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5. Responses to Submissions

5. Responses to Submissions

5.1 Key Issues Requiring Further Information

5.1.1 Nature Conservation – Koala Management

5.1.1.1 Issue 1: mitigation measures

An independent consultancy specialised in fauna protection has been engaged to prepare a Koala Species Management Plan (KSMP). This plan is located in **Appendix B** of the AEIS. The KSMP is to be implemented by NAC together with the Lagoon Creek Conservation Zone Management Plan (CZMP) which is presented in **Appendix J.6** of the draft EIS. The intent of the KSMP is to ensure the long-term existence of the local Koala population by mitigating and managing potential impacts on the conservation of the Koala (*Phascolarctos cinereus*) across the Study area. NAC believes a net benefit to the local koala population will be provided through the provision of suitable habitat and appropriate movement corridors.

The KSMP includes:

- Aims and Objectives;
- Relationship to other ecological plans required for the revised Project;
- Identification of known habitat for the species within the revised Project area;
- Identification of threatening process (direct and indirect);
- Individual threat management strategies for:
  - Vegetation clearing;
  - Retained vegetation; Rehabilitation areas; and
  - Collision areas and protective measures.
- Improvements, and corrective and preventive actions:
  - Revegetation with feed tree species; and
  - Fauna movement control devices.
- Monitoring plan describing:
  - Species-specific monitoring protocols;
  - Performance criteria and corrective actions;
  - Key stakeholders and responsible parties, including staff training, together with their roles and responsibilities; and
  - Reporting protocols and timing including ecological incident/emergency reporting procedures.

The Environmental Management Plan (EM Plan) located in **Appendix C** of the AEIS has been updated to incorporate a summary of the KSMP. NAC have made further commitments outlined in the KSMP to more effectively manage potential impacts on the local Koala population in response to

issues raised in submissions on the draft EIS. The updated Commitments Register is presented in **Appendix D** of the AEIS, with relevant commitments located at numbers 813-836.

5.1.2 Land

5.1.2.1 Issue 1 Clarify whether the Regional Planning Interests Act 2014 (RPI Act) applies to the revised Project and if so, timeframes on when RPI applications will be made

As discussed in **Section 4.1.3** of the AEIS, on 13 June 2014, the RPI Act commenced operation. Under the RPI Act, in order to carry out a resource activity, a RIDA is required to carry out a resource activity in an area of regional interest, unless an exemption applies.

The RPI Act is supported by regional plans, which includes relevant to the revised Project, the DDRP. The DDRP has been prepared to advance the purpose of the SP Act by providing integrated land use planning policy for the region. Amongst other things, it identifies PAAs within the Darling Downs region.

The RPI Act applies to the revised Project, as it is mapped entirely within a PAA and contains large areas of potential Strategic Cropping Land (SCL) under the former *Strategic Cropping Land Act 2011* (SCL Act), which have become part of the SCA under the RPI Act.

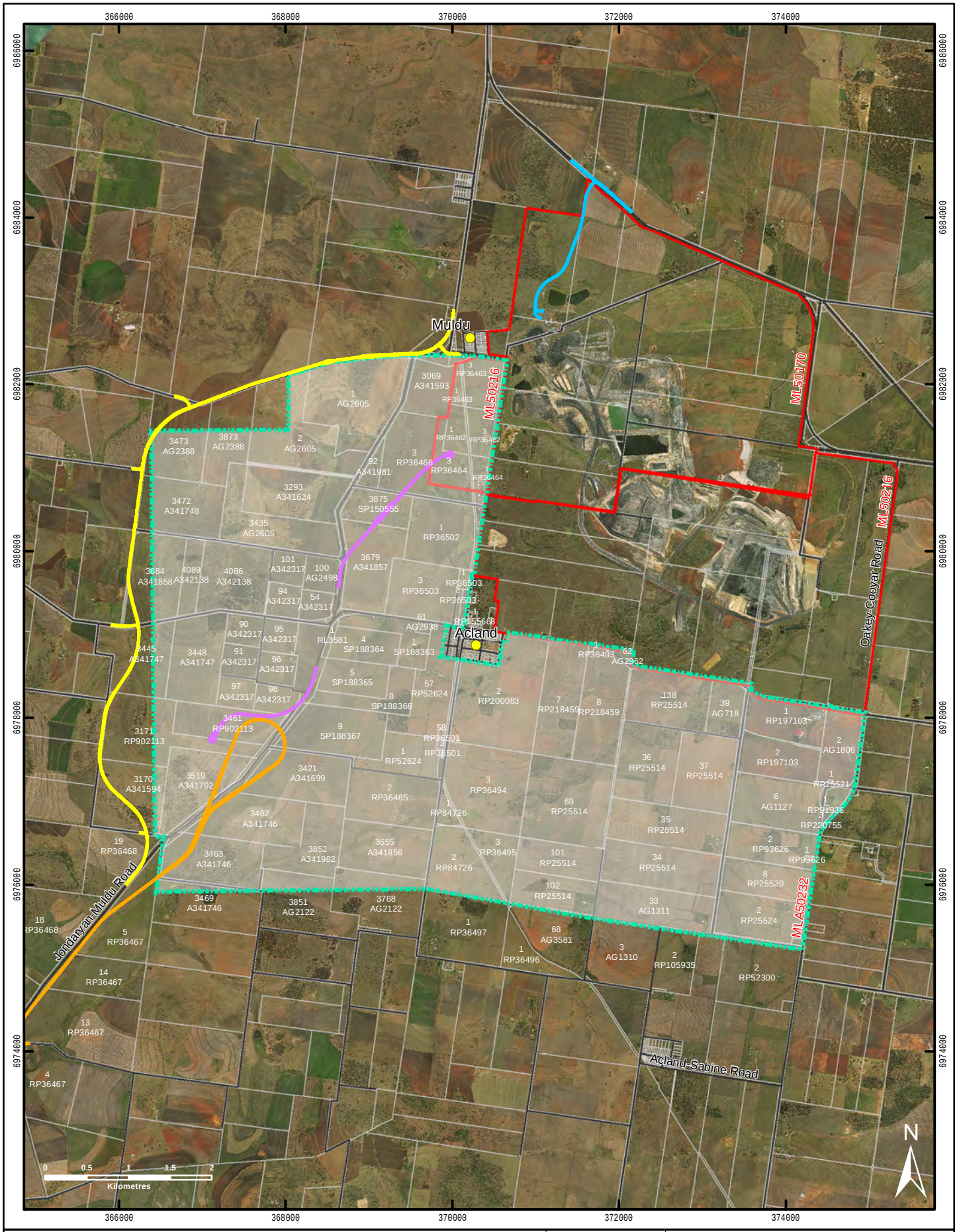
Except to the extent exemptions apply to the revised Project, a RIDA will be required under the RPI Act and will be applied for in accordance with the RPI Act and RPI Regulation prior to construction. NAC has engaged a consultant to assess the impacts of the revised Project in the context of the RPI Act and RPI Regulations requirements.

5.1.2.2 Issue 2 Confirm any legislative requirements that apply to the project to address impacts on strategic cropping land /areas.

The SCL Act has been repealed with the commencement of the RPI Act. Areas of SCL and potential SCL mapped under the former SCL Act have become part of the SCA regulated under the RPI Act.

5.1.2.3 Issue 3 Confirm the project's Mining Lease Application has been amended to identify surface right areas from mining activities. Include a map to identify surface right areas.

NAC has given notice in writing to the Chief Executive under Section 307 of the MR Act to partially abandon MLA 50232 to include only the area depicted in **Figure 5.1.2-A** of the AEIS. Due to the legislative requirement under Section 232 of the MR Act where a ML can only be granted in respect of contiguous land, the partial abandonment covers an area shown in **Figure 5.1.2-A** of the AEIS. In line with previous commitments, the Acland area is excluded from the MLA. The partial abandonment of Acland and the southern area is for both surface and sub-surface rights and has taken effect from 30 June 2014.



LEGEND

- Towns and Localities
- Roads
- Cadastre
- Amended Mine Lease Boundary Application
- Mining Tenements

Revised Rail & Road Infrastructure

- Internal Haulage Road
- Revised Access to Mine
- Revised Jondaryan-Muldu Road Diversion
- Revised Rail Spur and Balloon Loop Alignment

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 5.1.2-A - Amended Mine Lease Boundary Application

Scale 1:60,000 on A4

Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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5.1.2.4 Issue 4 Identify the total surface area impacted by project activities and list the different types of impacts for areas separately

The revised Project draft EIS reported a total disturbance footprint of 2,030 ha. This disturbance footprint also includes disturbance on existing ML areas and off-lease areas (example rail infrastructure off-lease) that is required for the revised Project as depicted in **Figure 5.1.2-B.**

It has been identified that the Depressed Landform reported as 621 ha, includes a duplication of the pit footprint already reported under the Mining Areas as 921 ha. This is illustrated in **Table 5.1.2-A**.

Table 5.1.2-A Disturbance footprint duplication correction

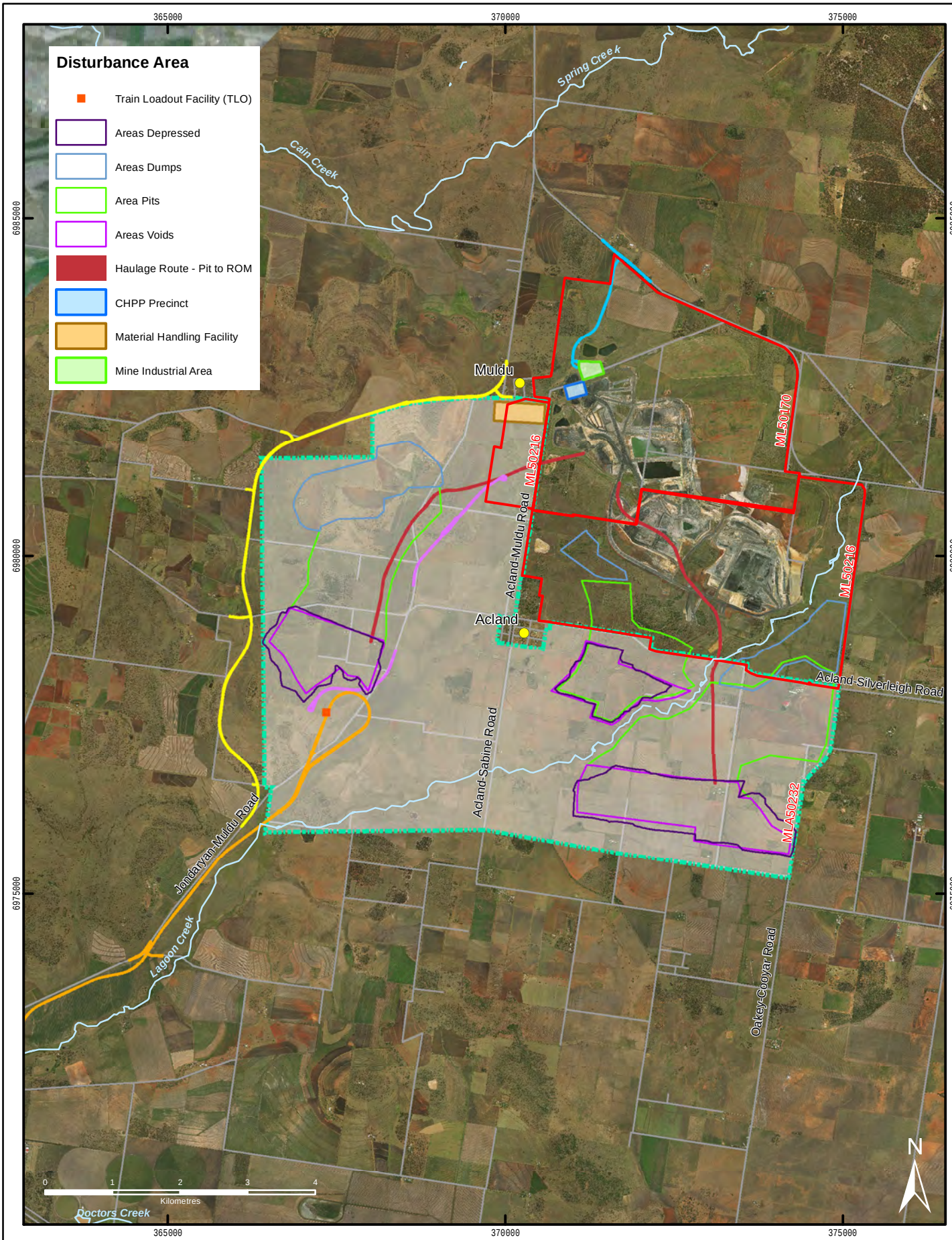
Disturbance area	2014 EIS - Table 4-35	2014 EIS - Disturbance duplication removed
Mining Areas	921	1201
Elevated Landforms	314	311
Depressed Landforms	621	Incl in Mining Areas
Rehabilitation batter of slopes	0	128
Mine Infrastructure	174	175
Total	**2,030**	**1,815**

Figure 5.1.2-B illustrates the disturbance footprint for the areas depressed, area dumps, area pits, area voids, haulage route, CHPP Precinct, MHF, MIA and TLF within MLA 50232, current ML 50170 and ML 50216 and off-lease areas and is summarised in **Table 5.1.2-B. Figure 5.1.2- C** distinguishes between the disturbance footprint for the revised Project within MLA 50232 and ML 50170 and ML 50216.

Table 5.1.2-B 2014 Draft EIS disturbance footprint detail

	2014 Stage 3 EIS						
	Stage 3 disturbance footprint on MLA50232			Stage 3 disturbance footprint on Existing MLs (ML 50170 and ML 50216)			All
	Figure 5.1.2-C Descriptor	Area	Total	Figure 5.1.2-C Descriptor	Area	Total	Grand Total
Specific location		(ha)	(ha)		(ha)	(ha)	(ha)
Manning Vale East Pit	1	175	185	12	67	95	**280**
Manning Vale East Elevated Landform (Out of Pit dump)	2	0		13	28		
Manning Vale East Rehabilitation batter of slopes	3	10			0		
Manning Vale West Pit	4	375	580		n/a	0	**580**
Manning Vale West Elevated Landform (Out of Pit dump)	5	155			n/a		
Manning Vale West Rehabilitation batter of slopes	6	50			n/a		
Willeroo Pit	7	563	657	14	21	123	**780**
Willeroo Elevated Landform (Out of Pit dump)	8	26		15	102		
Willeroo Rehabilitation batter of slopes	9	68			n/a		
On-Lease infrastructure (Rail Loop, MHF, Roads)	10	44	44	16	32	32	**76**
Off-Lease infrastructure (Roads and Rail)	11	n/a	n/a	17	99	99	**99**
Total			**1,466**				**1,815**

The total footprint for the revised Project is estimated at 1,815 ha, a reduction of 215 ha than that reported in the draft EIS of 2,030ha. The total footprint of 1,815 ha can further be defined as 1,466 ha on the new MLA 50232, 250 ha on the existing ML areas, and 99 ha for off-lease road and rail infrastructure which is partly on existing transport easements.



