NEW HOPE GROUP

2. Project Justification and Sustainability

Contents

2 Project Justification and Sustainability

2.1 Introduction

This Chapter examine justification and sustainability of the revised Project through:

- project need, technical feasibility and commercial viability;
- potential economic and social benefits and identifying the residual economic, social and environmental impacts;
- alternative options for mining and the associated infrastructure; and
- the revised Project's compatibility against ecological sustainable development principles.

2.2 Project Justification

2.2.1 Project Need

Australia is the world's largest exporter of coal products. About two thirds of Australia's coal exports are derived from Queensland coal reserves. In 2011-2012, the saleable coal production from Queensland was 187,614,268 tonnes with a total export value was $27.1 billion (DME, 2012). In the financial year ending 30 June 2012, coal mining activities contributed $2.38 billion in royalties to the State Government (OSR, 2013).

The coal industry is a significant contributor to the transport industries in Queensland including rail and port services. Queensland Bulk Handling Pty Ltd (QBH, a NHG subsidiary company) operates a 10 Mtpa capacity export coal loading facility at the Port of Brisbane in Southeast Queensland. This terminal has been loading coal for NHG and other producers as a common user facility since 1983.

The coal industry in Queensland employed more than 25,000 people directly in July 2012 (OSR, 2013). Employment in the Queensland coal industry is expected to generate a further 100,000 indirect jobs based on the employment multiplier of 1:4 (i.e. one mining job creates 4 non-mining jobs (Knights & Hood, 2009).

NAC currently operates the Mine as 4.8 million tonnes (product coal) per annum (Mtpa) open cut coal mine on Mining Lease (ML) 50170 and ML 50216. Currently the Mine employs approximately 300 people. A large proportion of employees are permanent residents in the region with 35% based in the local district (including Oakey and Jondaryan) and a further 45% based in Toowoomba. Current operations are estimated to contribute $300 million annually in the Southeast Queensland economic region and $110 million annually in the Darling Downs economic region through goods and service, wages, taxes and royalties. The Mine's current reserve is forecast to be depleted by 2017.

NAC is currently seeking environmental approvals for the revised Project which involves the staged expansion of the Mine up to a maximum capacity of 7.5 Mtpa of product coal through the inclusion and progressive development of two new resource areas within Mining Lease Application (MLA) 50232.

At the maximum production rate of 7.5 Mtpa, the revised Project will directly employ 435 people at full production representing an additional 135 direct job opportunities above current employment levels at the Mine. The revised Project will boost economic activity within the Toowoomba region of the Darling Downs through direct and indirect employment, investment and business opportunities for the life of the revised Project.

The revised Project will allow NHG to continue its production capacity at the Mine to meet current and future market demands for its thermal coal products.

The revised Project's thermal coal products are a highly valued energy resource that possesses lower sulphur content, provides higher energy output and produces less greenhouse emissions than many alternative thermal coal sources. Despite the recent global economic downturn, there is sufficient sustainable demand to support the revised Project. Demand for power generation capacity is expected to remain relatively strong, particularly in the developing economies of Asia which are expected to support thermal coal use in the medium to long term.

The estimated direct construction/capital cost of the revised Project is $896 million and direct operating costs are approximately $450 million per annum with a total of $6.6 billion over the life of the revised Project. In the regional study area, the revised Project is estimated to contribute approximately $3.9 billion over the life of the mine, including direct, indirect and induced impacts. The revised Project will provide a significant contribution to the state's economy, estimated at approximately $1,395 million per year during construction and operation (including direct, indirect and induced impacts), or a total of $16.7 billion over the life of the project. Contributions to the State will be made directly through royalties and to the Toowoomba Regional Council through purchase of water from the Wetalla Wastewater Reclamation Facility (WWRF). The revised Project will support other Queensland industries such as rail transport, road transport and port operations. This contribution coupled with the direct and indirect employment opportunities and associated spending, highlights the value of the revised Project to Queensland.

In the event that the revised Project was not to proceed:

- the Mine would close in 2017 with the loss of employment for 300 full time workers and the loss of current annual economic contribution $300 million to Southeast Queensland and $110 million to Darling Downs;
- there would be a loss of 260 construction and 135 operational job opportunities along with the flow on (indirect) employment opportunities;
- significant export income would not be realised;
- injection of revenue into the regional economy would not occur; and
- significant State and Federal government taxes and royalties would not be generated..

2.2.2 Technical Feasibility and Commercial Viability

The revised Project is a progressive continuation of the Mine currently operated by NAC. The mining methods and techniques to be utilised for the revised Project will be very similar in nature to those already in use at the Mine. The technologies associated with the revised Project are proven and do

not represent a significant risk. For example, the in-pit tailing disposal currently in use at the Mine will be replicated by the revised Project based on the successful operation of the existing in-pit tailing disposal facility over the last eleven months.

The revised Project will involve the construction of a new CHPP, which is commonly used in coal mining operations around the world. The process design for the new CHPP is similar to the existing CHPP on-site.

NAC operates within a comprehensive decision-making framework involving the assessment of projects on environmental, social, technical/economical and legal/regulatory risk. The revised Project has been assessed as an attractive investment through this process and has been identified as a priority business opportunity by NAC.

2.2.3 Compatibility with Policy and Regulatory Frameworks

Chapter 1 Introduction summarises the key policy and regulatory documentation that applies to the revised Project. The revised Project is compatible and compliant with all relevant legislation and is consistent with the planning framework in place for the region.

2.2.4 Economic and Social Benefits

Social and economic impacts are detailed in **Chapters 17** and **18**, respectively.

The revised Project will provide several key benefits for local and regional communities including:

- employment opportunities for local and regional communities;
- opportunities for local business and industry to supply goods and services to the revised Project;
- increased spending power of employees and the associated boost to the local economy;
- training and apprenticeship opportunities at the Mine or with the APC; and
- support for local organisations and community groups through Community Investment Fund and Sponsorship and Donations programmes.

The revised Project is estimated to have significant economic benefits.

- The construction phase is expected to contribute $2.7 billion to total Australian economic output, of which $2.5 billion is estimated to remain in the Queensland economy. The operational phase is expected to contribute $14 billion to economic output in Queensland and a total of $16 billion in Australia.
- The value added impact for the Australian economy (contribution to gross domestic product) from construction is estimated at $1.1 billion, of which approximately $1 billion comprises contribution to Queensland Gross State Product. The total value added impact from operation is $5.7 billion in Queensland from a total of $7.7 billion in Australia.
- The construction phase is expected to support the equivalent of approximately 408 full-time equivalent jobs in Queensland and a total of 468 full-time equivalent jobs in Australia annually,

including flow on impacts. Direct employment for the revised Project is estimated to peak at 260 workers.

- The operational phase is expected to directly employ 435 people at full production representing an additional 135 direct job opportunities. Including flow on impacts, the operational phase is expected to support the equivalent of approximately 2,546 full-time equivalent jobs in Queensland, from a total of 3,082 full-time equivalent jobs in Australia annually.

At a regional level the revised Project is estimated to contribute:

- $2.6 billion to value added (gross regional product) from construction and operation, of which $228 million comprises impacts from household spending; and
- 131 full-time equivalent jobs per year during construction and 1,300 per year during operation. During operation, the revised Project is expected to directly employ approximately 392 workers from the region per year (on average). Household income impacts are estimated at $1.2 billion over the life of the revised Project.

At a local level, the revised Project will continue to contribute the following.

- Local employment will increase during operation – the Mine currently employs 300 full time workers, of which 105 reside within the local study area, and as a result, would be displaced in the absence of the revised Project. Where possible, NAC will also endeavour to fulfil additional labour requirements for increased production locally. During construction, NAC estimates that some (approximately 20%) of the construction workforce would be sourced locally.
- Contributions to household incomes will continue during operation - the local study area has historically had a lower median income compared to the regional study area and the Queensland average, and therefore, displaced employment in the absence of the revised Project would likely exacerbate this disadvantage. Conversely, the revised Project will directly provide on-going household income benefits for the local study area, estimated at approximately 35% of total salaries outlay.

2.2.5 Economic, Social and Environmental Impacts

The EIS presents the impacts that potentially arise from the revised Project. The EIS also presents mitigation measures to minimise these impacts. In some cases the mitigation measures are able to reduce the potential for impact to insignificant levels.

The more significant impacts and proposed mitigation measures for the revised Project are presented in **Table 2-1**. The residual effect represents the potential impact of the revised Project, which remain after mitigation measures are in place.

