//1101696
FREEHOLD	20060925	20060925	21//1101696
FREEHOLD	20060925	20060925	22//1101696
FREEHOLD	20081023	20081023	228//1131953
FREEHOLD	20090712	20090715	10//1139978
FREEHOLD	20090712	20090715	11//1139978
FREEHOLD	20010504	20041126	1//1018958
FREEHOLD	19940418	20041126	1//175470
FREEHOLD	19930804	20041126	4//805024
FREEHOLD	19930804	20041126	33//751655
FREEHOLD	19930804	20041126	32//751655
FREEHOLD	19930804	20041126	39//751655
FREEHOLD	19930804	20090407	72//751651
FREEHOLD	19930804	20090407	302//751651

FREEHOLD	19930804	20090407	68//751651
FREEHOLD	19930804	20090411	407//751651
CROWN	19930804	20090906	195//751651
FREEHOLD	19951010	20111223	1//787242
FREEHOLD	19990823	20111223	67//1004747
FREEHOLD	19930804	20041126	37//751655
FREEHOLD	19940418	20041126	5//829137
FREEHOLD	19930804	20041126	30//751655
FREEHOLD	19970520	20041126	21//868170
FREEHOLD	19960222	20041126	38//751655
FREEHOLD	19970415	20041126	2//226790
FREEHOLD	19970415	20041126	3//226790
FREEHOLD	19930804	20041126	3//805024
FREEHOLD	19970415	20041126	1//226790
FREEHOLD	19930804	20041126	26//751655
FREEHOLD	19930804	20041126	31//751655
FREEHOLD	19930804	20041126	99//751655
FREEHOLD	19950215	20041126	2//835651
FREEHOLD	19970520	20041126	22//868170
FREEHOLD	19930804	20090411	73//751651
CROWN	19930804	20090829	129//751651
CROWN	20100322	20100617	7318//1149348
FREEHOLD	19930804	20100903	125//751651
STATE FORESTS OF NSW	19930804	20110313	201//751655
STATE FORESTS OF NSW	19930804	20110313	84//751655
FREEHOLD	19940415	20041126	1//576152
FREEHOLD	19930804	20041126	1//113040
FREEHOLD	19930804	20041126	50//751655
FREEHOLD	19930804	20041126	47//751655
STATE FORESTS OF NSW	19930804	20110313	35//751634
STATE FORESTS OF NSW	19930804	20110313	203//751655
STATE FORESTS OF NSW	19930804	20110313	52//751655
STATE FORESTS OF NSW	19930804	20110313	53//751655
STATE FORESTS OF NSW	19940810	20110313	51//751655
STATE FORESTS OF NSW	19930804	20110313	202//751655
STATE FORESTS OF NSW	19930804	20110313	54//751655