LEGEND

- Towns and Localities
- Roads
- Creeks
- Amended Mine Lease Boundary Application
- Mining Tenements

Revised Rail & Road Infrastructure

- Internal Haulage Road
- Revised Access to Mine
- Revised Jondaryan-Muldu Road Diversion
- Revised Rail Spur and Balloon Loop Alignment

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Figure 5.1.2-B - Disturbance Footprint

Scale 1:75,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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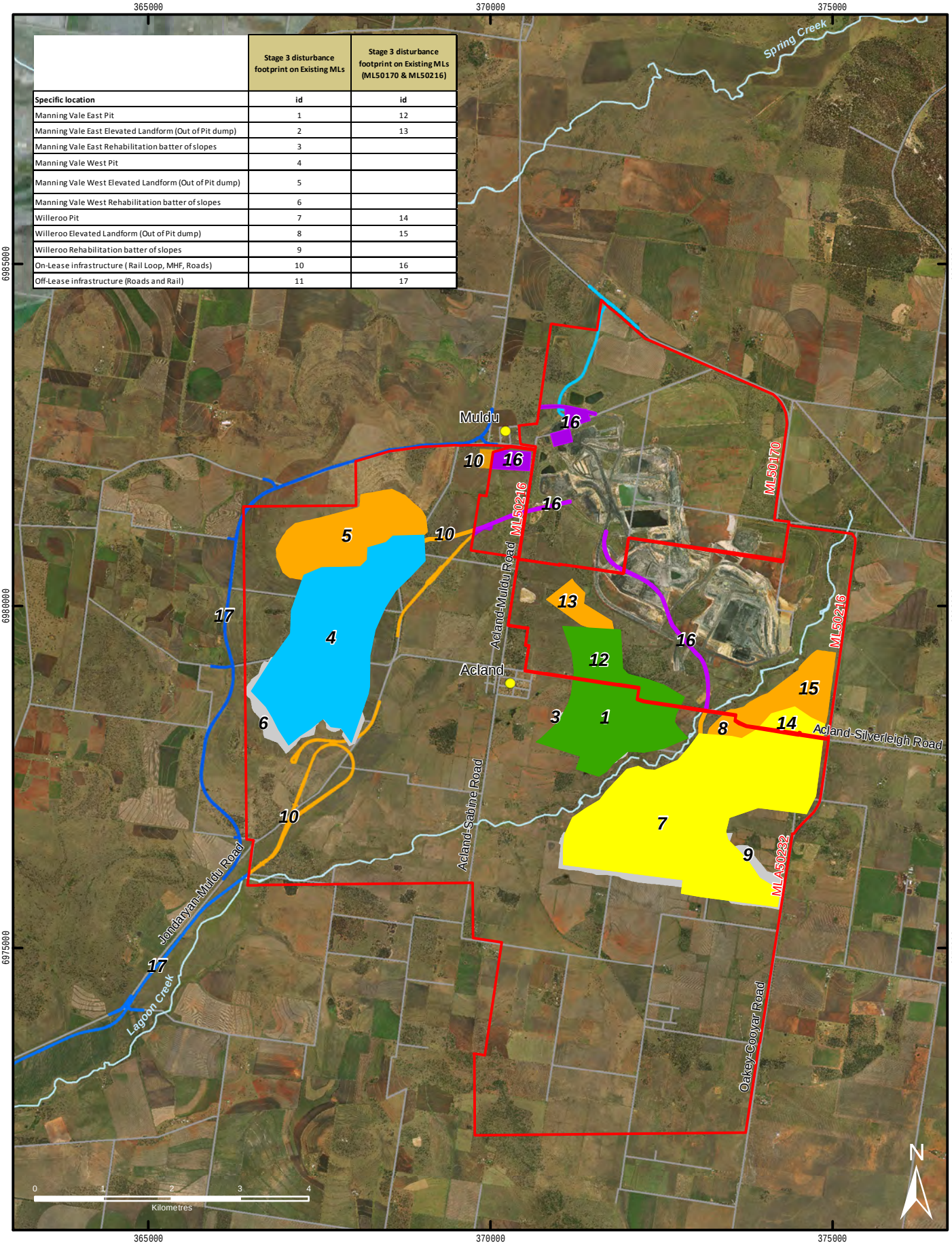

	Stage 3 disturbance footprint on Existing MLs	Stage 3 disturbance footprint on Existing MLs (ML50170 & ML50216)
Specific location	**id**	**id**
Manning Vale East Pit	1	12
Manning Vale East Elevated Landform (Out of Pit dump)	2	13
Manning Vale East Rehabilitation batter of slopes	3	
Manning Vale West Pit	4	
Manning Vale West Elevated Landform (Out of Pit dump)	5	
Manning Vale West Rehabilitation batter of slopes	6	
Willeroo Pit	7	14
Willeroo Elevated Landform (Out of Pit dump)	8	15
Willeroo Rehabilitation batter of slopes	9	
On-Lease infrastructure (Rail Loop, MHF, Roads)	10	16
Off-Lease infrastructure (Roads and Rail)	11	17

LEGEND

- Towns and Localities
- Roads
- Creeks
- Revised Access to Mine

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Figure 5.1.2-C - Overall Disturbance Footprint

Scale 1:75,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

Produced: 24/08/2014 Path: i:\QENV2\Projects\QE06644\SpatialArcGIS\01_Figures\03_AE\SNACP_Section5.1.2\140630_NewHope_Figure5-1-2C_OverviewDisturbaneFootprint.mxd

5.1.2.5 Issue 5 Provide information on the current outcomes of trials of the rehabilitation of mining areas to grazing areas and how this program would apply if stage 3 proceeds. Identify the role of external experts to provide advice or review outcomes as appropriate. Confirm whether the company intends to continue to make the outcomes and reports of these trials publically available.

Project Background

NAC is engaged in mining coal at the Mine within the Darling Downs region of southern Queensland. Mining at the site is undertaken through open cut techniques that requires progressive rehabilitation of the mined land back to commercial agricultural production for use by the Acland Pastoral Company (APC). As part of this process, it is NAC's intention is to maximise the land capability following mining through effective rehabilitation techniques.

The APC manages approximately 10,000 ha of farm land within the Acland district. The APC's agricultural business is focused on beef cattle production. The APC assists NAC with its rehabilitation activities at the Mine and has been instrumental in establishing a cattle grazing trials project within the Mine's rehabilitated land.

The basis for the cattle grazing trials project, which is co-ordinated by Outcross Pty Ltd (consultants), is to measure the performance of rehabilitated land when compared with unmined land, based on commercial parameters. The post mined land is to be used predominately for beef cattle production. Therefore, the cattle grazing trials project team have chosen to compare the performance of a series of trial sites and control sites based on measuring commercially important key performance indicators for beef cattle production (Paton 2014).

In general, the area operated by the APC is productive land based on mostly self-mulching black soil plains. As a result, the APC has selected as the more profitable land use to run dry (non-lactating) cattle that are grown out to sell, as opposed to running breeding cows that are used for the purpose of producing calves. The enterprise chosen for the cattle grazing trials project is growing out steers to feedlot entry weight. This approach is consistent with common commercial land use for the area (Paton 2014).

The cattle grazing trials project has been designed to record key measures from both rehabilitated mining land, at various ages since rehabilitation, and unmined land, and includes:

- soil depth, structure, fertility and water holding capacities;
- pasture growth, productivity and quality (in cattle grazing exclosures referred to as Swiftsynds);
- pasture presentation yields before cattle graze each paddock;
- pasture leaf quality at each cattle grazing: nitrogen (%), metabolisable energy (MJ/kg) and digestibility (%);
- cattle faecal samples for analysis by NIRS to determine diet quality; and
- cattle weight gains, stocking rates and cattle grazing days in each paddock (Paton 2014).

Project History

The cattle grazing trials project has continued since commencement during October 2011. To-date, work has included a pilot grazing trial from October 2011 to May 2012 (Stage 1). Stage 2 of the project commenced with development of a dedicated project team and began in January 2013 with the tender process to identify and engage the required expertise. Stage 2 of the actual grazing trials started in January 2014 (Outcross 2014a).

Project Sites

Four sites are being monitored during Stage 2 of the cattle grazing trials project and includes three rehabilitated mined sites of different rehabilitation ages - Site 1 (2007), Site 2 (2010) and Site 3 (2012). The rehabilitated sites are being compared to an unmined Site (Site 4) that was sown down to improved pastures at the same time as Site 3, with a similar sub-tropical pasture mix. The general location of the Stage 2 trial sites is provided in **Figure 5.1.2-D**.

LEGEND

- Towns and Localities
- Roads
- Creeks
- Mining Tenements
- Current Grazing Trails Sites

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Figure 5.1.2-D - Current Grazing Trail Sites

Scale 1:25,000 on A4

Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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Project Team

The cattle grazing trials project team comprises industry experts and academics, and is provided in **Table 5.1.2-C.**

Table 5.1.2-C Cattle Grazing Trials Project Team

Team Member	Role
Outcross Pty Ltd (2 staff)	Project management and livestock
University of Southern Queensland (4 staff)	Soil science
EcoRich Grazing (1 staff)	Agronomy
Dr John Armstrong	Veterinarian
Dr Peter O'Rourke	Statistician

Project Summary

Soil analysis

The University of Southern Queensland (USQ) has completed initial soil testing from 18 benchmark sites in the area surrounding the Mine. USQ has concluded that the control site is comparable to the benchmark sites and typical of soils in the surrounding area. Therefore, the control site is deemed to be suitable for comparison with the rehabilitated sites. The rehabilitated sites were considered to be similar to benchmark sites for potentially mineralisable nitrogen, root exploration and depth of top soil. Darkening of the colour of top soil has been observed, indicating significant breakdown of organic matter. With the exception of elevated plant available phosphorous in site 1 and 2, initial results suggest little difference in benefits or constraints to pasture production between sites (Outcross 2014a).

Pasture observations

Pastures were assessed prior to the first grazing event using the Botanal process. The project agronomist assessed pasture composition and estimated dry matter yield of pasture (KgDM/ha), the percentage of unpalatable and dead feed, along a minimum of 5 transects across each site. Samples are taken in each site to allow calibration of estimates of available feed for accuracy (Outcross 2014a).

Pasture composition prior to Stage 1 (G1) and Stage 2 (G2) of the grazing trials indicated that Rhodes grass was the dominant pasture in Sites 1, 3 and 4, whereas Site 2 had mostly green panic. The results of the Botanal and Swiftsynd measurements indicated that the rehabilitated sites were comparable to the control site for pasture productivity when considering yield and quality measurements. Site 2 was considered to be the most productive site (Outcross 2014a).

Figure 5.1.2-E shows the performance of pastures following significant rainfall (126 – 140mm) between Stage 1 (G1) and Stage 2 (G2) of the grazing trials. Protein, digestibility and metabolisable energy increased in Stage 2, leading to improved cattle performance (Outcross 2014a).

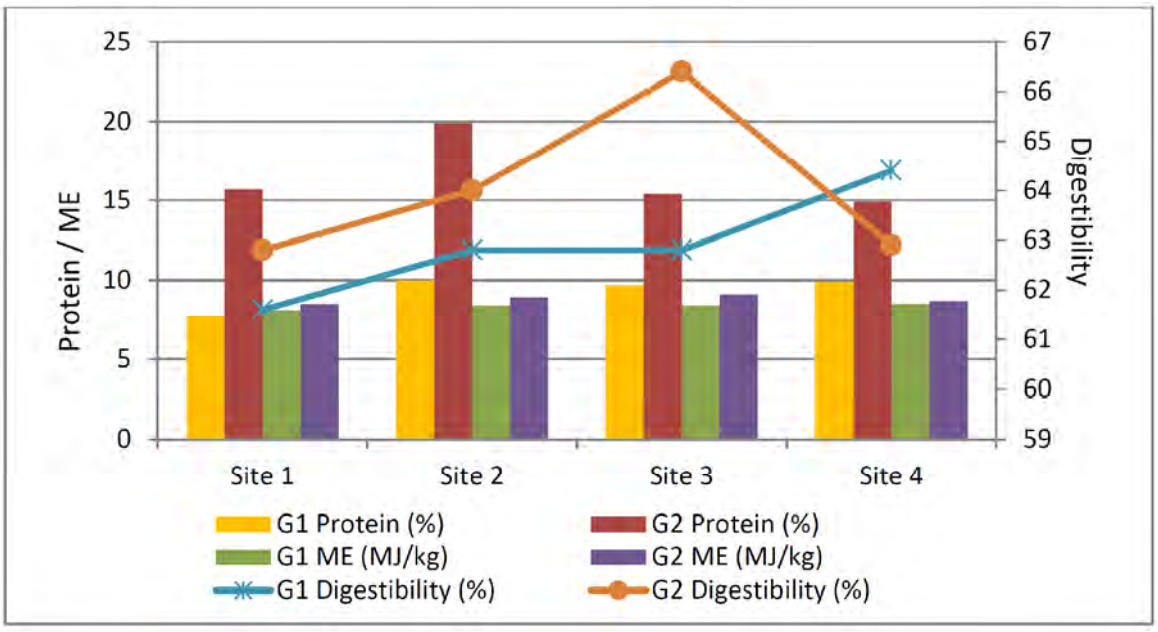


Figure 5.1.2-E Pasture chemical analysis before grazing (Outcross 2014a)

Pasture samples were taken for calculation of yield and chemical analysis for quality measurements including protein, metabolisable energy and digestibility. Chemical analysis prior to Stage 1 (G1) indicated that the animal performance would be restricted by pasture quality as intake would be limited to approximately 1.7% of body weight (Outcross 2014a).