Table 2-1 Summary of Key Impacts and Mitigation Measures for the revised Project

Potential Impacts	Significance	Proposed Mitigation Measures	Residual Effect
Land Resources			
■ Impacts on potential Strategic Cropping Land ■ Potential net reduction in the land suitability rating ■ Potential increase in risk of erosion	M	■ Implement progressive rehabilitation program throughout the mine life in accordance with requirements of the Final Land Use and Rehabilitation Management Plan (**Appendix J.2**) ■ Implement Final Landform Technical Report (**Appendix G.1.8**) ■ Implement Topsoil Management Plan (**Appendix J.3**)	L
Surface Water			
■ Minimal impact on flooding and flows downstream of MLA 50232 and no impacts at Jondaryan ■ No diversion of Lagoon Creek ■ Minor increases in flood levels upstream of railway crossing of Lagoon Creek	L	■ Buffer and conservation plan along Lagoon Creek to improve riparian vegetation and water quality ■ Mine water management system to maintain downstream water quality ■ Engineering design to mitigate impacts of flooding from rail crossing	L
Groundwater			
■ Potential for some drawdown to west of revised Project	M	■ Extensive groundwater monitoring ■ Periodic revision of the groundwater model's accuracy based on monitoring ■ Provide alternative water supplies for any affected users	L
Terrestrial Ecology			
■ Potential impacts on vegetation communities including Natural Grassland, Brigalow and Poplar Box ■ Potential impacts on threatened species	M	■ Avoidance of impacts ■ Biodiversity offset ■ Threatened species relocation ■ Rehabilitation of disturbed areas	L
Aquatic Ecology			
■ No diversion of Lagoon Creek	L	■ Buffer along Lagoon Creek to improve riparian vegetation and water quality	L
Air Quality			
■ Potential for exceedance of air quality objectives at sensitive receptors to west of the revised Project and Acland	H	■ Air Quality Management Strategy including minimising air emissions, Dust Forecasting System, air quality monitoring and Adaptive Air Quality Management	L

Potential Impacts	Significance	Proposed Mitigation Measures	Residual Effect
Noise and Vibration			
■ Potential for exceedance of noise objectives at sensitive receptors at Acland	H	■ Attenuate major mobile equipment, ROM Bin and MHF ■ Proactive noise management trhough weather forecasting, real-time noise monitoring and adaptive management processes	M
Cultural Heritage			
■ No direct impacts on heritage items in Acland	L	■ Preserve Acland Town through heritage management plan	L
Traffic			
■ One school bus route affected	M	■ Undertake detailed intersection assessment ■ Notification for re-routing of bus route	L
Social			
■ Safety risks associated with travelling to site ■ Decreased connectivity around the site	M	■ Management of health and safety issues including fatigue ■ Maintain access for individual property owners. Communication program for changes to traffic and access conditions	L
Economics			
■ Economic costs of agricultural output ■ Transfer of employment from other industries leading to increased labour costs ■ Increase in migration to local area	L	■ Beneficial post mine land use ■ Provide training and opportunities for unemployed workers ■ Continued land management by the Acland Pastoral Company ■ Source employment locally where appropriate	L

Significance: H – High, M - Medium, L – Low

2.3 Project Alternatives

The potential alternatives options were investigated for the following components of the revised Project:

- Mine Plan;
- Alternate Locations;
- Mining Methods;
- Coal Handling and Preparation Plant;
- Materials Handling Facility (MHF);
- Train Loadout Facility (TLF);
- Tailing Management;
- Final Voids;
- Water Supply;
- Location of Water Management Structures;
- Rail Loop and Spur;
- Jondaryan-Muldu Road diversion; and
- Mine Noise Attenuation Options.

Alternative options for the components of the revised Project were considered against the following criteria wherever possible:

- potential environmental constraints and impacts;
- regulatory requirements;
- potential social and heritage constraints and impacts; and
- economic viability and technical constraints.

2.3.1 Mine Plan

A number of mine plans have been considered for the New Acland Stage 3 expansion. These options are discussed in the following sections.

New Acland Stage 3 EIS 2009

Key elements of the original project for the New Acland Stage 3 EIS included:

- expansion of the existing mining activities by the addition of the Manning Vale, Willeroo and Sabine resource areas within MLA 50232 (presented in **Figure 2-1**);
- production of 279.7 Mt (up to 10 Mtpa) of product coal over the life of the Project from 2013 to 2042 through truck-and-shovel mining from four active pit areas;
- diversion of Lagoon Creek around the Manning Vale resource area and the progressive re-establishment of Lagoon Creek along its original alignment;
- a total disturbance footprint of 4,644 ha; and

- construction of a private haul road to transport product coal from the Mine to the Jondaryan Rail Loadout Facility (JRLF).

The EIS was released publicly in 2009. Key community comments and concerns relating to the EIS identified through the community consultation process undertaken by NAC included:

- timing and location of the Project;
- the type of mining and facilities planned for the Project;
- how the coal will be railed or transported by road;
- environmental issues such as noise, dust, vibration, groundwater impacts, climate change, impacts to water ways, and flora and fauna;
- remnant vegetation conservation;
- proposed mine rehabilitation activities;
- impacts on existing social services;
- impacts of community health and wellbeing;
- employment opportunities;
- items of heritage significance from Acland;
- impacts from the JRLF;
- Lagoon Creek diversion and management; and
- location, closure and design of local roads.

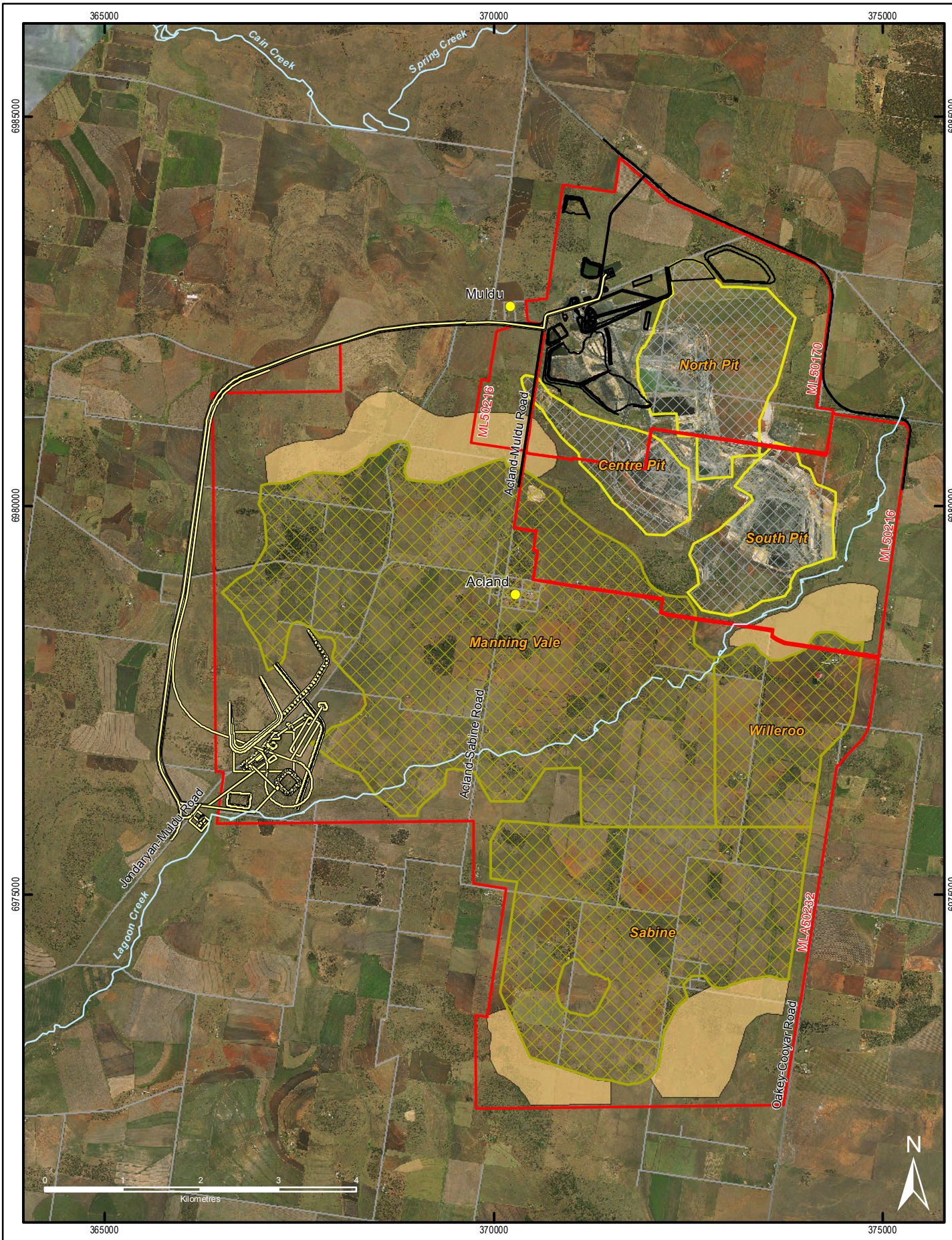
New Acland Stage 3 EIS – revised Project

The key elements of the New Acland Stage 3 EIS - revised Project include:

- expansion of the existing mining activities by the addition of the Manning Vale and Willeroo resource areas within MLA 50232 (presented in **Figure 2-2**);
- production of 80.4 Mt (up to 7.5 Mtpa) of product coal over the life of the Project from 2017 to 2029 through truck-and-shovel mining from three active pit areas;
- a total disturbance footprint of 2,030 ha ;
- decommissioning of the JRLF; and
- construction of new 8 km rail spur line and balloon loop on to MLA 50232 and TLF on MLA 50232.

No Project Alternative

In the event that the revised Project was not to proceed the Mine would close in 2017 with the loss of 300 jobs and current annual economic contribution $300 million to Southeast Queensland and $110 million to Darling Downs. Significant State and Federal government taxes and royalties would not be generated. Increased employment opportunities would be lost along with potential income for the existing workforce and support contractors. Without the revised Project, an increase in demand for secondary support industries and service suppliers would not be realised.



