

# Amended Project Summary

Page 1 of 5

Project Component	Summary of Component
Mining Method	<p>Open cut mining using convention drill and blast, load and haul methods within three contiguous open cut pits.</p> <p>Blast frequency would depend on the operational requirements of the work area, with up to approximately 120 blasts initiated in any one year and a likely maximum of 4 blasts per week.</p>
The Site and Disturbance Areas	<p>The Site covers approximately 832ha, comprising the following three key components.</p> <ul style="list-style-type: none"> <li>• Mine Area – an area of approximately 764ha incorporating 497ha of ground disturbance for mining and ancillary activities.</li> <li>• Power Line Corridors – an area of approximately 47ha incorporating a 5km section of re-located 132kV power line and a new 1.6km low voltage power line.</li> <li>• Private Haul Road Corridor – an area of approximately 21ha for a haul road approximately 4.4km in length and involving a disturbance area of up to approximately 13.8ha.</li> </ul> <p>The amended Project includes the removal of the previously proposed overland conveyor corridor (approximately 9.4ha), the rail load-out facility (approximately 47.8ha) and the Coal Handling and Processing Plant.</p>
Mine Area Components and Infrastructure	<p>The approximate 497ha area of disturbance would include the following components.</p> <ul style="list-style-type: none"> <li>• Three contiguous open cut pits - approximately 142ha.</li> <li>• A western and northern amenity barrier – approximately 95ha.</li> <li>• A permanent overburden emplacement - approximately 185ha.</li> <li>• An interim overburden emplacement - approximately 60ha.</li> <li>• General mine-related infrastructure including: <ul style="list-style-type: none"> <li>– an administration area incorporating site offices, amenities, workshop, water treatment plant and ancillary facilities;</li> <li>– a run-of-mine (ROM) pad incorporating a breaker station, conveyors and a nominal 500t capacity sized coal bin; and</li> <li>– the Mine Area Access Road.</li> </ul> </li> </ul>
Resource	<p>Approximately 21 million tonnes of ROM coal would be recovered from six coal seams, namely the Avon, Bowen Road, Cloverdale, Glenview, Roseville and various Marker Coal Seams to a depth of approximately 220m below ground level.</p>
Annual Production	<p>ROM coal production would gradually increase over the life of the Mine to a scheduled maximum of 2.0 million tonnes per year produced during Years 10 to 14 of the mine life.</p>
Mine Life	<p>Approximately 21 years covering the site establishment and construction stage (10 months), mining operations (16 years) and mine closure (3 years).</p>
Processing	<p>Preliminary processing involving sizing of ROM coal using a rotary breaker would occur on site, prior to transportation to the Stratford Mining Complex for preparation (washing), stockpiling and despatch by train to the Port of Newcastle.</p>
Products	<p>High fluidity coking coal – approximately 12.5 million tonnes over the mine life. Thermal coal – approximately 0.5 million tonnes over the mine life</p>
Management of Overburden	<p>Approximately 126 million bank cubic metres (bcm) of overburden would be removed and used to construct amenity barriers or would be emplaced in permanent and interim overburden emplacements.</p> <p>Overburden placed in the western and northern amenity barrier and interim overburden emplacement would ultimately be used to backfill the final void once coal extraction operations cease in the Main Pit.</p>