The decrease in digestibility at Site 4 (control site) between Stage 1 (G1) and Stage 2 (G2) of the grazing trials project cannot be definitively explained from the current data sets. Further stages of the cattle grazing trials project may help to explain the occurrence of this result. If this trend continues, future stages of the grazing trials project may need to explore the possibility of other environmental factors contributing to the result.

Cattle performance

One hundred and eighty head of 2012 drop Angus cattle were sourced in one consignment from a single vendor. The cattle comprised 90 steers and 90 heifers. All cattle were weighed prior to induction into the project. The outliers from both the heavier and lighter end were excluded from the project. Only cattle weighing between 250 – 350Kg were used in the grazing trial. Through this process, an effort has been made to eliminate sources of variation that may confound the results of the project (Outcross 2014a).

The key performance indicators for the livestock analysis were average daily weight gain (ADG) and gross beef production per hectare (KGBeef/Ha). The stocking rate was calculated based on consumption of 10% of available feed in each grazing event with a minimum of 20 head grazing each site (Outcross 2014a).

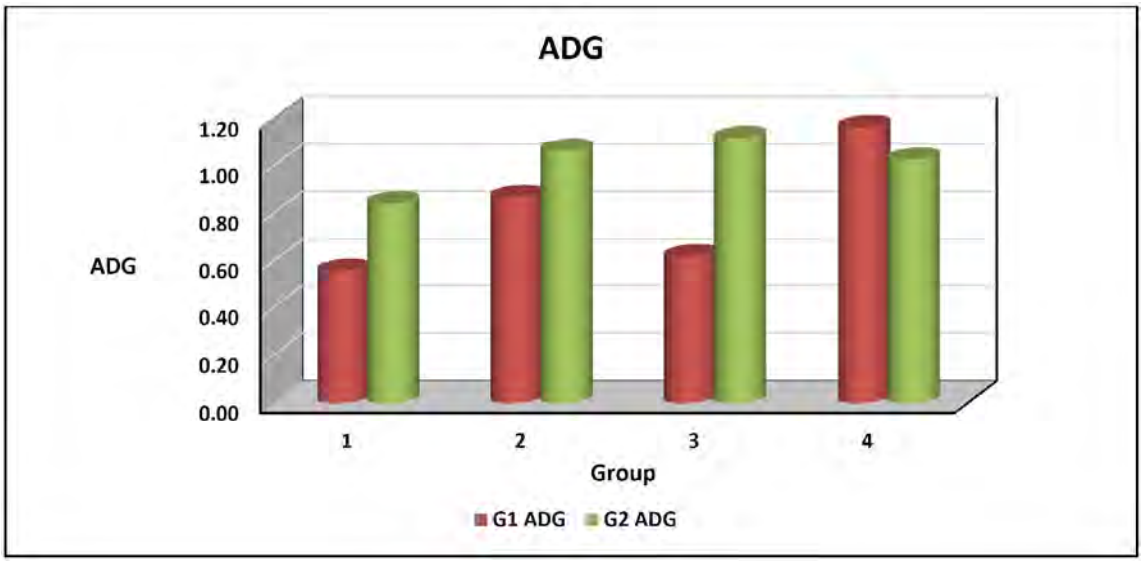


Figure 5.1.2-F Average daily gain by group (Outcross 2014a)

The first grazing event, Stage 1 (G1), occurred between 23 January 2014 and 13 March 2014. The control site achieved a significantly higher ADG than the rehabilitated sites (**Figure 5.1.2-F**) (Outcross 2014a).

The second grazing event, Stage 2 (G2), occurred between 16 April 2014 and 28 May 2014. The performance of livestock during Stage 2 (G2) was reversed, with the rehabilitated Sites 2 and 3 exceeding the performance for ADG of that achieved by the control. Site 2 also had the highest gross beef production for G2 as displayed in **Figure 5.1.2-G** (Outcross 2014a).

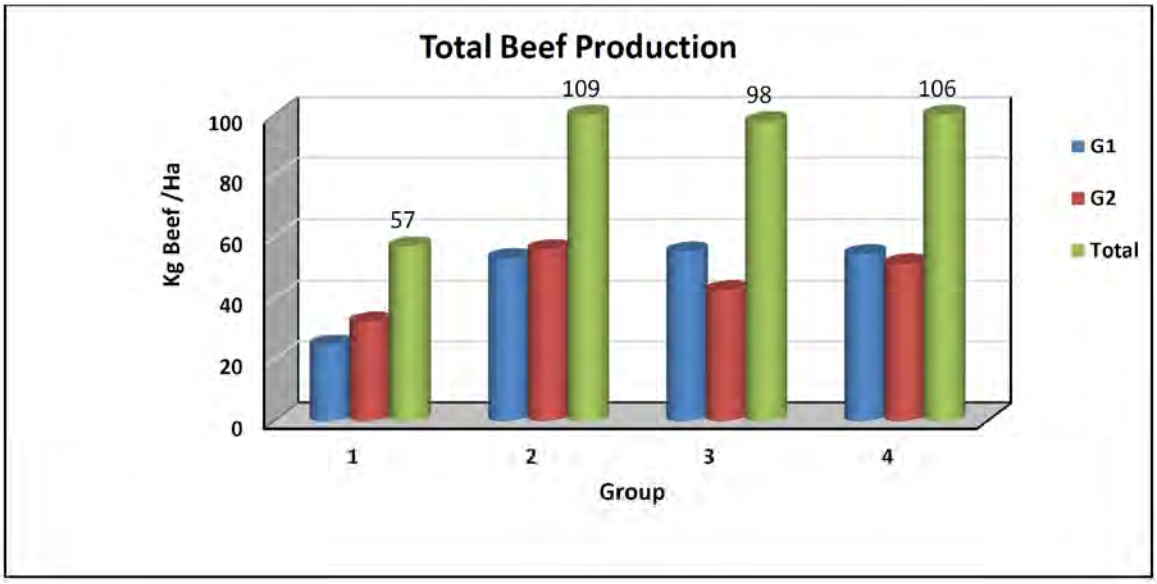


Figure 5.1.2-G Total beef production per grazing by group (Outcross 2014a)

Site 1 has consistently been the worst performing site. The project agronomist suggests that this occurrence could be associated with a common scenario in Queensland sub-tropical pastures where pasture quality reduces over time, mostly due to nitrogen becoming increasingly unavailable as it is tied up in organic matter. While Site 1 has had the lowest performance to date, weight gains on Site 1 are above industry benchmark expectations. This result indicates that animal performance may plateau at a level that remains competitive with industry expectations over the long term. Potential modelling and ongoing results will assist in measuring the sustainability of pasture and animal performance into the future (Outcross 2014a).

Early results indicate that the beef production from cattle grazed on rehabilitated mining land is comparable to that achieved from unmined land. More informed comparisons will be able to be made when a full statistical analysis is able to be completed at the end of the first year of Stage 2. This approach will enable quantification of the effect of seasonal conditions on livestock and pasture performance (Outcross 2014a).

Future Project Direction

NAC and the APC are committed to the continuation of the grazing trials project for a minimum period of five years. The long term objectives of the grazing trials project are to develop a sustainable pastoral management regime for the rehabilitated mined land and to demonstrate that beef raised on former mined land is not contaminated and is suitable for commercial production. The results of grazing trials project may also be used to fine tune rehabilitation techniques at the Mine.

Over the next five years, additional trial sites within new areas of progressive rehabilitation will be periodically added to the study. The grazing trials project's current methodology will be replicated across the new trial sites and the scope of investigation may be modified as required by validated scientific results or to investigate specific issues if they arise.

Once developed, the pastoral management regime for the rehabilitated mined land will continued to be applied to areas of new rehabilitation as they become available over the life of the revised Project. Longer term, the successful completion of the objectives of the grazing trials project will help NAC demonstrate establishment of the proposed final land use for mine closure and eventual surrender of the mining leases. The return of the former mined land to the APC for commercial agricultural production will also represent a sustainable outcome for NAC's mining business.

Public Availability

NAC will continue to make the results of its grazing trials project at the Mine publically available in the future (i.e. as each new stage is completed and verified). This information will be provided on written or verbal request to the APC or NAC.

5.1.2.6 Issue 6 Update the Commitments Register and EM Plan

The EM Plan located in **Appendix C** has been updated based on the issues raised in submissions on the draft EIS.

The Commitments Register located in **Appendix D** has been updated based on the issues raised in submissions on the draft EIS.

5.1.3 Air Quality, Noise and Vibration

5.1.3.1 Issue 1 Update the Commitments Register to include specific commitments listed in individual chapters, regarding management and mitigation of air quality, noise and vibration impacts. Take into consideration that some commitments will be updated following consideration of agency submissions comments

The draft EIS assessed the potential for air quality and noise impacts from the revised Project. The air quality assessment (**Chapter 9** of the draft EIS) found the revised Project is expected to comply with the ambient air quality objectives in the EPP (Air) provided NAC successfully implement a comprehensive air quality management strategy. The noise assessment (**Chapter 11** of the EIS) found the revised Project is expected to comply with the ambient air quality objectives in the EPP (Noise) by implementing noise management and mitigation measures including reduced night time operation and using attenuated equipment.

The commitments made by NAC for the revised Project for air quality, noise and vibration were presented in **Appendix L** of the draft EIS.

NAC have made further commitments to more effectively manage the risk of air quality and noise impacts in response to issues raised in submissions on the draft EIS. The updated Commitments Register is presented in **Appendix D** of the AEIS.

5.1.3.2 Issue 2 Discuss the specific commitments on the management and minimising of dust and noise at the rail spur in the Commitment Register. For noise, include both day and night time scenarios

The draft EIS assessed the potential for air quality and noise impacts associated with the rail spur and balloon loop. The key findings are as follows:

- The potential for air quality impact is greatest at receptors located closest to the rail spur and balloon loop. While dust emissions can have impacts on local air quality they are of short duration and the separation distance to the sensitive receptors is considered sufficient. It is unlikely the air quality objectives for the revised Project will be exceeded (refer to **Section 9.4.1** of the draft EIS).
- An emissions inventory for $PM_{2.5}$, CO, NO_2 and SO_2 from locomotives on the rail spur and balloon loop was presented in **Section 9.4.2** of the draft EIS. The quantities of exhaust emissions are relatively low and are not expected to not to exceed the ambient air quality goals.
- Noise levels (LA_{max} and LA_{eq}) along the rail spur and balloon loop were predicted using train information provided by NAC and noise data provided by QR. Rail noise levels from the rail spur and balloon loop are predicted to be well below the Queensland Rail Code of Practice – Railway Noise Management's noise criteria (refer to **Section 11.7.9** of the draft EIS).
- Noise impacts associated with the construction of the rail spur and balloon loop will be minimal because construction will occur in during the day and the separation distances between construction activities and the sensitive receptors (refer to **Section 11.6** of the draft EIS).

Specific commitments to manage air quality and noise impacts associated with the rail spur and balloon loop are presented in **Appendix D** of the AEIS.

NAC is currently in the Front End Engineering and Design (FEED) process of the revised Project as described in **Chapter 3** of the AEIS. As presented in **Table 3.1-A** and **Figure 3.1-A** the layout of the rail spur and balloon loop and the new train load facility (TLF) has changed to the western side of the balloon loop. The new location for the TLF is approximately 350 m west of the original location. The nearest sensitive receptors are 2.2 km west of the TLF.

The estimated dust emissions from the TLF represent a small proportion (0.02%) of total dust emissions from the revised Project. The relocation of the rail loop and spur and the TLF is not expected to result in significant change to the air quality results given the distance the TLF to nearest sensitive receptors and relative small proportion of total dust emissions from the revised Project.

As reported in **Section 11.7.4** of the draft EIS, the dominant noise sources for sensitive receptors located to the west of the revised Project are excavators from Manning Vale West pit, rear dump truck and side tipping trucks. Given the TLF is not a dominant noise source, its relocation is not expected to result in exceedances of the noise criteria.

5.1.3.3 Issue 3 How will the submitters concerns of noise impacts associated with the transportation of product coal along the West Moreton rail line be addressed by freight service operator Aurizon haulage standards, on the rail network maintained by QR?

A number of submissions raised concerns with noise impacts associated with the transportation of product coal along the West Moreton rail line.

NAC is not responsible for the transportation of coal on the rail network. The transportation of coal by rail will be undertaken by freight service operator Aurizon on the rail network maintained by QR. The noise impact assessment determined that rail noise impacts have been assessed and are found to comply with the QR criteria (**Section 11.7.9** of the draft EIS). Rail operators are responsible for the management of their operations to meet environmental legislative requirements and avoid potential for nuisance impacts.

The *Code of Practice for Railway Noise Management* (Queensland Rail, 2007) has been developed to minimise unreasonable noise from railway operations. Potential strategies to reduce railway noise include:

- Track lubrication/greasing on tight radius curves where there is high potential for noise from wheel/rail interaction;
- Construction of noise barriers to shield properties adjacent to the rail corridor from noise;
- Retrofitting existing rollingstock to reduce noise levels – examples of possible controls include wheel damping, friction modifiers, wheel profiling, coupler slack adjustment, and locomotive silencers); and
- Purchase of new rollingstock against strict noise specifications.

Freight service operators (including Aurizon) are required to meet the requirements of the *Code of Practice for Railway Noise Management.*

5.1.3.4 Issue 4 How will the key data on air quality, noise and vibration issues be shared and how frequently will this occur?

The potential for nuisance impacts from the revised Project can be further reduced through effective communications with local stakeholders on air quality, noise and vibration issues associated with mining activities.

NAC propose to publicly issue an environmental monitoring report on a monthly basis. The environmental monitoring report will present a summary of air quality, noise and vibration monitoring data. The environmental monitoring report will be made available to the public through the NHG's website.

The commitment to issue an environmental monitoring report on a monthly basis has been included in the Commitments Register located in **Appendix D** of the AEIS.

5.1.3.5 Issue 5 How will regular information be given to affected landholders (and the wider community) to keep them up to on mitigation measures and how frequently will this occur?

The potential for nuisance impacts from the revised Project can be reduced through effective communications with local stakeholders on air quality, noise and vibration issues associated with mining activities. This process enables NAC to understand the nature of stakeholders concerns and increases the likelihood of success for interventions to plant or operations.

NAC will undertake consultation with local stakeholders where dispersion modelling predicts there is a potential for dust nuisance from the revised Project. The processes for communicating with local stakeholders are provided in the LSMP (**Appendix J.18** of the draft EIS).