LEGEND

- Towns and Localities
- Creeks
- Roads
- Proposed Stage 3 Infrastructure
- Existing Infrastructure
- Mining Tenements
- Glen Roslyn Stage 1 & 2 Pit Boundary
- Stage 3 Pit Boundary
- Out of Pit Dump

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 2-1 - Proposed mining footprint for the Initial Stage 3 EIS

Scale 1:65,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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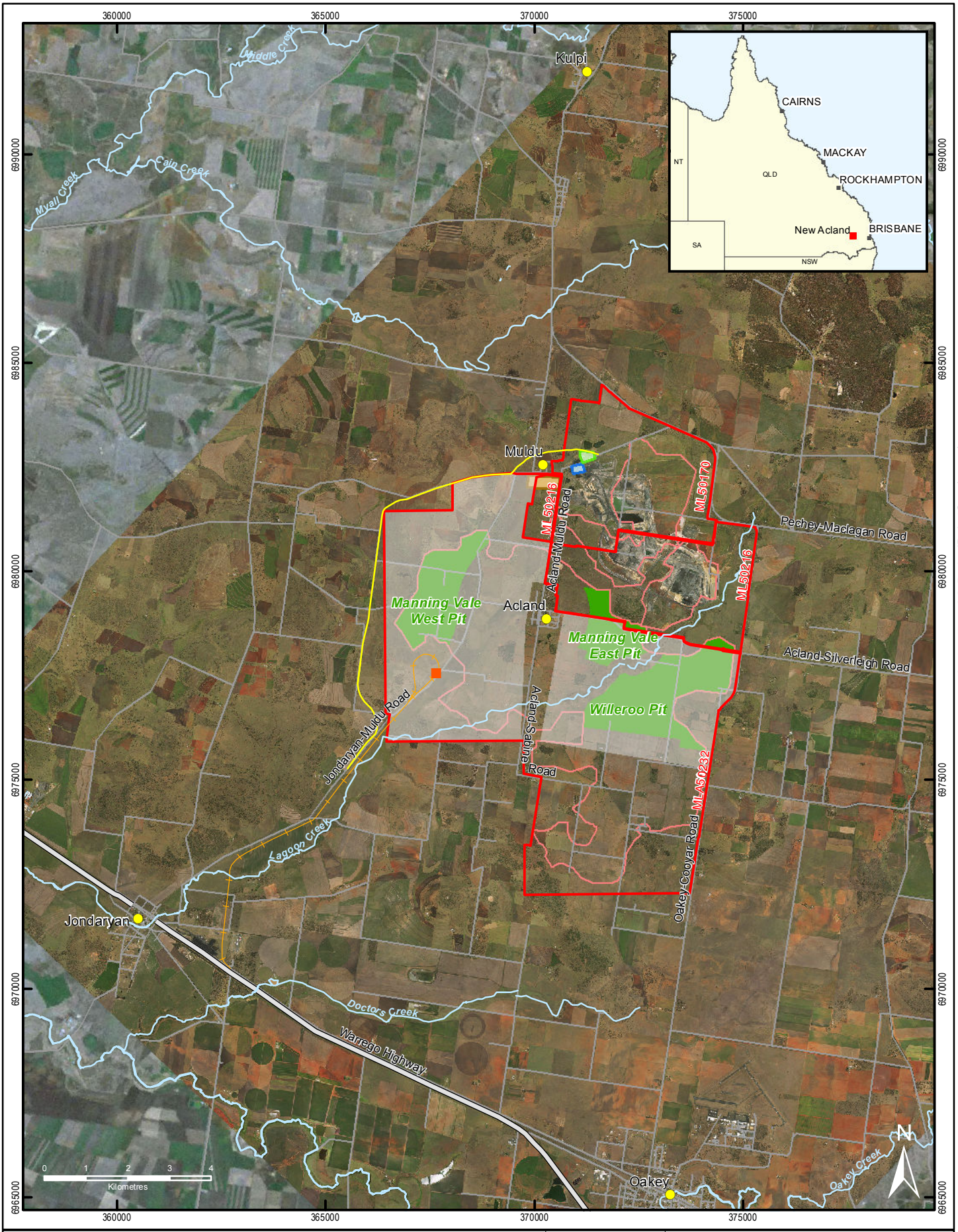

LEGEND

- Towns and Localities
- Train Loadout Facility
- Rail Spur
- Roads
- Creeks
- Jondaryan-Muldu Road Diversion
- Proposed Extent of Surface Rights Area
- Coal Resource Area
- Mining Tenements
- Stage 3 Pit Areas
- CHPP Precinct
- Material Handling Facility
- Mine Industrial Area

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 2-2 - Proposed mining footprint for the revised Project

Scale 1:120,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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A summary of the potential environment and heritage constraints and impacts, potential social constraints and impacts and economic /technical constraints for the three alternative mine plan options for the New Acland Stage 3 are presented in **Table 2-2**.

Table 2-2 Comparison of mine plan options for the New Acland Stage 3 Project

Mine Plan option	Constraint	Comments
New Acland Stage 3 EIS 2009	Environment	Lagoon Creek diverted, mined and re-established Total disturbance footprint of 4,644 ha. Potential impacts on 243 ha of mapped vegetation communities Impacts on potential Strategic Cropping Land Potential air quality and noise impacts
	Social and Heritage	Acquisition of land and relocation of sensitive receptors in Acland Relocation and preservation of heritage items removed from Acland Ongoing operation of the JRLF Separation distance of 7 km for mining operations from Oakey
	Economic/ Technical	Estimated capital expenditure $15 billion Direct employment of more than 320 people (at the peak) during construction and up to 508 people during operations.
Revised Project	Environment	No diversion of Lagoon Creek Protection and enhancement of Lagoon Creek Total disturbance footprint of 2,030 ha Potential impacts on 143 ha of mapped vegetation communities Reduced impacts on potential Strategic Cropping Land Reduction in potential air quality and noise impacts
	Social and Heritage	Retention of the township of Acland. Retain and maintain the Tom Doherty Park and War Memorial. Preserve Acland No.2 Colliery through heritage management plan Decommission JRLF and construct TLF on MLA 50232 Separation distance of 10 km for mining operations from Oakey
	Economic/ Technical	Estimated capital expenditure $6.6 billion Total output impact from operation is $16.7 billion in Queensland from a total of $18.7billion in Australia. Direct employment of more than 260 people (at the peak) during construction and 435 people during operations. Operations to support 2,546 FTE jobs in Queensland, from a total of 3,082 FTE in Australia

Mine Plan option	Constraint	Comments
No Project	Environment	Lagoon Creek untouched No additional disturbance No rehabilitation of Lagoon Creek
	Social and Heritage	Decommission JRLF
	Economic/ Technical	Mine would close in 2017 with the loss of employment for 300 full time workers and up to 2,300 indirect jobs. Loss of current annual economic contribution of $300 million to South East Queensland and $110 million to Darling Downs Job opportunities and economic benefits of the revised Project would not be realised

2.3.2 Alternate Locations

The revised Project location is defined by the nature of the deposit. Through extensive exploration as outlined in **Chapter 4**, the deposit which forms part of the Walloon coal measures, has been clearly defined and is described further in **Chapter 6**. The overburden has been defined as alluvial sands, clays and weak tertiary sediments overlying permian mudstones and sandstones. The relatively shallow nature of the deposit along with the weak thick layer of tertiary material, make it suitable for open cut mining through a truck and shovel operation.

The revised Project is the result of substantial geological investigations and mine planning by NAC. The exploitation of other resources in the area is less attractive than the revised Project due to the need for additional infrastructure, workforce availability generally lower resource quality and higher development and operational costs. The revised Project provides an economic mining option and will provide NAC an acceptable return on investment.

2.3.3 Mining Methods

The mining of coal can be undertaken by open cut or underground extraction methods. Underground operations in the Acland region closed in 1983 as it proved to be an uneconomic mining method for this deposit. Open cut mining is the only economic extraction method for the revised Project as:

- the coal seams are relatively shallow (< 80 m) and too banded for efficient underground extraction;
- the deposit consists of 6 coal seam groups and over 29 individuals coal seams in the Acland-Sabine Sequence which are approximately 30 m thick;
- the open cut method has significantly higher resource recovery for thin seam extraction; and
- the open cut method is the most cost effective extraction option for the coal resource.

As part of the mine planning process, an assessment of open cut mining methods has been undertaken to determine the most suitable mining method.

The three main methods for the removal of overburden above a coal deposit are by:

- electric rope shovel and trucks (mining a minimum of 150 m strips);
- hydraulic excavators and trucks (mining approximately 150 m to 200 m strips); and
- dragline applications (mining approximately 50 m to 60 m strips).

Based on the existing mining method presently utilised at the Mine, the hydraulic excavator and truck fleet was chosen due to the following components:

- the complex geology including the physical nature of the coal reserves thin seam arrangement, the overburden's properties and depth and the nature of the fault bounded coal blocks;
- mine pit layout and available operational space; and
- lower establishment and operational costs.