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Management of Breaker Rejects	Breaker rejects would comprise approximately 10% of ROM coal, equating to approximately 2.1 million tonnes over the mine life. Breaker rejects would be regularly collected and blended with overburden material and placed at least 5m from the final batters and upper surface of the final landform. When emplaced, the rejects would amount to approximately 0.7% of emplaced overburden (by weight).										
Sized Coal Transport	Transportation of sized coal from the sized coal bin to the Stratford Mining Complex would occur via a private haul road. 4.4km of the road lies within the Site boundary of the amended Project. An additional 4.8km of haul road lies within the Stratford Mining Complex. Sized coal would be transported in road registered road multi-combination trucks with two triaxle trailers and a nominal carrying capacity of 60t.										
Water Management	<p>Water required for on-site operations (mainly dust suppression) would be sourced from the groundwater intercepted in the open cut pits, sediment dams and the proposed water treatment plant.</p> <p>Water storage and management within the Mine Area would be separated into three categories:</p> <ul style="list-style-type: none"> <li>• Clean Water – collected from undisturbed areas in dams (for discharge) or diverted around the Mine Area via the proposed diversion channels on the eastern boundary of the Mine Area.</li> <li>• Dirty Water – all potentially sediment-laden water that would be collected in sediment dams from disturbed areas beyond the open cut pits within the Mine Area.</li> <li>• Mine Water – all saline groundwater and water considered to be potentially contaminated through contact with minerals (e.g. salts) would be retained and used on site or treated in the on-site water treatment plant and used on Mine Area and the adjoining land to irrigate pasture and fodder crops.</li> </ul>										
Workforce	Approximately 60 personnel during construction and peaking at approximately 110 personnel during operations.										
Final Landform	<p>The final landform would be very similar in form and drainage pattern to the pre-mining landform and incorporate the following vegetated areas.</p> <ul style="list-style-type: none"> <li>• Pasture with isolated tree lots – approximately 287ha.</li> <li>• Open woodland - approximately 185ha.</li> <li>• Constructed native vegetation/fauna corridors – approximately 25ha.</li> </ul> <p>Undisturbed areas within the Mine Area boundary would remain in their pre-mining condition.</p>										
Biodiversity Offset Area	A Biodiversity Offset Area covering approximately 267ha would be secured for the purposes of biodiversity conservation. The proposed Biodiversity Offset Area is located to the east of and adjacent to the Mine Area.										
Hours of Operation	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Mining (Years 1 to 3)</td> <td>7:00am – 6:00pm, Monday – Saturday</td> </tr> <tr> <td>Mining (Year 4 onwards)</td> <td>7:00am – 10:00pm, Monday – Saturday</td> </tr> <tr> <td>Breaker Station Operations</td> <td>7:00am – 6:00pm, Monday – Saturday</td> </tr> <tr> <td>Sized ROM Coal Despatch (via Private Haul Road)</td> <td>7:00am – 6:00pm, Monday – Saturday</td> </tr> <tr> <td>Maintenance</td> <td>7:00am – 10:00pm Monday – Saturday 8:00am – 10:00pm, Sunday</td> </tr> </table> <p>All other hours, Monday – Sunday (if activities are not audible at privately-owned residences).</p> <p>Breaker station and sized ROM coal despatch operations would only occur on a Saturday in the event protracted operational time is lost during week days.</p> <p>No operations would occur on public holidays.</p>	Mining (Years 1 to 3)	7:00am – 6:00pm, Monday – Saturday	Mining (Year 4 onwards)	7:00am – 10:00pm, Monday – Saturday	Breaker Station Operations	7:00am – 6:00pm, Monday – Saturday	Sized ROM Coal Despatch (via Private Haul Road)	7:00am – 6:00pm, Monday – Saturday	Maintenance	7:00am – 10:00pm Monday – Saturday 8:00am – 10:00pm, Sunday
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Capital Investment Value	Approximately A\$90.3 million (\$2016).										