All concerns about air quality, noise and vibration will be investigated promptly and appropriate action will be taken to reduce legitimate nuisance impacts. A register of dust, noise and vibration concerns will be maintained. The processes for recording and investigating dust concerns are provided in the Air Quality Management Plan (**Appendix J.10** of the draft EIS). The processes for recording and investigating noise and vibration concerns are provided in the Noise and Vibration Management Plan (**Appendix J.11** of the draft EIS).

More details on complaint management is discussed in **Section 5.1.9** of the AEIS.

NAC propose to publicly issue an environmental monitoring report on a monthly basis. The environmental monitoring report will present a summary of air quality, noise and vibration monitoring data. The environmental monitoring report will be made available to the public through the Proponent's website.

5.1.3.6 Issue 6 Update the Commitment Register. EMP and SIMP as required

The EM Plan (**Appendix C** of the AEIS) and Social Impact Management Plan (SIMP) (**Appendix E** of the AEIS) have been updated based on the issues raised in submissions on the draft EIS.

The Commitments Register located in **Appendix D** has been updated based on the issues raised in submissions on the draft EIS.

5.1.3.7 Further Community Consultation

Through the public submission process, a number of key issues were identified by stakeholders, requiring further consultation and engagement by NAC. NAC has subsequently documented a more detailed consultation and engagement program for those in the vicinity of the revised Project and the wider community, to ensure stakeholders receive regular, accurate information on the revised Project, and the opportunity to discuss issues and areas of concern. These consultation and engagement activities have been outlined in **Section 5.1.10** of the AEIS.

Community consultation and engagement activities addressing environmental concerns, including air quality, noise and vibration are provided in **Figure 5.1.3-A**.

Figure 5.1.3-A Environmental Consultation – Air Quality, Noise & Vibration and Ground Water

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
High Priority Landholders (Tier 1) - Includes Acland Township Residents				
Regular general update and discussion.	Face to face meeting, or phone call	Six monthly or additional as requested	Life of Project	- Offer of minimum 2 face to face meetings each year - Updates will cover a range of key areas including: o Environmental monitoring o Health and coal mining o Enquiries and complaints process o Environment i.e. Ground Water, Noise/Vibration and Air Quality
Report on Monthly Environment Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly	Life of Project	- Overview of environmental monitoring sent out in hard copy quarterly
Landholder Agreement	Face to face	Approx. 1 – 5 meetings (or until finalised)	Pre-Approval and/or construction	- Provision of Landholder Agreement - Discussion of the purpose and process of a Landholder Agreement between NAC and the landholder
Discussion with a Hydrogeologist about NAC ground water modelling	Face to face	1 meeting offered	Pre-Approval	- Detailed explanation of modelling and potential ground water impacts, including specific information about landholder's bores - May be included as part of the regular update discussion
24hr phone number	Phone call	Available for landholders	Construction and	- Phone number available to sensitive receptors 24 hours a day. Allows

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
		should it be required	Operation	landholder to report urgent operation impacts e.g. noise at night, and speak to site personnel
Notification of blast events	Phone call	Before a blast	Operation	- Sensitive receptors to be notified of blasts within the 48hr period before a blast
Opportunity to talk to NAC technical staff	Face to face, Phone or mail	When requested	Operation	- Open offer to all sensitive receptors - Further explanation of NAC activities from technical staff member, with particular focus on potential impacts on the landholder's property - May be included as part of the regular update discussion
Tier 2 Landholders				
Regular general update and discussion.	Face to face, phone call	6 monthly (to be reviewed each phase of project through consultation with landholder)	Life of project	- Offer of minimum 2 face to face meetings each year - Updates will cover a range of key areas including: o Environmental monitoring o Health and coal mining o Enquiries and complaints process o Environment i.e. Ground Water, Noise/Vibration and Air Quality
Report on Monthly Environment Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly	Life of Project	- Overview of environmental monitoring sent out in hard copy quarterly
Landholder Agreement	Face to face	Approx. 1 – 5 meetings (or until finalised)	Pre-Approval and/or Construction	- Discussion of the purpose and process of a Landholder Agreement between NAC and the landholder - A Landholder Agreement may be instigated if landholder is interested
Opportunity to talk to a Hydrogeologist about NAC ground water modelling	Face to face	1 meeting offered	Pre-Approval	- Detailed explanation of modelling and potential ground water impacts, including specific information about landholder's bores - May be included as part of the regular update discussion
Opportunity to talk to NAC technical staff	Face to face, phone or mail	When requested	Operation	- Further explanation of NAC activities from a technical staff member, with particular focus on potential impacts on the landholder's property - May be included as part of the regular update discussion
Tier 3 Landholders				
Report on Monthly Environmental Monitoring	Community information session	Yearly	Life of Project	- Community Info session to discuss and explain environmental monitoring results and other issues - Tier 3 landholders sent letter of invitation
	NAC website	Monthly		- Written report providing an overview of environmental monitoring

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
	Mail or email	Quarterly		- Overview of environmental monitoring sent out in hard copy quarterly
Opportunity to talk to an NAC community staff member and/or technical staff member	Face to face, Phone or mail	When requested	Operation	- Enquiries, concerns or complaints from landholders
All Landholders and General Community				
Report on Monthly Environmental Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
Access to Community Staff	Oakey Community Information Centre	As required	Life of Project	- Easy access to NAC community staff for all general enquiries
Information and updates provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland o Environment e.g. Ground Water, Noise/Vibration and Air Quality o Progress of revised Project o Operational areas of interest
Community Information Centre	Oakey Community Information Centre	Ongoing	Life of Project	- Wide variety of information available for community members including: Posters Maps Fact sheets Community staff
Community representatives regularly discussing key issues, opportunities and information regarding NAC and the revised Project	Community Reference Group	1-2 months (as decided by CRG)	Life of Project	- Opportunity for community representatives to raise topics for discussion and have input for consideration by NAC
Education and Awareness Program	Community Partnership	Ongoing	Life of Project	- Variety of programs aimed at mining and environmental education e.g. NAC staff presenting to school groups on rehabilitation
Environmental Partnerships	Community Partnership	Ongoing	Life of Project	- Working in conjunction with local environmental groups on environmental initiatives
Targeted media releases	Media Releases	Ongoing	Life of Project	- Targeted information released on NAC programs and activities including. but not limited to,

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
				environmental monitoring, coal and health, Acland and Jondaryan updates, operational and community activities
Opportunity to view environmental management and mitigation practices and outcomes	Public Site Tours	Quarterly	Life of Project	- Local community invited to visit NAC site to view and experience environmental, operational and rehabilitation practices first hand

5.1.4 Jondaryan Rail Loadout Facility (JRLF)

5.1.4.1 Issue 1 Identify commitments to not increase the current coal tonnage of 5.2 MTpa at the JRLF from the current mine site

NAC currently has approval to mine up to a maximum of 5.2 Mtpa at the Mine (Stage 2), which is also the capacity of the current Coal Handling Preparation Plant (CHPP). NAC was operating the mine at 4.8 Million Tonnes per Annum (MTpa) of product coal, but due to favourable mining conditions including declining strip ratio, improved average coal yield and increased equipment productivity NAC has had the capacity to increase the product coal delivered from the mine to 5.2 Mtpa without adding equipment and staying within the same footprint. NAC has obtained the current approval by amending its 2014 Plan of Operations under s289 of the EP Act. NAC commits not to increase throughput at the existing rail-load out facility at Jondaryan above 5.2 Mtpa.

5.1.4.2 Issue 2 Identify the timeframes for closure of the JRLF, the relocation of the rail load facility and the process for rehabilitation in the area. Include identification of how the current stockpiles will be removed from the JRLF

The JRLF will be closed within 24 months from obtaining grant of the ML and all other relevant approvals for the revised Project, including the NHG's final investment decision. A two year construction period is required to complete and commission the new rail spur and balloon loop and new TLF (i.e. as replacement coal handling and loading structures for the JRLF). Completion and commissioning of the new TLF will allow the cessation of train loading activities at the JRLF.

Following the cessation of train loading activities at the JRLF, decommissioning and rehabilitation of the actual JLRF site will be conducted over a two year period (approximate). Decommissioning and rehabilitation activities are proposed to be conducted between 6 am to 6 pm, Monday to Saturday with Sunday available for overtime on specialist tasks. The JRLF Decommissioning Management Strategy is presented below in **Table 5.1.4-A**. NAC will develop a dedicated management plan for the decommissioning and rehabilitation of the JLRF site (including a monitoring regime to determine rehabilitation success).

Further details on the decommissioning strategy for the JRLF are provided in **Section 3.11.1** of the draft EIS. In preparation, NAC has commenced preliminary engineering design for the new rail spur and balloon loop and new TLF to minimise the risk of delay to the construction process.

Table 5.1.4-A JRLF Decommissioning Management Strategy

JRLF Item	Proposed Management Strategy
Existing Rail Spur	▪ This rail infrastructure will be retained in its current form. This will be used by Aurizon as a siding.
Coal Stockpiles	▪ All product coal stocks will be gradually removed. This action will be coordinated with the commissioning of the TLF at the revised Project site. ▪ The stockpile base material (coarse rejects) will be removed and buried in-pit at the Mine or another suitable site. ▪ A phase one contaminated land assessment will be completed within the former stockpile area. ▪ Topsoil or a topsoil substitute will be applied to the former stockpile area. ▪ The former stockpile area will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former stockpile area to facilitate grazing as the proposed final land use.
Weigh Bridge	▪ The weigh bridge infrastructure will be removed. ▪ A phase one contaminated land assessment will be completed within the former weigh bridge area. ▪ Topsoil or a topsoil substitute will be applied to the former weigh bridge area. ▪ The former weigh bridge area will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former weigh bridge area to facilitate grazing as the proposed final land use.
Workshops,STP and Sheds	▪ The workshop and STP infrastructure will be removed. ▪ The concrete slabs will be removed and buried in-pit at the Mine or another suitable site. ▪ A phase one contaminated land assessment will be completed within the former workshop area. ▪ Topsoil or a topsoil substitute will be applied to the former workshop area. ▪ The former workshop area will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former workshop area to facilitate grazing as the proposed final land use.
Sediment Dam and pumps and pipes	▪ The sediment dam will be retained for the treatment of runoff from the rehabilitated areas. ▪ All pumps and pipes will be retained. ▪ A phase one contaminated land assessment will be completed within the former sediment dam area.The sediment dam will be de-silted as required following completion of rehabilitation. De-silted material will be disposed of in-pit at the Mine or another suitable site.
Water bores	▪ The bores will be retained for grazing and land management purposes.
Crib Hut	▪ The crib hut infrastructure will be removed. ▪ A phase one contaminated land assessment will be completed within the former crib hut area. ▪ Topsoil or a topsoil substitute will be applied to the former crib hut area. ▪ The former crib hut area will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former crib hut area to facilitate grazing as the proposed final land use.
Diesel Tank	▪ The diesel tank will be removed. ▪ A phase one contaminated land assessment will be completed within the former diesel tank area. ▪ Topsoil or a topsoil substitute will be applied to the former diesel tank area. ▪ The former diesel tank area will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former diesel tank area to facilitate grazing as the proposed final land use.

JRLF Item	Proposed Management Strategy
Fences	▪ Fences will be retained for grazing and land management purposes
Hardstands/Roads	▪ The sealed access road into the area will be retained. ▪ All remaining tracks and dirt roads will be removed. ▪ A phase one contaminated land assessment will be completed within the former tracks and dirt roads. ▪ Topsoil or a topsoil substitute will be applied to the former tracks and dirt roads. ▪ The former tracks and dirt roads will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former tracks and dirt roads to facilitate grazing as the proposed final land use.
Car Park	▪ The car park will be removed. ▪ A phase one contaminated land assessment will be completed within the former car park area. ▪ Topsoil or a topsoil substitute will be applied to the former car park area. ▪ The former car park area will be ripped to treat compaction and improve infiltration. ▪ A suitable pasture seed mix will be sown within the former car park area to facilitate grazing as the proposed final land use.
Rattle grid	▪ The rattle grid may be retained.
Earthen Bunds	▪ The earthen bunds will be spread and used for on-site rehabilitation pruposes.
TEOMs	▪ The on-site TEOM will remain and be used for post decommissioning monitoring purposes (i.e. until rehabilitation of the site is sufficiently advanced and potential for air quality nuisance is at an acceptable level).
Tree screening	▪ All tree screens will be retained.
Potential contaminated sites	▪ If any of the phase one contaminated land assessment sites identify residual soil contamination, NAC will assess the situation and determine whether further remediation and verification work will be completed to remove the site from the DEHP's EMR. ▪ If an identified contaminated site is nominated to remain on DEHP's EMR, NAC will develop an appropriate site based management plan for submission to the DEHP.

5.1.4.3 Issue 3 What is the JRLF land being used for after it is decommissioned?

NAC intends to rehabilitate the JRLF site to the post mine land use of grazing. The APC will be responsible for the future management of the rehabilitated JRLF site.

5.1.4.4 Issue 4 How will consultation occur with the Jondaryan community to ensure information is available regarding activities specific to the JRLF

NAC acknowledges comments in the submissions suggesting the Jondaryan community is provided more information regarding activities in the Jondaryan area. NAC will undertake further consultation with the Jondaryan community to ensure information is available regarding activities specific to the Jondaryan community e.g. JRLF decommissioning, rail construction and ongoing monitoring activities. A detailed overview of Jondaryan community consultation can be found in Section 5.1.10 of the AEIS. **Table 5.1.4-B** provides an outline of planned community consultation and engagement in the Jondaryan area, including consultation around environment and relocation of the JRLF.