The dragline and electric rope shovel and trucks options are less economic than the more flexible hydraulic excavator and truck fleet for predominately the following reasons:

- the high initial up-front capital cost has an adverse effect on the Net Present Value (NPV);
- introducing an electrical machine into the operation requires expensive electrical reticulation capital and maintenance costs;
- the material re-handle required is considerable increasing the mining cost on a prime volume basis;
- the dragline's utilisation rates for shallow thin seam mining would be poor because of its high pre-stripping capabilities, which would adversely affect the NPV;
- the spoil rehabilitation costs are higher than in the current life of mine truck / shovel scenario; and
- the Acland deposit consists of a considerable quantity of parting material between seams, which in the dragline case would need to be carried out of the mine pit, increasing the associated haulage costs of the parting compared to the base case.

2.3.4 Coal Handling and Preparation Plant

The options considered for the revised Project's process requirements include:

- construction of new 750 t/h module and associated material handling facilities;
- upgrade CHPP1 and associated material handling facilities; and
- upgrade CHPP2 and associated material handling facilities.

A summary of the environmental, economic and technical considerations for each of the CHPP alternatives considered for the revised Project are presented in **Table 2-2**. A new 750 t/h module is preferred alternative for the CHPP because there are reduced risks during construction period and no requirements for construction shutdowns of CHPP1 and CHPP2.

Table 2-3 Summary of the environmental economic and technical considerations for CHPP options

Scenario	New 750 t/h module	Upgrade CHPP1	Upgrade CHPP2
Environmental Considerations	Largest footprint	Lower increase in overall footprint	Lower increase in overall footprint
Economic Considerations	Can be built while other CHPP's operate Highest capital cost 3 facilities to operate & maintain	Lowest Capital Cost Only operating 2 facilities Reduced Capital over installing new equipment Longer shutdown compared to new CHPP Only additional 200 t/h Increased production loss due to construction shutdowns	Large throughput gain (~400 t/h) for lower capital cost Only operating 2 facilities Reduced capital over installing new equipment Longer shutdown compared to new CHPP Increased production loss due to construction shutdowns
Technical Considerations	Can be built away from existing CHPPs, minimising interaction between operations and construction. All new equipment Reduced brownfield construction risk due to the remote module location. Able to install surge capacity in the raw coal feed to module 2 and module 3.	CHPP 1 becomes same process as CHPP 2 when both upgraded Reduced capital over installing new equipment Construction site located close to operating Plant	Construction site located close to operating plant New thickener needs to be constructed

2.3.5 Material Handling Facility

The environmental, economic and technical considerations for a range of thirteen options for the MHF are presented in **Table 2-4**. The key drivers for selection of a preferred MHF included:

- Minimise noise and dust;
- Preference to place product at customer ash specification onto trains; and
- Achieve upgrade at realistic capital outlay.

The preferred stockpile configuration arising from the workshop discussion coincides most closely with Option 8 as presented in **Figure 3-24**.

Table 2-4 Summary of the environmental economic and technical considerations for MHF options

Option - Description		Environmental and Technical Considerations
1	Current product handling configuration	Noise generation from dozer operation Ongoing operating cost with the need for dozer pushing/ rehandling.
2	A travelling luffing stacker(s) and dozer reclaim into coal valves/ vibrating feeders.	Noise generation from dozer operation. Limitation on capacity to blend product. Ongoing operating cost with the need for dozer pushing/ rehandling.
3,4	Product handling based on overhead sky conveyors and trippers utilising two stacking lines. Reclaim is by dozer push into coal valves/ vibrating feeders	Noise generation from dozer operation. Limitation on capacity to blend product. Ongoing operating cost with the need for dozer pushing/ rehandling.
5,6	Product handling based on overhead sky conveyors and trippers utilising two stacking lines. Reclaim is by dozer push into coal valves/ vibrating feeders.	The single stacker option does not satisfy the requirement to stockpile product from each plant separately
7	Stacks product longitudinally from two travelling luffing stackers running on separate conveyors mounted outside the stacking lines	Reclaim blending capability is poor High capital cost for the bucket wheel reclaimer
8	A centrally mounted travelling luffing slewing stacker stacking product	The single stacker option does not satisfy the requirement to stockpile product from each plant separately. Modifying to include two stackers would satisfy the operational requirement for individual stacking.
9,10	A centre mounted fixed non-luffing wing type stacker will chevron stack combined product from all wash plants in longitudinal stockpiles	The single stacker option does not satisfy the requirement to stockpile product from each plant separately. Ongoing operating cost with the need for dozer pushing/ rehandling. Noise generation from dozer operation. Indiscriminate reclaim blending capability. Very high installed power input. Lower capital costs
11	Product reclaim is by full face bridge reclaimer to outside mounted reclaim conveyors.	Reclaim blending capability would be significantly improved, ongoing operating cost would be reduced and installed power would be decreased Single stacker option does not satisfy the requirement to stockpile product from each plant separately. Inability to relocate the reclaimer if it is needed elsewhere and trapped behind a stockpile.

Option - Description		Environmental and Technical Considerations
12	A single product stacking line, with a single travelling luffing slewing stacker and a single portal scraper reclaimer	Reclaim blending capability would be significantly improved, ongoing operating cost would be reduced and installed power would be decreased Single stacker option does not satisfy the requirement to stockpile product from each plant separately. Inability to relocate the reclaimer if it is needed elsewhere and trapped behind a stockpile.
13	A single centrally mounted stacker and portal reclaimers feeding on to outside mounted reclaim conveyors located adjacent to the TLF	Dust amenity impacts from coal stockpiles near TLF

2.3.6 Product Loadout

There are two key options for the location of the train load out facilities for product coal produced at the revised Project:

- construction of a new TLF on MLA 50232; or
- continued operation of the JRLF.

The benefits associated with the construction of the new TLF on MLA 50232 include a reduced potential for dust and noise impacts at Jondaryan and improved amenity at Jondaryan through the removal of coal stockpiles.

The benefits associated with the continued operation of the JRLF include reduction in the overall footprint of the revised Project and reduction in the overall capital costs of the revised Project. Consultation has identified the operation of the JRLF is a key concern for the local community.

The preferred product load out option for the revised Project is the construction of the TLF on MLA 50232 because there is a reduced potential for dust and noise impacts, improved amenity and community acceptance at Jondaryan through the decommissioning of the JRLF.

Community feedback received during the EIS process has identified there are community concerns relating to potential coal dust generated from coal train movements along the Western Rail Line. NAC has implemented coal veneering at JRLF and will include veneering at the new TLF for the revised Project. Veneering involves the application of a water-based solution to the surface layer of coal on each wagon. Studies (Connell Hatch, 2008) have shown veneering processes to be effective in reducing the levels of dust generated from coal train movements.

2.3.7 Tailings Management

There are two potential disposal options for the disposal of tailings generated from the CHPP for the revised Project:

- construction of in-pit tailings cells as part of the dump design; or
- construction out-of-pit tailings dams.

The benefits associated with construction of in-pit tailings cells include a reduction in the overall footprint of the revised Project, reduced size and volume of final voids and minimal risk for embankment instability.

The benefits of out-of-pit tailings dams include reduced pumping distances from the CHPP and lower potential for groundwater contamination.

The preferred tailing disposal option for the revised Project is the construction of in-pit tailings cells as part of the dump design. This approach is consistent with the current tailings strategy for the Mine and is the method of tailings storage preferred by the regulatory authorities. Current management approaches for in-pit disposal have been adopted for the revised Project and are presented in **Appendix J.18**.

2.3.8 Final Voids

It is commonly acknowledged that the method of open cut mining often leads to a final void or voids at the cessation of mining activities. Therefore, the environmental imperative for open cut mining is to reduce the size of the voids. Complete backfilling of the voids would require extensive earthworks involving the 'double handling' and transportation of overburden materials and the disturbance of rehabilitated areas to access backfilling materials. As a result, this approach is inefficient and uneconomical. NAC acknowledges that suitable measures must be taken to design the void at the mine planning stage such as progressively placing overburden in the mine pit behind the mine path and battering final pit walls to develop flatter slopes.

The DME 'Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland January 1995' (DME, 1995) provided five objectives for 'Open Pit' Rehabilitation that remain at the end of operations as described below:

- to ensure that open pits and spoil faces are rehabilitated in a form consistent with the agreed post-mining land use;
- to ensure that open pits and spoil faces remain stable after the completion of mining;
- to provide for suitable and adequate sealing of mined face strata, where sealing is required;
- to ensure that open pits are properly drained and where used as a water storage, hold water of acceptable quality; and
- to rehabilitate open pits so that risks to public safety are minimised.

At the completion of mining activities, most voids will have been partially backfilled by placing overburden in the mine pit as mining progresses. At the completion of mining activities, there will be

no final voids, with the final pit locations rehabilitated to depressed landforms totalling 457 ha. As discussed in **Section 3.6.5**, NAC plans to explore additional ways of reducing the size and extent of the final voids throughout the life of the revised Project.

The revised Project's final landform design comprises a two staged approach initially involving the completion of mining activities which will result in a void being created in each of the three mine pits. The second stage involves the partial backfilling and re-shaping of the voids to create depressed landforms. It is intended that the depressed landforms within the revised Project site will provide a stable landform consistent with final land use objectives. The base of the depressed landforms will lie on average; approximately 60 m to 80 m below the existing surface level. **Appendix G.1.8** provides the Final Landform Technical Report that further describes the development and rationale for the revised Project's depressed landforms.