Environmental Issue	Summary of Key Mitigation Measures and Impacts
Noise	<ul style="list-style-type: none"> <li>• Management of operational noise impacts would include:               <ul style="list-style-type: none"> <li>– the use of interim or permanent amenity barriers;</li> <li>– restricted operations of an evening and under specific meteorological conditions;</li> <li>– use of sound suppressed equipment;</li> <li>– use of predictive meteorological forecasting;</li> <li>– a regime of real-time noise monitoring; and</li> <li>– adaptive site management.</li> </ul> </li> <li>• The road construction activities on and near McKinleys Lane would cause daytime noise exceedances for approximately 1 month at two residences near McKinleys Lane and road upgrading activities along Jacks Road would cause daytime noise exceedances for approximately 1 week at the adjoining rural-residential estates. All other construction activities would comply with the required noise levels.</li> <li>• During mining operations, the project specific noise level would be satisfied at all residences and receivers in the vicinity of the Mine Area with the exception of three of the closest privately-owned residences where negligible exceedances of 1 to 2dB(A) are predicted to occur at two residences and a moderate exceedance of 4 to 5dB(A) at one residence, mainly during Years 4 to 7, when out-of-pit overburden emplacement activities are underway.</li> </ul>
Blasting and Vibration	<ul style="list-style-type: none"> <li>• Prior to the commencement of blasting, the Applicant would commission structural surveys of residences within a 2km radius of the open cut pits subject to access being provided by the landowner/occupier.</li> <li>• Each blast would be designed to ensure compliance with the relevant blasting criteria at all privately-owned residences. All residents within 2km of the open cut pits would be notified of the proposed blasting schedules subject to an agreed method of notification.</li> <li>• It is predicted that there would be no exceedances of any blast criteria at any privately-owned residence of public infrastructure.</li> <li>• All blasts would be monitored to enable continuous refinement of blasting practices and the development and updating of blast design and operating procedures based on blast monitoring results.</li> </ul>
Air Quality	<ul style="list-style-type: none"> <li>• No exceedances are predicted for the applicable annual air quality criteria for TSP, PM<sub>10</sub>, PM<sub>2.5</sub> or deposited dust and maximum 24 hour average PM<sub>10</sub> and PM<sub>2.5</sub> for project only emissions.</li> <li>• No exceedances are predicted for cumulative 1-hour and annual NO<sub>2</sub> levels from blasting and diesel combustion.</li> <li>• Best practice management would be implemented, including utilisation of the predictive meteorological forecasting system and real-time air quality monitoring enabling adaptive management to further reduce the risk of an exceedance.</li> </ul>
Visibility	<ul style="list-style-type: none"> <li>• The key visual controls include one long-term and two interim amenity barriers designed to shield operational activities for the bulk of the life of the amended Project. A range of physical lighting controls, together with restricted operations during the evening would also limit visual impacts after dusk.</li> <li>• The final landform has been designed to create drainage features and slopes comparable with the existing landform. This approach would result in a final landform which would be indistinguishable from the surrounding landscape.</li> </ul>

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Groundwater	<ul style="list-style-type: none"> <li>• There would not be any substantial reduction in availability to the shallow groundwater system and no measurable impact on flows within Waukivory Creek or the Avon River.</li> <li>• The Applicant holds or there are likely to be sufficient water access licences and entitlements available to account for the groundwater inflows from all sources.</li> <li>• No surrounding groundwater users or groundwater dependent ecosystems would be impacted by the amended Project.</li> <li>• Groundwater levels would recover within approximately 10 years after the cessation of coal extraction.</li> <li>• Groundwater monitoring would continue using a combination of the existing groundwater monitoring network and additional and/or replacement bores.</li> </ul>
Surface Water	<ul style="list-style-type: none"> <li>• With the implementation of all proposed surface water management measures, it is assessed that surface water would be appropriately managed with negligible impacts on the surrounding environment, runoff levels, quality downstream or surface water users.</li> <li>• Impacts of the western and northern amenity barrier and the bridge over Waukivory Creek on flood flows and behaviour would be negligible.</li> </ul>
Soils and Land Capability	<ul style="list-style-type: none"> <li>• Soils within the Mine Area disturbance limit are classified as Land and Soil Capability Classes 4 and 5 land (land with moderate to severe limitations).</li> <li>• Soils within the private haul road are predominantly Class 4 land (moderate to severe limitations) with smaller areas of LSC Class 6 (very high limitations) and LSC Class 3 land (moderate limitations).</li> <li>• Subsoil within private haul road and from Soil Mapping Unit 2 would not be used in rehabilitation due to its physical and chemical limitations.</li> <li>• With the implementation of the proposed soil stripping and storage measures, adequate soil resources would be available for successful rehabilitation and return of the land to the pre-mining Land and Soil Capability Classes.</li> </ul>
Traffic and Transportation	<ul style="list-style-type: none"> <li>• Assessed intersections would continue to operate well below their capacity with no significant impacts,</li> <li>• Road upgrades are proposed including:                         <ul style="list-style-type: none"> <li>– upgrading of Jacks Road/The Bucketts Way, Jacks Road/Waukivory Road and Waukivory Road/McKinleys Lane intersections;</li> <li>– upgrading the road pavement on Jacks Road and Waukivory Road (east of Jacks Road) and replacement of the single lane Avon River bridge on Jacks Road with a dual lane structure; and</li> <li>– a range of other minor upgrade works, line markings, signage etc.</li> </ul> </li> <li>• Payment of contributions for road maintenance, including for The Bucketts Way.</li> <li>• The road upgrades and replacement of the Jacks Road bridge would improve long term access for all motorists and reduce the costs to Council to maintain and repair this existing infrastructure.</li> </ul>
Aboriginal Cultural Heritage	<ul style="list-style-type: none"> <li>• The unavoidable impact to nine sites would be managed through salvage and relocation of the artefacts by a suitably qualified archaeologist in conjunction with Registered Aboriginal Parties with a direct connection to Worimi Country.</li> <li>• Additional sub-surface investigations would occur at three of the sites while monitoring of turf stripping between Waukivory Creek and Fairbairns Road would be undertaken in conjunction with Registered Aboriginal Parties with an association to Worimi Country.</li> <li>• An educational program would be undertaken during Site induction which would aim to inform site personnel of their responsibilities regarding Aboriginal Cultural Heritage and guide the identification and management of unexpected finds.</li> </ul>