Table 5.1.4-B Consultation and Community Engagement for Jondaryan

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Construction and Decommissioning				
Environmental	Letter	Yearly		- Outline of mitigation measures and

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
monitoring and mitigation information to all residents			Until decommissioning completed	environmental monitoring measures - Explanation of where to obtain further information e.g. Community Office, monthly visits by community staff to Jondaryan - Offer to meet face to face with any resident - Details of availability of air quality monitoring results
Environmental monitoring,	Community information session	Yearly	Until decommissioning completed	- Community Info session to discuss and explain environmental monitoring - Opportunity for consultation on decommissioning activities and timelines, and relocation progress
	Community noticeboard, NAC website, mail/email by request	Monthly		- Written report providing an overview of environmental monitoring
Discussion with NAC community and/or technical staff members	Face to face, Phone or mail	When requested	Until decommission completed	- In response to enquiries, concerns or complaints from Jondaryan residents
Notification to all residents - Key decommissioning milestones and relocation progress	Letter	Yearly	Until decommissioning completed	- Outline of expected activities and milestones relating to relocation and decommissioning of the JRLF - Invitation to provide input at monthly Community Staff Visits
Jondaryan representative on the CRG	Community Reference Group	CRG held every 1-2 months (as decided by CRG)	Until decommissioning completed	- Jondaryan representative on the CRG - Opportunity for both community representatives and NAC representatives to raise topics for discussion and distribution of information regarding Jondaryan
Opportunity to provide input into JRLF activities	Community staff visit to Jondaryan	Monthly	Until decommissioning completed	- Community staff regularly based in the town to engage with Jondaryan residents, and to discuss concerns, monitoring results and opportunities etc.
Information through NAC newsletter	Newsletter	Quarterly	Until decommissioning completed	- Inclusion of information relating specifically to JRLF. Information may relate to environmental monitoring and mitigation, timelines/progress for relocation, community partnerships etc. -
Information through local media	Media releases and statements	Key milestones	Until decommissioning completed	- Distribution of targeted media releases and statements to local newspapers and media outlets, highlighting key milestones of the relocation process and significant aspects of environmental monitoring and mitigation practises.
General				

NB: After decommissioning is complete, Jondaryan stakeholders will be considered part of the broader community for engagement activities.				
Information and reminders provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland - Environment e.g. Ground Water, Noise/Vibration and Air Quality
Regular media releases updating the community on key NAC activities	Media Releases	Ongoing	Life of Project	- Includes information on key areas of interest including: o Acland Township o Jondaryan o Community Investment o Environment e.g. Ground Water, Noise/Vibration and Air Quality o And other areas as appropriate
Access to Community Staff	Oakey Community Information Centre	As required	Life of Project	- Easy access to NAC community staff for all general enquiries
Community Information Centre	Oakey Community Information Centre	Ongoing	Life of Project	- Wide variety of information available for community members including: Posters Maps Fact sheets Community staff

5.1.4.5 Issue 5 Update the Commitment Register and Environmental Management Plan as required

The Commitments Register located in **Appendix D** of the AEIS has been updated in response to the issues raised in submissions on the draft EIS.

The EM Plan and revised SIMP) have been updated based on the issues raised in submissions on the draft EIS and are provided in **Appendix C** and **Appendix E** of the AEIS, respectively.

5.1.5 Water Resources

5.1.5.1 Surface Water

Chapter 5.11 of the draft EIS addresses the flooding assessment undertaken for Lagoon Creek for the revised Project. This assessment covers the flooding changes due to the development of mine structures, levees and the rail spur. The predicted changes to flood levels due to the development of

the levees for mining pits is in the order of 0.5 m for the 1 in 1,000 AEP flood event. This predicted increase occurs within the NAC ML and is approximately 3 km from the ML boundary. There is predicted to be no impacts on flood levels outside of the ML due to the development of the levees.

The development of the rail spur was represented in the model with a preliminary design. This design included the representation of a number of structures for the conveyance of flood flows through the rail. There is predicted to be localised increases in flood levels upstream of the rail crossing of Lagoon Creek. These increases are predicted to be primarily on land owner by the APC. There is an area of approximately 0.5 ha with a predicted flood level increase of 150 mm for the 1 in 100 AEP, NAC is currently in discussions with this affected landowner to determine the most appropriate remedy. There is predicted to be no other flood impacts to properties due to the development of the rail spur.

The rail spur is proposed to connect to the existing railway line approximately 2 km south east of Jondaryan and approximately 1 km north west of the Doctors Creek crossing of the existing railway line. The connection of this rail spur is not predicted to impact of flood levels in Doctors Creek, because the rail spur is not located in the Doctors Creek catchment.

A number of submissions were received that raised concerns on the influence of the existing West Moreton rail line on flood flows. The revised Project does not seek to change the existing West Moreton rail line only to add a rail spur. The development of the rail spur has been assessed as part of the draft EIS for potential flooding impacts.

The design of the rail spur will be in accordance with Aurizon standards. The release of mine water will be undertaken in accordance with the requirements of the conditions of the EA from DEHP.

The flooding assessment undertaken in the draft EIS covers Lagoon Creek to Jondaryan. The highest point between Lagoon Creek and Doctors Creek near Jondaryan is 8 m higher than Doctors Creek. Therefore, Lagoon Creek and Doctors Creek are considered to be independent in their flooding regimes and the assessment of flooding in a flood model for Doctors Creek is not considered to be required for the draft EIS.

5.1.5.2 Water Tanks

As discussed in **Section 9.4.5** of the draft EIS, deposited dust from mining operations that is captured in rainwater tanks has the potential to affect rainwater quality through a potential increase in levels of suspended solids or concentrations of metals. The Australian Drinking Water Guidelines (ADWG) (NHMRC & NRMMC, 2011) provides water quality levels considered safe for human consumption. NAC undertook water quality sampling of rainwater tanks around the Mine during 2007 and 2009. Results of water quality sampling from rainwater tanks are presented in **Appendix G.6.5** of the draft EIS. The water quality sampling results for metals concentrations meet the recommended health and aesthetic guideline values in the ADWG. Water quality in rainwater tanks is considered unlikely to exceed the water quality levels in the ADWG as a result of the revised Project. In consultation with affected landholders, NAC is committed to sampling of water quality sampling in rainwater tanks should air quality monitoring exceed the air quality objectives in the EPP (Air) or the dust nuisance goals. NSW Health (2007) Options to protect water quality in rainwater tanks include:

- use drinking water grade PVC for fittings;

- inlet and overflow of the tank should incorporate a mesh cover and a strainer to keep out materials, such as leaves;
- cover the tank to prevent light reaching the water;
- discharge pipes from roof mounted appliances such as air conditioners should not be allowed to
- discharge onto the roof catchment;
- clean roof catchments and gutters of leaves and other debris every three or four months; and
- installation of first flush devices to prevent bird droppings and dust entering the rainwater tank after first rains.

NAC will undertake immediate actions to resolve these issues in consultation with affected residents if any future testing demonstrates non-compliance with the above guidelines. As standard practice NHG will investigate the matter, which generally includes sampling for water quality and sludge in the tank. In addition, NAC have developed a process for managing complaints from its operation, the process is presented in **Section 5.1.9** of the AEIS.

5.1.5.3 Groundwater

The groundwater assessment presented in the draft EIS has been updated as a result of the project becoming subject to assessment of impacts on water resources in June 2013. The following provides a summary of the changes that have occurred to the groundwater assessment since the release of the draft EIS in January 2014.

The groundwater model reported in the draft EIS is classified as a 'Class 2' numerical model (SKM 2012). The use of the 'Class 2' numerical model in determining the potential impacts on groundwater resources was considered appropriate for the purpose of meeting the ToR for the revised Project. In addition, a State level preliminary assessment of the 'Class 2' numerical model was considered fit-for-purpose by the DNRM. Therefore, the 'Class 2' model was used for the assessment of potential groundwater impacts from the revised Project and as such was reported in the revised Project's draft EIS (SKM, 2013). The data inputs to the 'Class 2' numerical model used for the draft EIS included groundwater information available at the time of the development of the 'Class 2' numerical model, such as existing groundwater monitoring data from the Mine, bore logs and the then DERM (now DEHP) database.

Given the additional reporting requirements as a result of the introduction of the Commonwealth Water Trigger under the EPBC Act in June 2013 and the formation of the Independent Expert Scientific Committee (IESC) in November 2012 the NHG commissioned Jacobs (formerly SKM) to update the 'Class 2' numerical model used for the groundwater impact assessment for the revised Project's draft EIS based on additional information received since the release of the draft EIS. The additional information used to update the 'Class 2' numerical model included:

- Additional groundwater monitoring data and bore logs;
- Additional baseline study results and specialist studies such as:
    - Landholder bore baseline surveys; and
    - Inpit review of faults and their effects on groundwater flow;

- Light Detection and Ranging (LiDAR) survey data;
- Final Office of Groundwater Impact Assessment (OGIA) groundwater modelling report; and
- Updated DNRM bore database.

This additional information has now been incorporated into the 'Class 2' numerical model which has increased the confidence in the results generated by the 'Class 2' numerical model. The objective of the additional modelling was to update the revised Project's 'Class 2' numerical model with the latest data available (listed above) and in doing so, conduct a 'sensitivity and uncertainty' analysis, as required for the Commonwealth Water Trigger review. The purpose of the 'sensitivity and uncertainty' analysis was to further assist in the quantification of the potential impacts of the revised Project on the groundwater regime, and to further clarify mitigation and contingency measures, where applicable. Additional information on the updated groundwater modeling, including evapotranspiration (ET) is provided in **Section 4.2** of **Appendix F** of the AEIS.

In line with the above the revised modelling has been undertaken in order to further improve confidence in the draft EIS model's predictions of impacts on groundwater resources within and adjacent to the revised Project site. The results of the revised modelling, presented in **Appendix F** of the AEIS, have completely updated the groundwater impact predictions presented in the draft EIS such that those previous predictions should now be disregarded.

The updated model predictions result in peak median predicted inflows to the revised Project's pits of around 3.5 ML/day, compared to 3.8 ML/day in the previous model as reported in the draft EIS. Overall, this change is not considered significant.

Updated predictions for groundwater level drawdown, arising from predicted revised Project pit inflows, are presented for selected years in **Figure 5.1.5-A** through **Figure 5.1.5-D.** The drawdown presented is the most likely (i.e. median) drawdown based upon the 18 predictive simulations undertaken in the updated modelling.

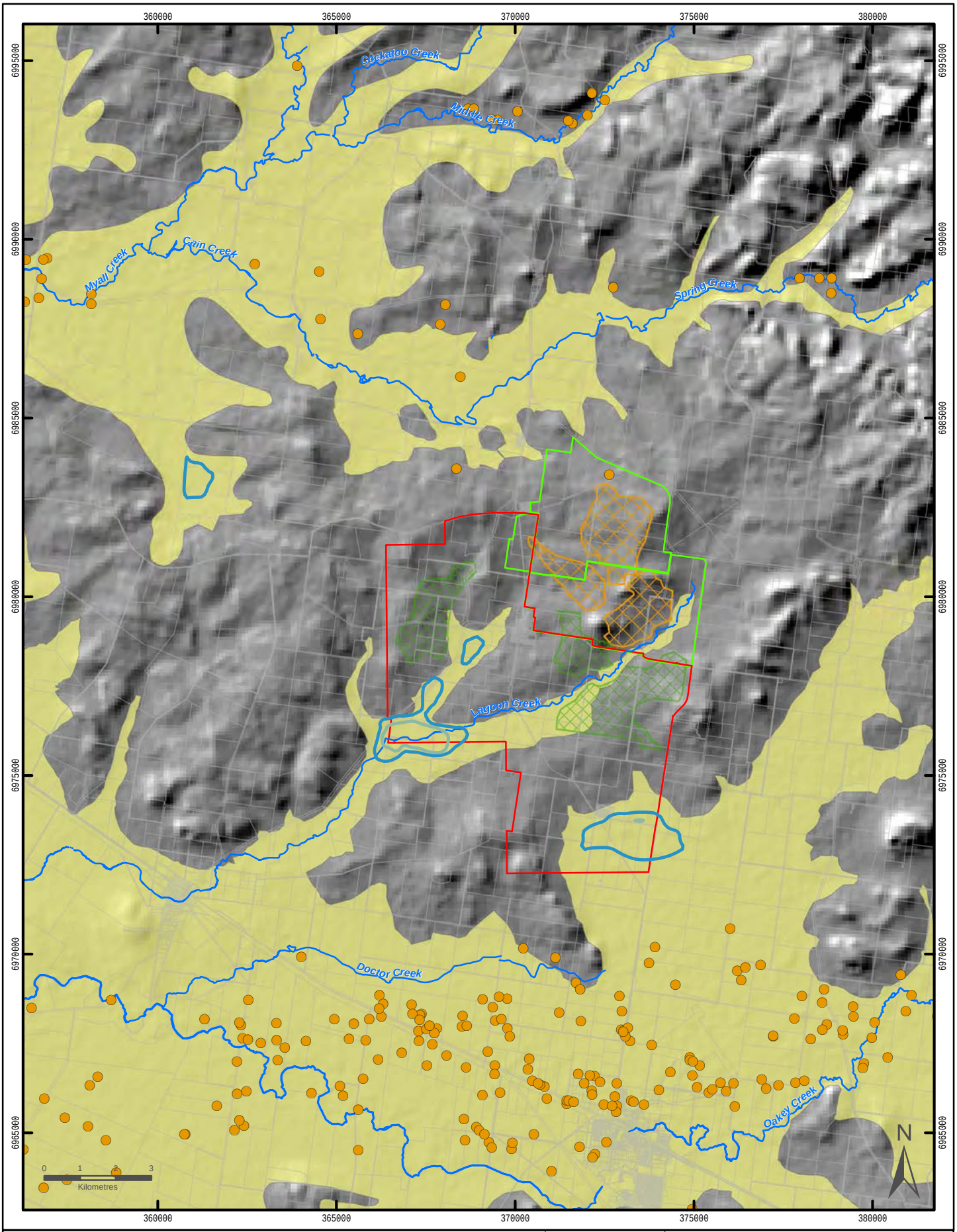
For the Tertiary Basalt aquifer, groundwater drawdown exceeding 5 m is mostly limited to the area immediately northwest of the revised Project site. Drawdown of up to 12 m in the Basalt is limited to a small area within the revised Project site. Drawdowns of between 1 m and less than 5 m extend westwards from the boundary of the revised Project site. Drawdown exceeding greater than 5 m does not occur outside of the revised Project site, with the 1 m drawdown contour reaching a maximum extent of around 8 km west of the revised Project site. The uncertainty analysis indicates that the occurrence of the 5 m drawdown contour in the basalt may extend outwards in the northwest over a lateral distance of up to 1 km in the worst case, and be non-existent in the best case. Compared to the draft EIS (refer to **Figure 6-29** of the draft EIS), the revised groundwater modelling indicates similar magnitude and extent of drawdown in the Tertiary Basalt, however direct comparison is difficult due to the significantly different and improved modelling methods applied to that particular aquifer (refer to **Appendix F** of the AEIS for further details).