Various options presented in the DME (1995) were considered for the final voids for the revised Project, including:

- **Backfilling.** Overburden will be progressively backfilled into the mine pit during operations behind the active mine path. NAC propose to partially backfill and re-shape the voids to create depressed landforms. The sequence of mining operations has been appropriately planned to minimise the size of the voids.
- **Use as a Water Storage Area.** The depressed landform will collect water from rainfall and be subject to groundwater ingress. Accumulation of water in the depressed landforms is likely to be offset by evaporation rates. Any accumulated water may be suitable for stock or irrigation use but water quality testing should be undertaken prior to use.
- **Development as a Wetland / Wildlife Habitat.** NAC will consider the possibility of establishing the depresses landforms as a wetland / wildlife habitat, which would add ecological value to the local region and complement the final land use objectives of an integrated pasture and grazing land use.
- **Use for Refuse Disposal.** Currently, the remaining voids are not located in close enough proximity to a constant waste source for this option to be economical. A refuse disposal facility is not consistent with the proposed post-mine land use for disturbed areas for the revised Project is a mosaic of self-sustaining vegetation communities and grazing land consistent with the surrounding agricultural land uses.

NAC is acutely aware of it obligations with regard to the environmental, social, economic and regulatory obligations which underpin the business case to complete comprehensive mine closure planning. In 2004, the Minerals Council of Australia developed Enduring Value – The Australian Industry Framework for Sustainable Development (MCA, 2004). The principals relating to mine closure are stated below:

- Principle 2: Integrate sustainable development considerations within the corporate decision-making process;
- Principle 4: Implement risk management strategies based on valid data and sound science;
- Principle 6: Seek continual improvement of environmental performance;

- Principle 9: Contribute to the social , economic and institutional development of the communities in which we operate; and
- Principle 10: Implement effective and transparent engagement, communications and independently verified reporting arrangements with stakeholders.

As part of the mine closure planning investigations, strategies will be developed by NAC which will focus on the principles stated above. These investigations have commenced with the development of a life of mine plan which seeks to minimise the mine 'footprint' and reduce the amount of unusable land through the formation of depressed landforms. Throughout the course of the revised Project it is envisaged that improvements to the final landform identified through the mine planning process will be investigated and incorporated into the mine closure planning phase. Environmental investigations into the rehabilitation, hydrology, geotechnical stability and the ability to sustain flora and fauna habitats within the depressed landforms and investigations into alternative and sustainable post-mining land uses for the depressed landforms are viewed as being an essential part of the mine closure planning process.

2.3.9 Water Supply

At full production, the net water usage water requirements for the revised Project are estimated to be 3,300 ML per annum. There are two main water supply options for raw water for the revised Project:

- purchase recycled water from the WWRF; and
- use of the existing groundwater allocation.

NAC has a long term contract for the life of the revised Project with the TRC to purchase up to 5,500 ML per annum of Class A+ recycled water from the WWRF. The 45 km pipeline and infrastructure was constructed in 2009 and is fully operational.

NAC have an additional 1,412 ML per annum of licensed capacity that is available from the aquifers via a series of groundwater bores. Current allocation from Helidon is 710 ML per annum and from Marburg the allocation is 271 ML per annum.

The preferred water supply option for the revised Project is to purchase recycled water from the WWRF to meet contractual obligations. Groundwater records in 2012 show water use from bore extraction has been reduced to less than 42 ML per annum.

Water from groundwater bores will be used for emergency supply purposes (i.e. in the event of an extended problem with the operation of its Wetalla water pipeline). Potable water originates from basalt aquifers and is sourced from licensed groundwater bores on-site and treated by a Reverse Osmosis Treatment Plant on-site.

2.3.10 Location of Water Management Structures

A preliminary assessment has been conducted to determine the location of the proposed water management structures. The locations for the various water management structures are defined in **Chapter 5**. The location of the structures was dependent on the following factors:

- ability to accommodate for the efficient capture and treatment of dirty run-off;
- the minimisation of the potential for discharge off site;
- the minimisation of flood waters from Lagoon Creek entering water management structures and therefore contaminating raw and clean waters;
- the minimisation of flood waters entering the operational mining pits and creating a significant dirty water source requiring accelerated disposal to allow the recommencement of mining activities; and
- the maximisation of water recovery for CHPP operations and dust suppression activities.

2.3.11 Rail Loop and Spur

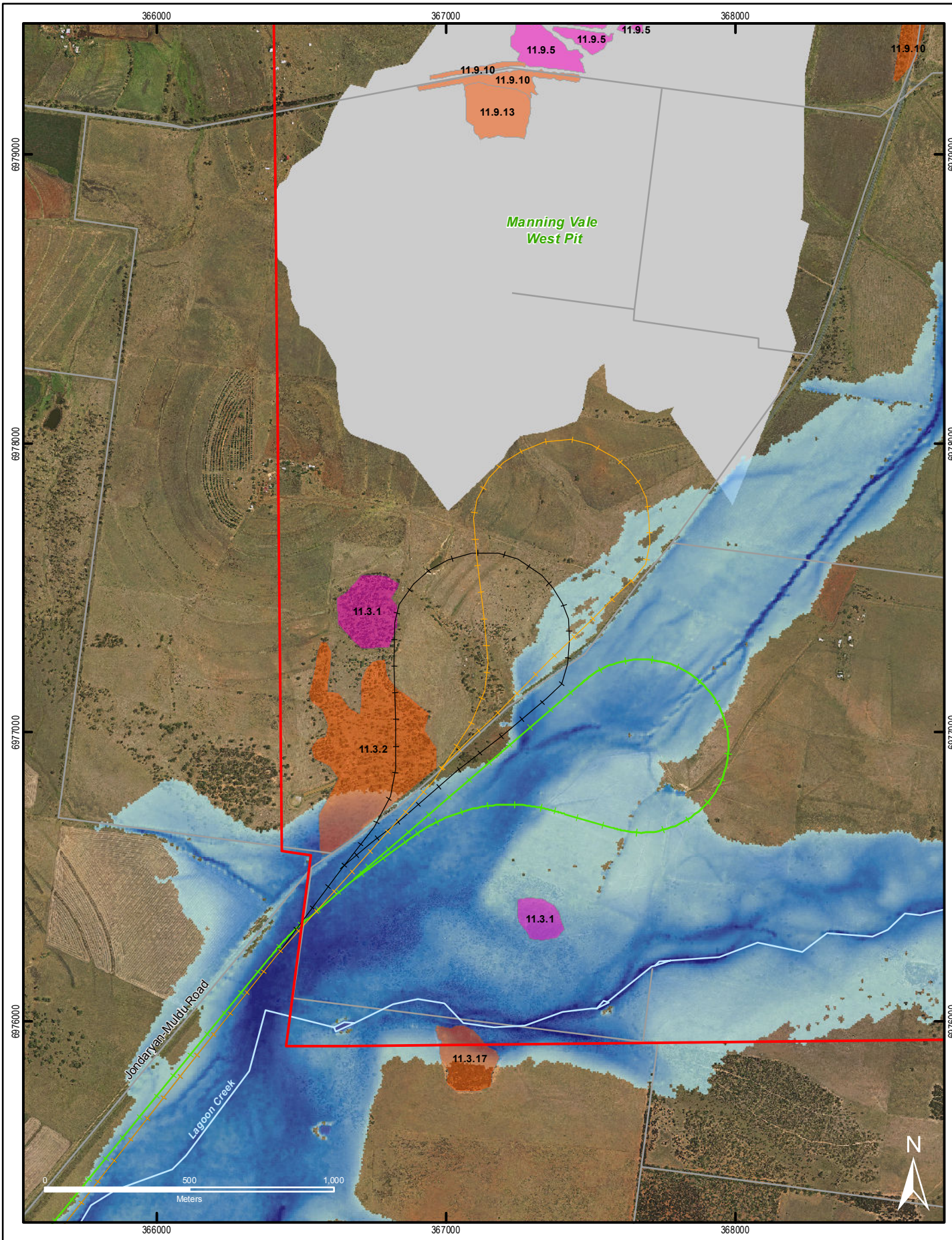
A range of environmental and technical constraints were identified for the proposed location for the rail loop and spur on MLA 50232. The potential environmental and technical constraints include mapped regional ecosystems, flood plain and confluence of three tributaries of Lagoon Creek and proposed depressed landforms post-mining.

Table 2-5 summarises the main options considered for the revised Project's rail loop and spur.

Table 2-5 Summary of the environmental economic and technical considerations for the rail loop and spur

Scenario	Option 1	Option 2	Option 3
Environmental Considerations	Balloon loop and TLF located 8km from Jondaryan on remote location of MLA 50232. Avoid the majority of impacts to the mapped regional ecosystems. Balloon loop avoids majority of flood plain and confluence of Lagoon Creek.	Balloon loop and TLF located 8km from Jondaryan on remote location of MLA 50232. Potential impacts to the mapped regional ecosystems. Balloon loop partially located in a flood plain and confluence of Lagoon Creek.	Balloon loop and TLF located 8km from Jondaryan on remote location of MLA 50232. Avoids impacts to the mapped regional ecosystems. Balloon loop located in a flood plain and confluence of Lagoon Creek.
Economic Considerations	Reduced capital cost due to drainage requirements	Higher capital cost due to drainage requirements	Highest capital cost due to extensive drainage requirements
Technical Considerations	Lower risk of rail damage from flood events.	Higher risk of rail damage from flood events.	Higher risk of rail damage from flood events.