<b>Environmental Issue</b>	<b>Summary of Key Mitigation Measures and Impacts</b>
Historic Heritage	<ul style="list-style-type: none"> <li>• Historic heritage impacts are not anticipated, however the Applicant would observe the demolition and removal of the “Aminya” cottage and removal of turf 30m around the cottage to record any items of historical significance.</li> <li>• Views of the amended Project are not considered to be heritage views, nor is the landscape of the Stroud-Gloucester Valley considered to be a heritage landscape.</li> </ul>
Terrestrial Ecology	<ul style="list-style-type: none"> <li>• Residual impacts to terrestrial ecology relate principally to the removal of 51.8ha of native vegetation and associated potential habitat. Given the scattered nature of some remnant native vegetation, the effective clearing area would be 41.5ha.</li> <li>• Biodiversity within the Site would be managed through a comprehensive Biodiversity Management Plan while the establishment of a 267ha offset area would offset the unavoidable removal of native vegetation and potential habitat.</li> </ul>
Aquatic Ecology	<ul style="list-style-type: none"> <li>• Potential impacts to aquatic ecosystems relate principally to the potential changes in water flow resulting from capture of water on site and removal of base flow to the Avon River and Waukivory Creek. These impacts have been assessed and are not expected to significantly impact in-stream ecology.</li> <li>• The proposed replacement of bridge crossings of the Avon River and Waukivory Creek would provide a benefit to aquatic ecosystems.</li> <li>• Monitoring of groundwater has indicated that it is unlikely that substantial numbers of stygofauna are present. Management of aquatic ecology would occur principally through monitoring.</li> </ul>
Bush Fire Hazard	<ul style="list-style-type: none"> <li>• Bush fire hazard throughout the Site is classified as low. However, a series of safeguards and controls would be implemented including the development of a Bush Fire Management Plan in consultation with the Rural Fire Service.</li> </ul>
Agricultural Lands and Enterprises	<ul style="list-style-type: none"> <li>• Continued use of GRL land for agricultural activities through lease agreements, for example, the agreement with the Speldon Partnership and their land improvements undertaken to date have substantially increased milk production and direct and indirect employment. These increases more than offset the temporary loss of land during the proposed mining and would be further offset by the proposed ongoing land management measures.</li> <li>• No significant impacts are expected upon other surrounding agricultural land or enterprises.</li> <li>• Overall, it is assessed that the amended Project would result in a long-term positive net benefit on surrounding agricultural resources and enterprises.</li> </ul>
Social Impact	<ul style="list-style-type: none"> <li>• Social risks associated with the capacity of existing social infrastructure and community facilities would be mitigated through a Community Grants Program established to assist the Gloucester community to better adapt to population changes.</li> <li>• A series of 22 recommendations, that were the outcomes of comprehensive social research presented by Key Insights Pty Ltd, to benefit and mitigate potential impacts to the local community would be adopted.</li> </ul>
Economic Impact	<ul style="list-style-type: none"> <li>• A cost benefit analysis has estimated the net benefits and costs to the NSW community resulting from the amended Project and determined that a net benefit of approximately \$89.5 million (NPV) would be expected.</li> <li>• The provision of an average of 97 full time equivalent jobs during operations, associated wage payments and non-labour spending of approximately \$65 million annually over the life of the amended Project represent predominantly local benefits.</li> <li>• Environmental, social and transport effects would occur at a national, State and local level, and have been estimated to represent a cost of approximately \$3.3 million (NPV) at a State level and \$23,000 per year (NPV) at a local level over the life of the amended Project. Other external costs have been assessed to be negligible or difficult to quantify and, would need to exceed the quantified costs by a factor of approximately 20 and hence are not expected to exceed the identified benefits.</li> </ul>

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