The modelling results indicate that groundwater drawdowns in the Walloon Coal Measures of greater than 10 m are not expected to extend more than around 3.5 km from the boundary of the revised Project site, with the 1 m drawdown contour extending up to 9 km west of the revised Project site. The

uncertainty analysis indicates that the occurrence of the 5m drawdown contour may vary over a lateral distance of up to around 2 km to the west of the revised Project site, with less variance elsewhere. Southwards drawdown propagation in the Walloon Coal Measures is somewhat controlled by the occurrence of faulting that restricts this propagation. The greatest drawdown is expected to occur at the end of mining (2030) in association with the Manning Vale West Pit reaching its greatest depth. Compared to the draft EIS, the revised groundwater modelling indicates a broader overall extent of drawdown in the Walloon Coal Measures, with the 1 m drawdown contour extending outwards a further 1 km to 2 km. Additionally, maximum drawdowns of around 47 m are expected within the revised Project site in close proximity to the mine pits, compared to around 30 m in the draft EIS .

At all times the drawdown in the Marburg Sandstone is predicted as being less than 10 m outside of the revised Project site, and does not exceed 12 m within the revised Project site. **Figure 5.1.5-E** illustrates the predicted drawdown in the Marburg Sandstone at 2030, and shows that drawdown greater than 10 m is restricted to the revised Project lease area, with the 1 m predicted drawdown contour extending up to around 10 km from the site boundary to the west and 5 km to the east. The uncertainty analysis indicates that the occurrence of the 5m drawdown contour may extend outwards over a lateral distance of up to 2 km in the worst case, and be non-existent in the best case. Compared to the draft EIS (refer to **Figure 6-30** of the draft EIS), the revised groundwater modelling indicates a broader overall extent of drawdown in the Marburg Sandstone, with the 1 m drawdown contour extending outwards a further 1 km to 2 km. Additionally, maximum drawdowns of around 12 m are expected within the revised Project site in close proximity to the mine pits, compared to around 2.5 m in the draft EIS.

In summary, updated groundwater modelling, including an analysis of model predictive uncertainty, has been undertaken for the revised Project since the draft EIS. Full details of the updated modelling are presented in **Appendix F** of the AEIS.



LEGEND

- DNRM Registered Bores - Alluvium

Predicted Drawdown Contour (m)

- 1
- 2
- 5
- 10
- 20
- 30

- Watercourse
- New Aland Coal Mine-Stage 3
- New Acland Coal Mine
- Cadastre
- Stage 3 Pit Areas
- Existing Permission
- Modelled extent of alluvium

NEW HOPE GROUP

SKM SINCLAIR KNIGHT MERZ

NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 5.1.5-A - Alluvium Predicted Drawdown – 2030

Scale 1:140,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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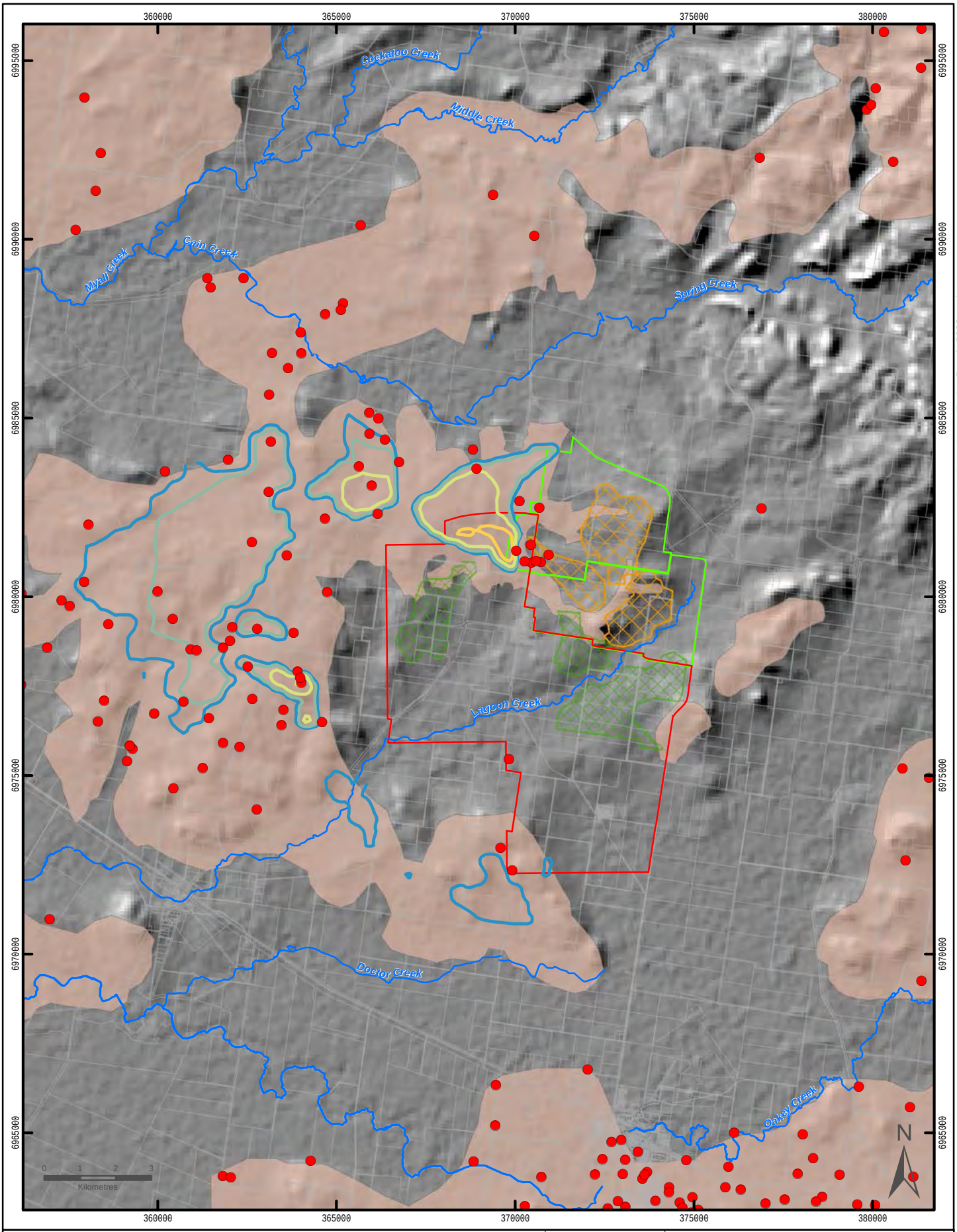

LEGEND

- DNRM Registered Bores - Basalt
- **Predicted Drawdown Contour (m)**
  - 1
  - 2
  - 5
  - 10
  - 20
  - 30
- Watercourse
- New Aland Coal Mine-Stage 3
- New Acland Coal Mine
- Cadastre
- Stage 3 Pit Areas
- Existing Permission
- Modelled extent of basalt

NEW HOPE GROUP

SINCLAIR KNIGHT MERZ SKM

NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 5.1.5-B - Basalt Predicted Drawdown – 2030

Scale 1:140,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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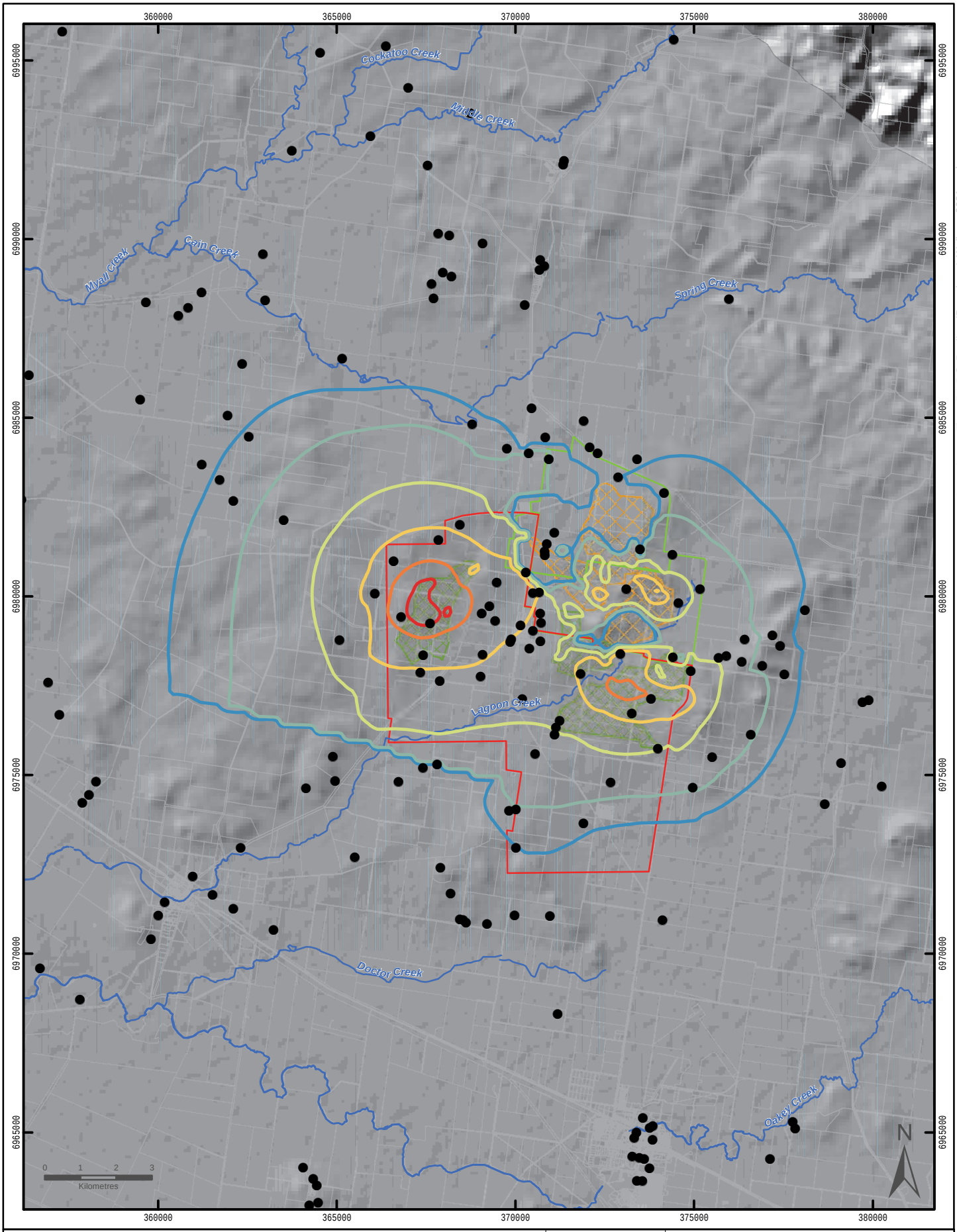

LEGEND

- DNRM Registered Bores - Walloons

Predicted Drawdown Contour (m)

- 1
- 2
- 5
- 10
- 20
- 30

- Watercourse
- New Aland Coal Mine-Stage 3
- New Acland Coal Mine
- Cadastre
- Stage 3 Pit Areas
- Existing Permission
- Modelled extent of Walloon Coal Measures

NEW HOPE GROUP

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 5.1.5-C - Walloon Coal Measures Predicted Drawdown – 2021

Scale 1:140,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

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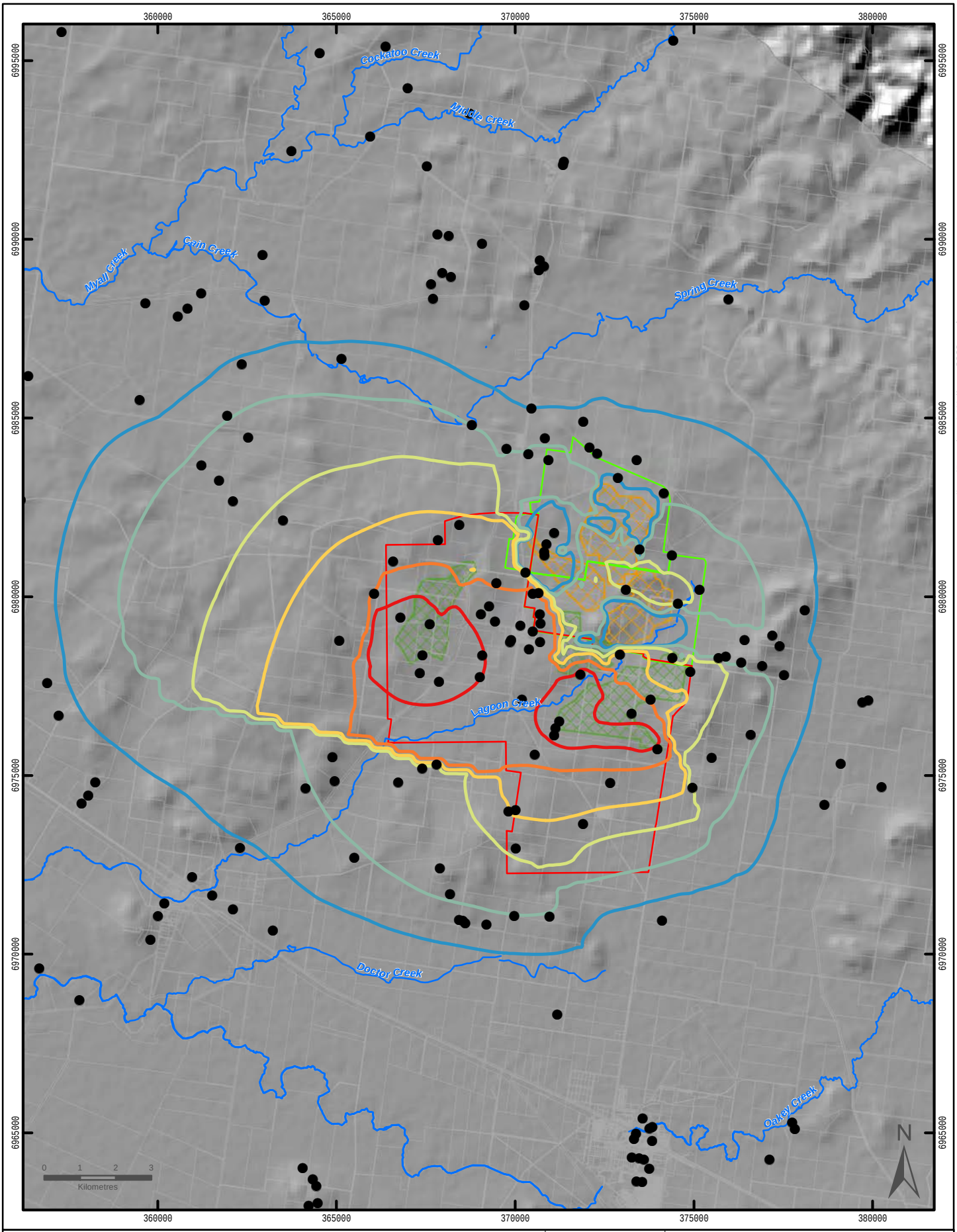