Option 1 is the preferred alternative for the rail spur and balloon loop because it avoids the majority of impacts to the mapped regional ecosystems and the balloon loop avoids majority of confluence of Lagoon Creek.



LEGEND

- Towns and Localities
- Roads
- Creeks

Rail Loop and Spur Options

- Option 1
- Option 2
- Option 3

- Mining Tenements
- Disturbance Footprint

Flood Levels

3.3972

0

Observed Regional Ecosystem

- Endangered
- Of Concern
- Not Of Concern
- Least Concern

NEW HOPE GROUP

SKM

NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 2-3 - Alternative arrangements for the Rail Loop and Spur

Scale 1:17,500 on A4

Projection: Australian Geodetic Datum – Zone 56 (AGD84)

Path: I:\QENV2\Projects\QE06644\Spatial\ArcGIS\01_Figures\01_SEIS\02_Project Justification\130801_NewHope_ProjectJustification_Figure2-3_RailLoopSpurOptions.mxd

Produced: 9/09/2013

2.3.12 Jondaryan-Muldu Road Diversion

There are two key options for the location for the Jondaryan-Muldu Road diversion. Both options for the Jondaryan-Muldu Road Diversion are presented in **Figure 2-4**.

The preferred option for the Jondaryan-Muldu Road diversion is Option 2 due to:

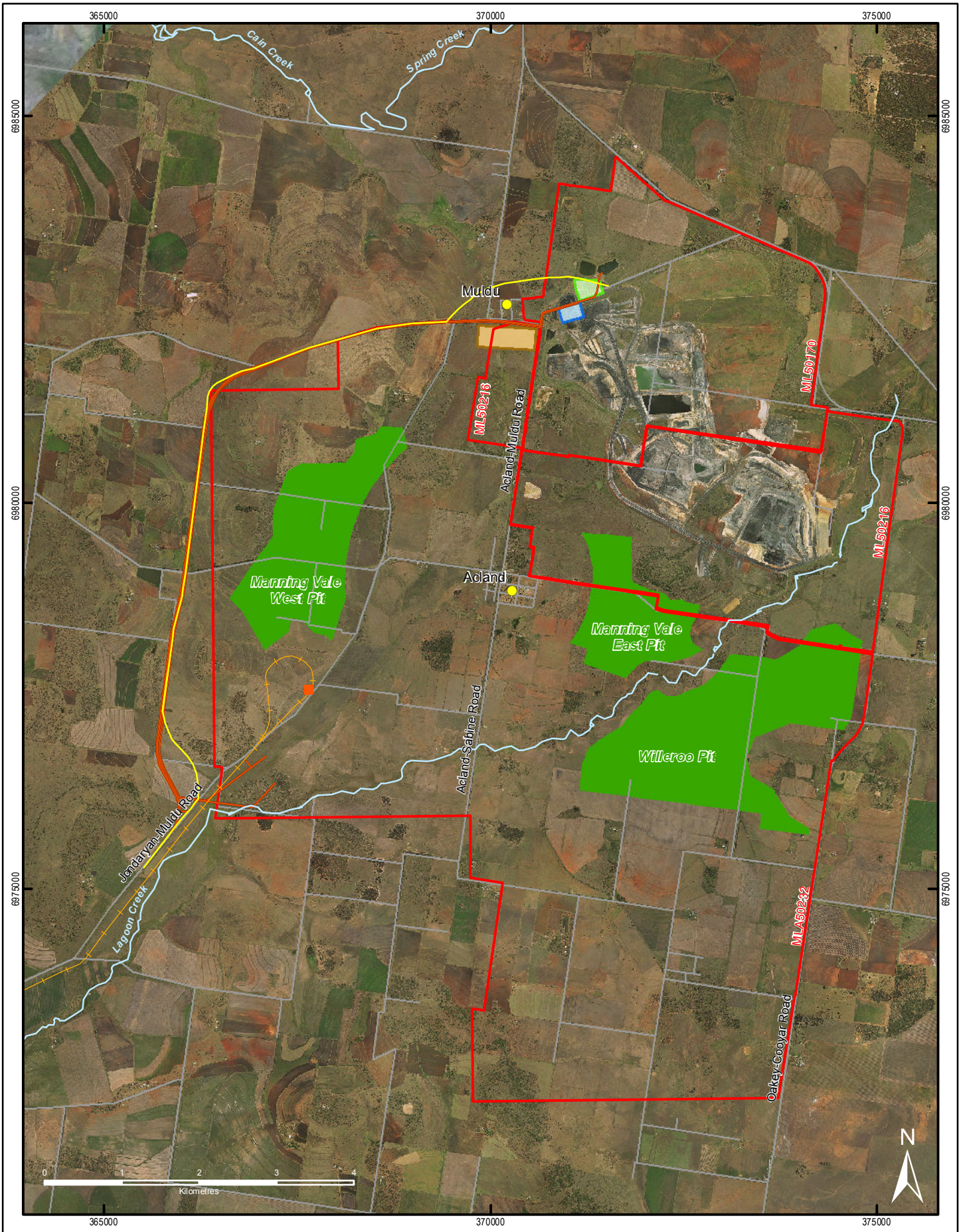
- reduced property impacts on one landholder to the southwest of MLA 50232;
- improved safety along Jondaryan-Muldu Road through a reduced interaction with mine traffic and equipment; and
- the proposed alternative route minimises travelling distances for normal users of Jondaryan-Muldu Road.

2.3.13 Mine Noise Attenuation Options

NAC identified that noise generated from mining operations was a key constraint for the revised Project based on the mine plan and proximity of sensitive receptors to mining activities. A range of different mining scenarios were identified and noise modelling was undertaken to assess the feasibility of implementing these scenarios onsite.

A number of operating scenarios were investigated and noise modelling exercises were carried out, with the aim to assist in developing a mining operation that would demonstrate best practice and comply with noise objectives while achieving a feasible and viable mining operation. The operating scenarios investigated include the:

- effect of replacing excavator (noisier equipment) with loader (relatively quieter equipment) to achieve the same output;
- viability of night time operation in the Manning Vale East pit with regards to complying with noise objectives;
- comparison of conveyor versus haul truck options;
- feasibility of using existing equipment (not noise attenuated);
- use of a mixture of noise attenuated and existing equipment; and
- use of noise attenuated equipment.



LEGEND

- Towns and Localities
- Train Loadout Facility
- Rail Spur
- Roads
- Creeks
- Option 1 – Road diversion from previous EIS
- Option 2 - Jondaryan-Muldu Road Diversion for revised Project
- Mining Tenements
- Stage 3 Pit Areas
- CHPP Precinct
- Material Handling Facility
- Mine Industrial Area

NEW HOPE GROUP

SKM

NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 2-4 - Options for the Jondaryan-Muldu Road Diversion

Scale 1:65,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

Produced: 9/09/2013 Path: I:\QENV2\Projects\QE06644\Spatial\ArcGIS\01_Figures\01_SEIS\02_Project\Justification\130909_NewHope_Project\Justification_Figure2-4_Jondaryan-MulduRdDiversion.mxd

A summary of the investigated scenarios and the associated environmental and economic considerations are presented in **Table 2-6**.

Table 2-6 Summary of alternative mine equipment options considered

Scenario	A	B	C	D	E
Description	Feasibility of Existing Equipment	Mixture of attenuated and non-attenuated mining equipment	Replace Excavator with front end loader	Night time operation in Manning Vale East pit	Conveyor to transport coal to TLF along western boundary
Equipment	Use existing mining equipment	Attenuated equipment in Manning Vale East pit Use existing mining equipment in two pits	Excavators, track dozers, loaders and rear dump trucks are attenuated	Excavators, track dozers, loaders and rear dump trucks are attenuated	Excavators, track dozers, loaders and rear dump trucks are attenuated
Environmental Considerations	Does not meet noise objectives	Does not meet noise objectives	Does not achieve significant reduction in noise levels	Does not achieve significant reduction in noise levels	Does not meet noise objectives
Economic/ Technical Considerations	Reduced capital cost	Higher capital cost (>$5 million)	Higher capital cost (>$12 million)	Higher capital cost (>$12 million)	Additional capital cost for conveyor

The noise investigations confirmed the importance of adopting a best-practice approach to noise management for the revised Project. The implications for the proposed mining operations for the revised Project are:

- noisier equipment including excavators, track dozers, loaders and rear dump trucks will need to be attenuated to meet noise objectives; and
- mining operations within the Manning Vale East pit will need to be varied or limited during the night time period to meet noise objectives (i.e. depending on ambient conditions).

2.4 Standard Criteria Assessment

The EP Act requires ERAs to be authorised by an administering authority. The administering authority for the revised Project is the DEHP. When considering an application or deciding on the conditions of the EA, the DEHP must consider certain matters set out in the EP Act. One of those matters is the 'Standard Criteria'.

In order to determine the viability of the revised Project in Queensland, it is important to address the 'Standard Criteria'. The purpose of this Section is to address each of these criteria and to demonstrate how these criteria will be met by the revised Project.