LEGEND

- DNRM Registered Bores - Walloons

Predicted Drawdown Contour (m)

- 1
- 2
- 5
- 10
- 20
- 30

- Watercourse
- New Aland Coal Mine-Stage 3
- New Acland Coal Mine
- Cadastre
- Stage 3 Pit Areas
- Existing Permission
- Modelled extent of Walloon Coal Measures

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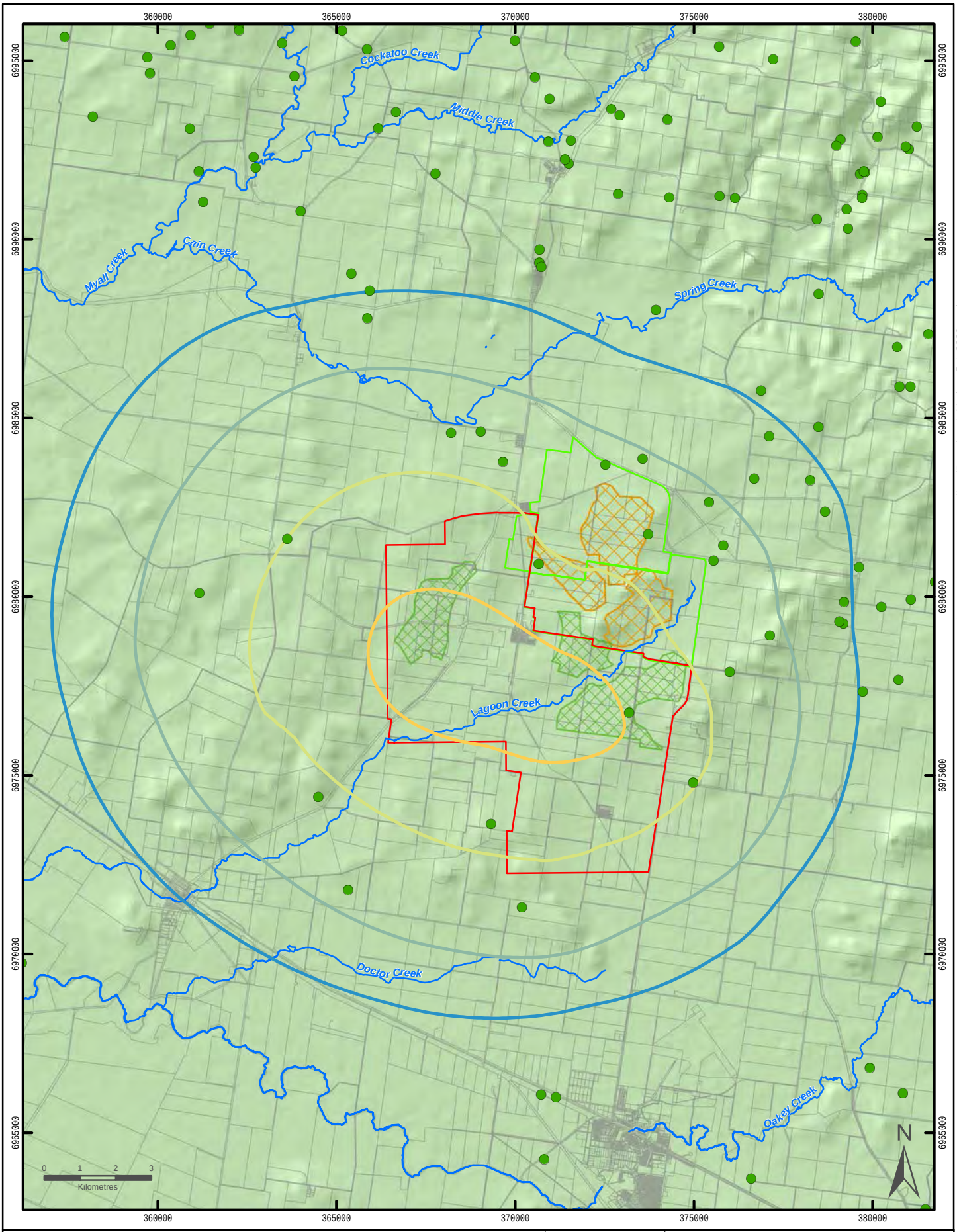
NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 5.1.5-D - Walloon Coal Measures Predicted Drawdown – 2030

Scale 1:140,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

Produced: 28/08/2014 Path: I:\QENV2\Projects\QE06644\Spatial\ArcGIS\01_Figures\03_AEIS\06_GroundwaterResources\Key Issues\140617_NewHope_Groundwater_Figure5.1.5-D_PredictedDrawdownInWalloon_2030.mxd



LEGEND

- DNRM Registered Bores - Marburg Sst

Predicted Drawdown Contour (m)

- 1
- 2
- 5
- 10
- 20
- 30

- Watercourse
- New Aland Coal Mine-Stage 3
- New Acland Coal Mine
- Cadastre
- Stage 3 Pit Areas
- Existing Permission
- Modelled extent of Marburg Sandstone

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NEW ACLAND COAL MINE STAGE 3 PROJECT

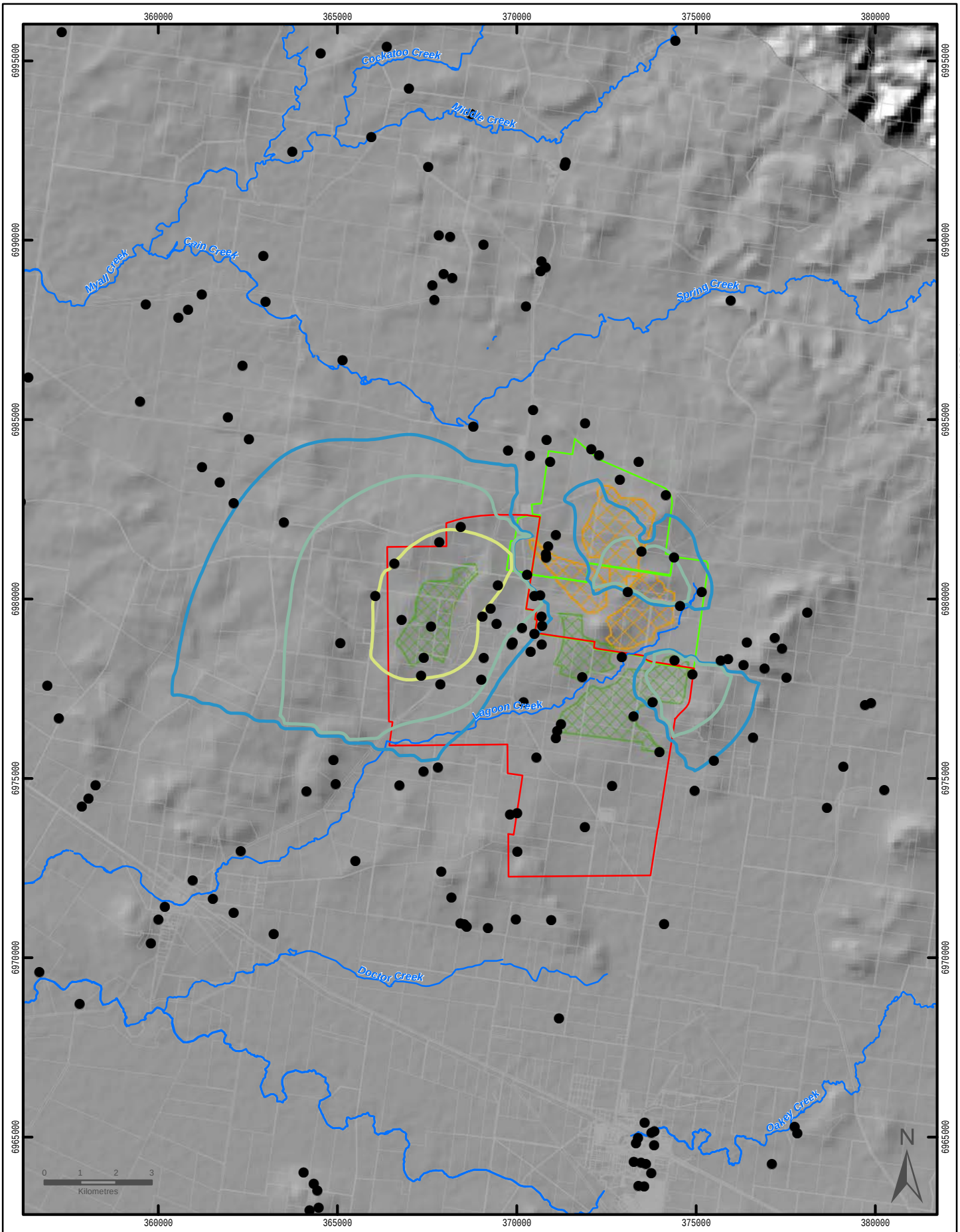
Figure 5.1.5-E - Marburg Sandstone Predicted Drawdown – 2030

Scale 1:140,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

Produced: 28/08/2014 Path: I:\QENV2\Projects\QE06644\Spatial\ArcGIS\01_Figures\03_AEIS\06_GroundwaterResources\Key Issues\140617_NewHope_Groundwater_Figure5.1.5-E_PredictedDrawdownInMarburgSst_2030.mxd

As shown in **Figure 5.1.5-A**, a small amount of drawdown within the alluvium, up to around 2 m, is predicted in the vicinity of Lagoon Creek adjacent the southwest of the revised Project site. As detailed in the draft EIS, previous groundwater investigations and a general lack of DNRM-registered bores in this area suggest that the alluvium associated with Lagoon Creek is dry; it is therefore likely that the predictions of drawdown in this area are a modelling artefact related to layering and model setup. The impact of predicted groundwater drawdown associated with the revised Project mining activities on the alluvium of Oakey and Myall Creeks (including their tributaries of Doctors, Lagoon and Spring Creeks) is also represented by the predicted change in flows in the Oakey and Myall Creeks. Updated modelling results indicate that no additional losses to baseflow as a result of the revised Project are expected to occur above any historic or current impacts, consistent with the modelling presented in the draft EIS (refer to **Figure 6-32** of the draft EIS).

In the long term post-mining (modelled as 300 years post-mining), the updated model predictions indicate groundwater levels in the Walloon Coal Measures will gradually recover so that for the most part there is less than 10 m residual drawdown outside the revised Project's boundary as depicted in **Figure 5.1.5-F**. Recovery to pre-mining conditions throughout the revised Project site is limited by evapotranspirative losses from the depressed landforms (rehabilitated final voids). Drawdown adjacent the last areas to be mined is predicted to remain relatively minor (approximately 10 m drawdown), and less than the 20m predicted in the draft EIS, due to the ongoing evapotranspiration-driven groundwater discharge into the depressed landforms (rehabilitated final voids). The 1 m drawdown extent in the Walloon Coal Measures is predicted to remain at approximately 6 km from the revised Project boundary at its greatest (western) extent, which is around 1 km less than presented in the draft EIS. Predicted drawdowns in both the Tertiary Basalt and the Marburg Sandstone (refer to **Appendix F** of the AEIS) in the long term are significantly less than the final year of mining, with recovery of groundwater levels occurring such that residual drawdown does not exceed 5 m for either aquifer at any location. In particular, the Marburg Sandstone is predicted to recover such that drawdown does not exceed 2 m in the long term. Overall, the revised groundwater modeling indicates that post-mining impacts are predicted to be less than those presented in the draft EIS.



LEGEND

- DNRM Registered Bores - Walloons

Predicted Drawdown Contour (m)

- 1
- 2
- 5
- 10
- 20
- 30

- Watercourse
- New Aland Coal Mine-Stage 3
- New Acland Coal Mine
- Cadastre
- Stage 3 Pit Areas
- Existing Permission
- Modelled extent of Walloon Coal Measures

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NEW ACLAND COAL MINE STAGE 3 PROJECT

Figure 5.1.5-F - Walloon Coal Measures Predicted Drawdown – Post Mining

Scale 1:140,000 on A4
Projection: Australian Geodetic Datum – Zone 56 (AGD84)

Produced: 28/08/2014 Path: i:\QENV2\Projects\QE06644\Spatial\ArcGIS\01_Figures\03_AEIS\06_GroundwaterResources\Key Issues\140617_NewHope_Groundwater_Figure5.1.5-F_PredictedDrawdownInWalloon_2330.mxd

Although recovery to pre-mining groundwater levels does not occur post-mining, the groundwater system recovers to a new steady-state equilibrium such that there are no additional groundwater impacts other than those that have already occurred during operation of the revised Project.

Due to the high evapotranspiration rate in the study area, groundwater discharge to the depressed landforms (rehabilitated final voids) is predicted to continue at a combined rate of around 1 ML/day in the long term (median modelled case) compared to a significantly greater 3.5 ML/day in the draft EIS due to significant revisions in the post-mining model methodology (refer to **Appendix F** of the AEIS), driven by evaporation from permanent pit lakes. Permanent lakes are predicted to form in all three depressed landforms (rehabilitated final voids) as shown in **Figure 5.1.5-G**. Recovery of groundwater levels in the depressed landforms is relatively rapid for the first few years post-mining, and stabilizes at between 2 m and 6 m residual drawdown from pre-mining conditions due to ongoing evaporative discharge, compared to 30 m to 40 m in the draft EIS due to significant revisions in the post-mining model methodology (refer to **Appendix F** of the AEIS). The maximum depths of the lakes that are predicted to form are around 33 m in the Manningvale West depressed landform, 18 m in the Manningvale East depressed landform, and 22 m in the Willeroo depressed landform. These pit lakes are around 20 m deeper (that is, the lake levels recover to a higher level) than presented in **Chapter 6** of the draft EIS due to significant revisions in the post mining model methodology (refer to **Appendix F** of the AEIS). The pit lakes are not expected to become salinized, due the effect of incident rainfall and local runoff. At no time are the lake water levels predicted to rise above the base elevation of the basalt aquifer, and the pits will therefore not cause recharge of pit water to the basalt aquifer.