Schedule 3 of the EP Act defines the 'Standard Criteria' as:

(a) the following principles of environmental policy as set out in the Intergovernmental Agreement on the Environment—

  (i) the precautionary principle;

  (ii) intergenerational equity;

  (iii) conservation of biological diversity and ecological integrity; and

(b) any Commonwealth or State government plans, standards, agreements or requirements about environmental protection or ecologically sustainable development; and

(c) any relevant wild river declaration; and

(d) any relevant environmental impact study, assessment or report; and

(e) the character, resilience and values of the receiving environment; and

(f) all submissions made by the applicant and submitters; and

(g) the best practice environmental management for activities under any relevant instrument, or proposed instrument, as follows—

  (i) an environmental authority;

  (ii) a transitional environmental program;

  (iii) an environmental protection order;

  (iv) a disposal permit;

  (v) a development approval; and

(h) the financial implications of the requirements under an instrument, or proposed instrument, mentioned in paragraph (g) as they would relate to the type of activity or industry carried out, or proposed to be carried out, under the instrument; and

(i) the public interest; and

(j) any relevant site management plan; and

(k) any relevant integrated environmental management system or proposed integrated environmental management system; and

(l) any other matter prescribed under a regulation.

2.4.1 Criterion (a) – Ecologically Sustainable Development

This section outlines the revised Project's compatibility with the objectives and principles defined in Australia's National Strategy for Ecologically Sustainable Development (Commonwealth of Australia, 1992).

The key ESD objectives defined in the National ESD Strategy are:

- To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations.
- To provide for equity within and between generations (the Intergenerational Equity Principle).
- To protect biological diversity and maintain essential ecological processes and life-support systems.

The National ESD Strategy also identifies three specific objectives for the mining sector:

- To ensure mine sites are rehabilitated to sound environmental and safety standards, and to a level at least consistent with the condition of surrounding land.
- To provide appropriate community returns for using mineral resources and achieve better environmental protection and management in the mining sector.
- To improve community consultation and information, improve performance in occupational health and safety and achieve social equity objectives.

Individual and Community Well-being and Welfare

The revised Project will provide significant benefits to the wider community in terms of contribution to household income, employment and increased Government revenues and reinvestment, as detailed in **Chapter 18** of the EIS.

The Proponent's measures to improve social well-being and welfare are outlined in **Chapter 17** of the EIS.

The economic contribution of the revised Project includes:

- The construction phase is expected to contribute $2.7 billion to total Australian economic output, of which $2.5 billion is estimated to remain in the Queensland economy. Operation is expected to contribute $14 billion to economic output in Queensland and a total of $16 billion in Australia.
- The value added impact for the Australian economy (contribution to gross domestic product) from construction is estimated at $1.1 billion, of which approximately $1 billion comprises contribution to Queensland Gross State Product. The total value added impact from operation is $5.7 billion in Queensland from a total of $7.7 billion in Australia.
- The construction phase is expected to support the equivalent of approximately 408 full-time equivalent jobs in Queensland and a total of 468 full-time equivalent jobs in Australia annually, including flow on impacts. Direct employment for the revised Project is estimated to peak at 260 workers.

- The operational phase is expected directly employ 435 people at full production representing an additional 135 direct job opportunities. Including flow on impacts, operation is expected to support the equivalent of approximately 2,546 full-time equivalent jobs in Queensland, from a total of 3,082 full-time equivalent jobs in Australia annually.

The economic contribution of the revised Project at a regional level includes:

- $2.6 billion to value added (gross regional product) from construction and operation, of which $228 million comprises impacts from household spending.
- 131 full-time equivalent jobs per year during construction. During operation, the revised Project is expected to directly employ approximately 392 workers from the region per year (on average). Household income impacts are estimated at $1.2 billion over the life of the revised Project including direct, indirect and induced impacts.

The economic contribution of the revised Project at a local level includes:

- ongoing contribution to local employment during operation– the Mine currently employs 300 full time workers, of which 105 reside within the local study area and would be displaced in the absence of the revised Project. Where possible, NAC will also endeavour to fulfil additional labour requirements for increased production locally. During construction, NAC estimates that some (approximately 20%) of the construction workforce would be sourced locally.
- ongoing contribution to household income during operation - the local study area has historically had a lower median income compared to the regional study area and the Queensland average, and displaced employment in the absence of the revised Project would likely exacerbate this disadvantage. Conversely, the revised Project will directly provide ongoing household income benefits for the local study area, estimated at approximately 35% of total salaries outlay.

The revised Project will contribute to the long-term viability of local businesses. NAC supports a diverse range of community initiatives to support community-based organisations including local schools and sporting clubs, community groups and centres, health and aged care organisations, regional industry associations, charities, festivals and events through the Community Investment Fund and Sponsorship and Donations programmes.

The Intergenerational Equity Principle

The revised Project addresses the welfare of future generations while realising economic benefits.

The welfare of future generations is being considered through the preservation of cultural heritage, minimising disturbance, building beneficial infrastructure and post-mining land form. The revised Project preserves the Acland area, including the Tom Doherty Park, the War Memorial and the Acland No 2 Colliery, and has reduced the project footprint by 60%. Rail infrastructure upgrades will improve overall rail system efficiency and utilisation and provide for future rail freight options through the west Moreton system and power supply upgrades may increase overall power availability for the community.

Building intergenerational equity requires that the revised Project consider the long-term use of the land and community impacts. The revised Project has a decreased overall impact by protecting Strategic Cropping Land in the Sabine area and reducing the overall footprint by 60%.

The revised Project seeks to safeguard the welfare of future generations and achieve intergenerational equity by achieving a post-mining land form consistent with the pre-mining composition. This will be achieved through project design, operational management and monitoring and reporting. The depressed and elevated landforms resulting from mining activities will be reduced by in-pit disposal of tailings and an out-of-pit dump designed to minimise erosion. Through the Acland Pastoral Company, a wholly owned subsidiary of NHG, and in collaboration with the University of Southern Queensland, grazing and rehabilitation trials on progressively rehabilitated land have shown great success in returning land to productive pastoral activity. This progressive programme will continue while monitoring is undertaken until the revised Project's total disturbed area is fully rehabilitated. NAC may also seek progressive "sign-off" on successfully rehabilitated landforms once they have met the requirements of the final land use success criteria.

Protection of Biological Diversity and Essential Ecological Processes

The terrestrial and aquatic ecology values in the vicinity of the revised Project site are described in **Chapter 7** and **Chapter 8** respectively. These chapters also provide an assessment of the impacts along with mitigations measures throughout the life of the revised Project.

Key decisions in the revised Project support the protection of biological diversity. Specifically, limiting the overall footprint of the revised Project and redesigning the mine plans to avoid the diversion of Lagoon Creek, have protected ecological processes on-site.

The life of mine plan has been prepared to incorporate the progressive rehabilitation of disturbed areas behind the mine path. This rehabilitation strategy will allow NAC to proactively measure the success of the rehabilitation in line with the post mine land use strategy.

NAC has developed a biodiversity offset strategy to manage the residual impacts to State and Commonwealth biodiversity matters within the revised Project's disturbance footprint. The proposed biodiversity offset strategy for the revised Project will require State and Commonwealth approval and will be designed to produce an enhanced environmental outcome once fully implemented. The revised Project's biodiversity strategy is provided in **Appendix I**.

Minesite Rehabilitation

Disturbed land will be rehabilitated and left in a stable, non-polluting condition, as detailed in **Section 4.8** of the EIS. The proposed post-mine land use for disturbed areas for the revised Project is a mosaic of self-sustaining vegetation communities and grazing land, using appropriate native tree, shrub and grass species, and improved pasture species as appropriate. This post-mine land use will be consistent with the surrounding land uses.

Provide Appropriate Returns for Mineral Resources and Achieve Better Environmental Protection and Management in the Mining Sector

The revised Project will produce a product that is subject to a high international demand for the foreseeable future and will provide significant revenues to Commonwealth, State and Local

Government. The coal resource has been subject to detailed investigations to define the extent of the resource and the feasibility of its extraction and processing.

The revised Project will not impact on other coal, gas and mineral resources in the region. There are no significant resources of coal seam gas overlapping with the revised Project that will be lost by the development of the revised Project.

ESD Guiding Principles

The guiding ESD principles defined in the National ESD Strategy are:

Decision-making processes should effectively integrate both long and short term economic, environmental, social and equity considerations.

- Where 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 (the Precautionary Principle).
- The global dimension of environmental impacts of actions and policies should be recognised and considered.
- The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised.
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.
- Cost-effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentives mechanisms.
- Decisions and actions should provide for broad community involvement on issues which affect them.

Each of these ESD guiding principles are addressed in turn below.

Decision-Making Based on Long and Short Term Considerations

The revised Project will provide immediate and long-term benefits to the economic and social fabric of Queensland and in particular the Toowoomba Regional Council. The revised Project will contribute to the national, state and local economies. NAC will invest approximately $6.6 billion over the life of the revised Project on development and operation activities.

The Precautionary Principle

NAC has undertaken an assessment of the risk of unacceptable environmental harm consistent with the Precautionary Principle, and used the findings to determine appropriate environmental control strategies, which have been detailed in the EIS and Environmental Management (EM) Plan. NAC has the technical and financial support and resources to establish and maintain these environmental protection controls for the revised Project.

Global Environmental Impact

The revised Project will generate greenhouse gas emissions from site operations. The increase in greenhouse gas emissions above current operations of the Mine represents 0.01% of Australia's

annual greenhouse gas emissions. As outlined in **Chapter 10**, the Proponent proposes a range of mitigation measures for site level emissions and is taking action at a corporate level to address the wider implications of greenhouse gas emissions and climate change. As a participant in the Commonwealth's Energy Efficiency Opportunities program, the NHG is reducing its greenhouse footprint through energy reduction initiatives.

As detailed in **Chapter 7** and **Chapter 8**, the revised Project will not result in significant impacts to threatened species, migratory species, RAMSAR wetlands and threatened ecological communities.

Development of a Strong, Growing and Diversified Economy which can enhance the Capacity for Environmental Protection

The revised Project will add value to the International, Australian and Queensland economies. There will be some flow-on effects to other areas of the Queensland economy as a result of the revised Project. Assessments conducted in **Chapter 17** estimate approximately 3,087 full time equivalent jobs will be created nationally. NAC will encourage the use of local suppliers and contractors during construction and operations.

Enhancing International Competitiveness in an Environmentally Sound Manner

The revised Project will enhance Australia's international competitiveness by adopting latest technology and mining methods, while not causing significant environmental impacts. The revised Project will be subject to an EA which will ensure that all environmental impacts are managed appropriately.

Cost-Effective and Flexible Policy Instruments

The revised Project is consistent with Queensland and Commonwealth Government policy.

Community Involvement in Decisions and Actions

NAC has undertaken community consultation prior to and during the preparation of the EIS, which is detailed in **Chapter 19**. NAC will continue consultation through the life of the revised Project utilising current practices which include the New Acland Community Reference Group, Community Liaison Officer, mine site tours, neighbour open days, neighbour visits, participation in community functions, maintaining a toll free contact number, newsletters and website updates.

The development of the revised Project has involved extensive consultation with local landholders, community groups, local councils and government agencies. The following elements of the revised Project are based on feedback received through community consultation:

- no mining through Acland;
- establishment of 10 km buffer distance between mining operations and Oakey;
- minimise disturbance of potential Strategic Cropping Land;
- no diversion of Lagoon Creek;
- decommissioning of the JRLF;
- veneering of coal trains during product coal loadout; and
- preservation of items of heritage significance from Acland.

2.4.2 Criterion (b) – Applicable Commonwealth, State or Local plans, Standards, Agreements or Requirements

Federal, State and Local plans, agreements, standards and requirements have been considered in the preparation of this EIS.

Plans

The construction and operation of the revised Project is consistent with the TRC's Strategic Plan.

Agreements

The Federal government is a signatory to agreements on climate change, migratory birds, world heritage and bio-diversity. There are four main principles of these conventions:

- the precautionary principle;
- intergenerational equity;
- conservation of biological diversity; and
- improved valuation, pricing and incentive mechanisms.

These principles, in relation to the revised Project, have been addressed above in **Section 0**.

Standards and Requirements

The revised Project relevant standards are those set out under the *National Environment Protection Council (Queensland) Act 1994* (NEPC Act). This reflects the Federal legislation, which provides for standards that will have effect nationally. NEPMs outline national objectives for protecting and managing particular aspects of the environment.

The NEPMs relevant to the revised Project are:

- Ambient Air Quality; and
- National Pollutant Inventory.

To meet the requirements of these NEPM's, NAC will:

- comply with the EPP (Air); and
- prepare and submit an annual NPI Report which details emissions from the revised Project.

Environmental Protection Policies

This section provides an assessment against the following Environmental Protection Policies (EPPs) relevant to the revised Project:

- *Environmental Protection (Water) Policy 2009*;
- *Environmental Protection (Air) Policy 2008*;
- *Environmental Protection (Noise) Policy 2008*; and
- *Environmental Protection (Waste Management) Policy 2000*.

Environmental Protection (Water) Policy 2009

NAC have prepared a Water Management Plan (refer to **Appendix J.4**) for the revised Project based on the existing program in place at the Mine. Wastewater prevention options will be assessed and a hierarchy will be used to decide the preferred methods for dealing with wastewaters. This assessment will consider the minimisation of wastewater, recycling, water treatment and reuse. **Chapter 5** presents the water balance for the revised Project and outlines the required water usages in line with the water requirements for the revised Project.

Environmental Protection (Air) Policy 2008

The EPP (Air) establishes guidelines for ambient air quality and technology based standards for point-source emissions. Schedule 1 of the EPP (Air) states air quality indicators and goals that are the maximum for contaminants, which may be present in the air environment. Air quality modelling has been conducted to address the revised Project's compliance with the requirements for all gaseous emissions from the revised Project site. The results of the modelling are presented in **Chapter 9**. Mitigation measures to reduce air emissions from the revised Project are also presented in this chapter.

Environmental Protection (Noise) Policy 2008

The EPP (Noise) covers environmental values and acoustic quality objectives. **Chapter 11** presents the results of noise modelling undertaken for the revised Project. This Chapter also details mitigation measures to be implemented by the revised Project to reduce the noise and vibration impacts from site operations.

Environmental Protection (Waste Management) Policy 2000

The EPP (Waste) stipulates the provisions of the Waste Management Hierarchy and outlines the guiding practices and principles behind waste management in Queensland. The EPP (Waste) also provides a framework for decision making on the generation and transportation of waste.

In developing the Waste Management Plan (WMP) for the Mine, the waste management hierarchy was employed to identify waste generation sources and determine suitable management options for particular waste types. The Project will review and amend the existing WMP to reflect the new activities being undertaken.

2.4.3 Criterion (c) - Any relevant wild river declaration

There are no wild river areas within the vicinity of the revised Project.

2.4.4 Criterion (d) – Environmental Impact Study

NAC has prepared the EIS subject to the EIS process under the SDPWO Act and therefore has undertaken numerous studies to determine the environmental impact of the Project. The EIS details the existing environmental values, the impacts of the revised Project and the mitigation measures to be implemented to reduce the impacts.

2.4.5 Criterion (e) – Character, Resilience and Values of Receiving Environment

The environment surrounding the Project site has been thoroughly described in this EIS and is summarised in the EM Plan located in **Appendix J.19**.

2.4.6 Criterion (f) – Submissions made by Applicant and Submitters

The EIS and any other subsequent environmental studies will constitute NAC's submission in support of the revised Project's Application for the EA and ML. NAC has undertaken an extensive community consultation program prior to preparing the EIS. The details of which, are presented in **Chapter 19**.

2.4.7 Criterion (g) – Best Practice Environmental Management

Best practice environmental management is defined in the EP Act, section 21 as:

the management of the activity to achieve an ongoing minimisation of the activity's environmental harm through cost-effective measures assessed against the measures currently used nationally and internationally for the activity.

The revised Project will implement a comprehensive rehabilitation program, noise, air quality and water management strategy which meets or exceeds the guidelines set out in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland (DME, 1995).

2.4.8 Criterion (h) – Financial Implications

The revised Project will undoubtedly financially benefit the local community directly, not only in value adding but also in providing the local community with employment and opportunity. The revised Project has the technical and financial support to establish and maintain commitments associated with infrastructure requirements and environmental management controls.

2.4.9 Criterion (i) – Public Interest

The revised Project will directly employ up to 260 people during the construction phase and over 435 long-term jobs in the operating phase. The revised Project is expected to contribute $16.7 billion to Queensland's Gross State Product (including direct, indirect and induced impacts). The revised Project will provide employment and wealth for the region. Issues of community interest and concern have been dealt with during the EIS process and are detailed in **Chapter 19**. NAC will continue to engage with the community throughout the life of the revised Project as an extension of its existing community consultation program.

2.4.10 Criterion (j) – Site Management Plan

An Environmental Management Framework has been prepared to address and manage environmental issues form the revised Project. The management plans state management strategies to minimise the potential for environmental harm and will also set out a framework to manage environmental obligations set out in the EA. The Environmental Management Framework is presented in **Appendix J**. The specific plans included in the Environmental Management Framework include:

- Environmental Management Plan;
- Final Land Use and Rehabilitation Management Plan;
- Topsoil Management Plan;
- Water Resource Management Plan;
- Groundwater Impact Management Plan;
- Conservation Zone Management Plan;
- Threatened Species Translocation Management Plan;
- Air Quality Management Plan;
- Noise and Vibration Management Plan;
- Waste Management Plan;
- Pest and Weed Management Plan;
- Emergency Management Plan;
- Aviation Hazard Management Plan;
- Social Impact Management Plan;
- Local Stakeholder Management Plan;
- Bluegrass Offset Management Plan;
- Acland Colliery Conservation Management Plan; and
- In-pit Tailings Storage Facility (ITSF) Management Plan.

2.4.11 Criterion (k) - Proposed integrated environmental management system

The revised Project will operate in accordance with an integrated EMS.

2.4.12 Criterion (l) – Other matters

An EA under the EP Act is required for undertaking a resource activity, which includes a mining activity authorised under a mining lease. A single EA is required for all resource activities that are carried out as a single integrated operation. An application to amend EA MIM800317705 (to include MLA 50232) has been made for the revised Project. An MLA will not be granted until after the EA amendment application is granted.