Given the relatively minor long-term drawdown in the depressed landforms, it is possible that episodic large rainfall events could result in enough overland flow to the voids such that this long-term drawdown is overcome on a temporary basis, and the pits may therefore on occasion recharge the groundwater system. However, analytical salt balance modelling (refer to **Section 5.2.9.13** of the AEIS) suggests that the depressed landform lakes are not expected to become salinized due to the effect of long term incidental rainfall and runoff, and in the long term the lakes will have salinities significantly less than native groundwater in the Walloon Coal Measures. Therefore, any groundwater recharge from the lakes will be less saline than native groundwater. In addition, NAC is committed to dedicated void lake studies as part of mine closure planning in the future, and the management strategies for the lakes will be developed in conjunction with the relevant regulators to ensure no long term water quality impacts on the groundwater system.

Table 5.1.5-A and **Table 5.1.5-B** present predicted drawdown at all potentially affected DNRM-registered groundwater bores, where the source aquifer is known in the DNRM database. The tables exclude bores owned by the NHG through the APC, and use a lower cut-off of 1m as this is the drawdown level at which there is sufficient confidence in the reliability of model predictions. Similarly, the provision of two tables (potentially affected bores; **Table 5.1.5-A**, and likely affected bores; **Table 5.1.5-B**) is based on the assessment of confidence in the reliability of model predictions.

Table 5.1.5-A Potentially affected private bores with known source aquifer (median predicted drawdown between 1 and 2 m)

Bore RN	Aquifer	Predicted Drawdown (m)

		Median (most likely)	Minimum (lower confidence level)	Maximum (upper confidence level)
94343	Tertiary Basalt	1.5	0.1	3.4
94730	Tertiary Basalt	1.2	0.5	1.9
38704	Tertiary Basalt	1.1	0.5	2.0
48114	Tertiary Basalt	1.1	0.2	2.6
42231619	Tertiary Basalt	1.0	0.0	4.4
86634	Walloon Coal Measures	1.9	1.3	3.7
16464	Walloon Coal Measures	1.9	0.7	3.2
107795	Walloon Coal Measures	1.9	1.3	3.1
17179	Walloon Coal Measures	1.9	1.3	3.4
107083	Walloon Coal Measures	1.7	0.0	4.3
147260	Walloon Coal Measures	1.6	1.0	3.0
147262	Walloon Coal Measures	1.6	1.1	3.1
147259	Walloon Coal Measures	1.6	1.0	3.0
48110	Walloon Coal Measures	1.6	1.0	2.9
37159	Walloon Coal Measures	1.5	0.7	3.2
107378	Walloon Coal Measures	1.5	0.8	2.5
71436	Walloon Coal Measures	1.5	0.5	3.2
31016	Walloon Coal Measures	1.5	0.7	2.5
36991	Walloon Coal Measures	1.5	0.8	2.3
87765	Walloon Coal Measures	1.4	1.0	2.6
94627	Walloon Coal Measures	1.4	0.8	2.8
107883	Walloon Coal Measures	1.3	0.7	2.5
31898	Walloon Coal Measures	1.2	0.6	2.7
32979	Walloon Coal Measures	1.2	0.5	2.2
94924	Walloon Coal Measures	1.2	0.5	2.1
71409	Walloon Coal Measures	1.1	0.8	2.3
42231524	Walloon Coal Measures	1.0	0.5	2.4
38843	Marburg Sandstone	1.5	0.5	2.1
17389	Marburg Sandstone	1.2	0.3	2.4
55155	Marburg Sandstone	1.2	0.4	1.7
119138	Marburg Sandstone	1.1	0.4	1.9
147604	Marburg Sandstone	1.1	0.4	1.7
42231590	Marburg Sandstone	1.1	0.4	1.6

Bore RN	Aquifer	Predicted Drawdown (m)		
		Median (most likely)	Minimum (lower confidence level)	Maximum (upper confidence level)
32885	Marburg Sandstone	1.1	0.4	1.8
48270	Marburg Sandstone	1.1	0.4	1.8
61183	Marburg Sandstone	1.0	0.3	2.1
71462	Marburg Sandstone	1.0	0.4	1.6

Table 5.1.5-B : Likely affected private bores with known source aquifer (median predicted drawdown > 2 m)

Bore RN	Aquifer	Predicted Drawdown (m)		
		Median (most likely)	Minimum (lower confidence level)	Maximum (upper confidence level)
94285	Tertiary Basalt	10.4	1.3	13.9
94801	Tertiary Basalt	8.1	0.7	10.6
71247	Tertiary Basalt	5.4	1.5	7.3
94722	Tertiary Basalt	3.5	0.7	5.8
42231620	Tertiary Basalt	3.2	0.2	8.1
83426	Tertiary Basalt	3.1	0.6	5.3
48209	Tertiary Basalt	2.5	0.2	5.3
119022	Tertiary Basalt	2.5	0.7	4.3
42231618	Tertiary Basalt	2.4	0.0	6.0
83287	Tertiary Basalt	2.3	0.2	4.6
42231617	Tertiary Basalt	2.2	0.1	5.7
147526	Tertiary Basalt	2.1	0.2	4.6
17490	Walloon Coal Measures	21.0	19.0	25.1
17125	Walloon Coal Measures	16.5	11.8	19.4
87958	Walloon Coal Measures	9.8	7.8	12.0
87948	Walloon Coal Measures	9.3	7.3	11.4
87927	Walloon Coal Measures	5.8	3.8	8.1
55224	Walloon Coal Measures	5.8	4.4	7.6
9583	Walloon Coal Measures	3.9	3.0	5.6
87741	Walloon Coal Measures	3.7	2.0	5.2
48164	Walloon Coal Measures	3.4	2.6	4.8
42231622	Walloon Coal Measures	2.9	1.8	4.4
107882	Walloon Coal Measures	2.8	1.7	4.6
83742	Walloon Coal Measures	2.7	1.8	4.2
119581	Walloon Coal Measures	2.7	1.7	4.0
83238	Walloon Coal Measures	2.6	0.9	4.1
61545	Walloon Coal Measures	2.5	2.0	3.4
55126	Walloon Coal Measures	2.4	0.9	3.6
87646	Walloon Coal Measures	2.3	1.5	3.7
64254	Walloon Coal Measures	2.2	1.4	3.6

Bore RN	Aquifer	Predicted Drawdown (m)		
		Median (most likely)	Minimum (lower confidence level)	Maximum (upper confidence level)
87379	Walloon Coal Measures	2.0	1.4	3.5
87941	Marburg Sandstone	5.2	1.0	7.2
64280	Marburg Sandstone	5.0	0.8	7.5
66782	Marburg Sandstone	4.1	0.7	6.0
9564	Marburg Sandstone	3.8	0.9	5.3
17180	Marburg Sandstone	3.3	0.7	4.5
64185	Marburg Sandstone	3.3	0.6	5.6
94997	Marburg Sandstone	2.3	0.7	3.5
52872	Marburg Sandstone	2.2	0.7	2.8
107386	Marburg Sandstone	2.1	0.6	3.0

Table 5.1.5-C : Summary of potentially and likely affected private bores with known source aquifer (median predicted drawdown)

Aquifer	Number of Bores Likely Affected (>2 m drawdown, median case)	Number of Bores Potentially Affected (1-2 m drawdown, median case)
Tertiary Basalt	12	5
Walloon Coal Measures	19	22
Marburg Sandstone	9	10

Within the potentially impacted groundwater drawdown zone (i.e. > 1m median predicted drawdown for any aquifer) there are 77 DNRM registered bores with known source aquifer and 109 DNRM registered bores with no aquifer information. These bores are located on properties owned by approximately 50 landholders. The majority of the 109 bores with no aquifer information were drilled between 1910 and 2000 resulting in limited information being collected by the administering authority.

Table 5.1.5-D presents a comparison of the predictions of bore impacts between the previous draft EIS modelling and the new AEIS modelling. It should be noted that the level of detail in the analysis previously applied to the draft EIS modelling results was somewhat less that in the AEIS, such that these predictions of drawdown at individual bores were not previously undertaken or presented in the draft EIS. Rather, due to the somewhat lesser confidence in the modelling results presented previously, the draft EIS presented predictions of drawdown at individual bores in terms of spatially representing the bore locations in relation to predicted drawdown contours, such that each bore was viewed within the context of an approximate range of drawdown.

Table 5.1.5-D : Comparison of impacts to private bores with known source aquifer - draft EIS model vs AEIS model

Bore RN	Aquifer	Predicted Drawdown (m) (1 m cutoff)		Analysis[1,2]
		Previous EIS Model	Current Model (median case)	
94285	Tertiary Basalt	18.0	10.4	Reduced Potential Impact
94801	Tertiary Basalt	4.7	8.1	Increased Potential Impact
71247	Tertiary Basalt	1.4	5.4	Increased Potential Impact
94722	Tertiary Basalt	1.8	3.5	Similar Potential Impact
42231620	Tertiary Basalt	3.3	3.2	Similar Potential Impact
83426	Tertiary Basalt	1.2	3.1	Similar Potential Impact
48209	Tertiary Basalt	2.3	2.5	Similar Potential Impact
119022	Tertiary Basalt	<1	2.5	Similar Potential Impact
42231618	Tertiary Basalt	2.8	2.4	Similar Potential Impact
83287	Tertiary Basalt	1.3	2.3	Similar Potential Impact
42231617	Tertiary Basalt	2.7	2.2	Similar Potential Impact
147526	Tertiary Basalt	<1	2.1	Similar Potential Impact
94343	Tertiary Basalt	<1	1.5	Similar Potential Impact
94730	Tertiary Basalt	<1	1.2	Similar Potential Impact
38704	Tertiary Basalt	<1	1.1	Similar Potential Impact
48114	Tertiary Basalt	<1	1.1	Similar Potential Impact
42231619	Tertiary Basalt	3.0	1.0	Reduced Potential Impact
17510	Tertiary Basalt	7.3	<1	Reduced Potential Impact
64892	Tertiary Basalt	6.1	<1	Reduced Potential Impact
94285	Tertiary Basalt	4.8	<1	Reduced Potential Impact
64376	Tertiary Basalt	4.7	<1	Reduced Potential Impact
64367	Tertiary Basalt	4.5	<1	Reduced Potential Impact
94846	Tertiary Basalt	4.0	<1	Reduced Potential Impact
147487	Tertiary Basalt	3.9	<1	Reduced Potential Impact
107255	Tertiary Basalt	3.8	<1	Reduced Potential Impact
17582	Tertiary Basalt	3.6	<1	Reduced Potential Impact
36273	Tertiary Basalt	3.1	<1	Reduced Potential Impact
36062	Tertiary Basalt	2.9	<1	Similar Potential Impact
83425	Tertiary Basalt	2.5	<1	Similar Potential Impact
61508	Tertiary Basalt	2.4	<1	Similar Potential Impact

Bore RN	Aquifer	Predicted Drawdown (m) (1 m cutoff)		Analysis[1,2]
		Previous EIS Model	Current Model (median case)	
42231603	Tertiary Basalt	1.9	<1	Similar Potential Impact
87352	Tertiary Basalt	1.8	<1	Similar Potential Impact
17490	Walloon Coal Measures	6.5	21.0	Increased Potential Impact
17125	Walloon Coal Measures	4.8	16.5	Increased Potential Impact
87958	Walloon Coal Measures	10.4	9.8	Similar Potential Impact
87948	Walloon Coal Measures	9.6	9.3	Similar Potential Impact
87927	Walloon Coal Measures	1.7	5.8	Increased Potential Impact
55224	Walloon Coal Measures	8.1	5.8	Reduced Potential Impact
9583	Walloon Coal Measures	2.9	3.9	Similar Potential Impact
87741	Walloon Coal Measures	1.1	3.7	Increased Potential Impact
48164	Walloon Coal Measures	1.3	3.4	Increased Potential Impact
42231622	Walloon Coal Measures	1.0	2.9	Similar Potential Impact
107882	Walloon Coal Measures	<1	2.8	Similar Potential Impact
83742	Walloon Coal Measures	<1	2.7	Similar Potential Impact
119581	Walloon Coal Measures	<1	2.7	Similar Potential Impact
83238	Walloon Coal Measures	<1	2.6	Similar Potential Impact
61545	Walloon Coal Measures	<1	2.5	Similar Potential Impact
55126	Walloon Coal Measures	<1	2.4	Similar Potential Impact
87646	Walloon Coal Measures	<1	2.3	Similar Potential Impact
64254	Walloon Coal Measures	<1	2.2	Similar Potential Impact
87379	Walloon Coal Measures	<1	2.0	Similar Potential Impact
86634	Walloon Coal Measures	<1	1.9	Similar Potential Impact
16464	Walloon Coal Measures	<1	1.9	Similar Potential Impact
107795	Walloon Coal Measures	<1	1.9	Similar Potential Impact
17179	Walloon Coal Measures	<1	1.9	Similar Potential Impact
107083	Walloon Coal Measures	<1	1.7	Similar Potential Impact
147260	Walloon Coal Measures	<1	1.6	Similar Potential Impact
147262	Walloon Coal Measures	<1	1.6	Similar Potential Impact
147259	Walloon Coal Measures	<1	1.6	Similar Potential Impact
48110	Walloon Coal Measures	<1	1.6	Similar Potential Impact
37159	Walloon Coal Measures	<1	1.5	Similar Potential Impact
107378	Walloon Coal Measures	<1	1.5	Similar Potential Impact

Bore RN	Aquifer	Predicted Drawdown (m) (1 m cutoff)		Analysis[1,2]
		Previous EIS Model	Current Model (median case)	
71436	Walloon Coal Measures	<1	1.5	Similar Potential Impact
31016	Walloon Coal Measures	<1	1.5	Similar Potential Impact
36991	Walloon Coal Measures	<1	1.5	Similar Potential Impact
87765	Walloon Coal Measures	<1	1.4	Similar Potential Impact
94627	Walloon Coal Measures	<1	1.4	Similar Potential Impact
107883	Walloon Coal Measures	<1	1.3	Similar Potential Impact
31898	Walloon Coal Measures	<1	1.2	Similar Potential Impact
32979	Walloon Coal Measures	<1	1.2	Similar Potential Impact
94924	Walloon Coal Measures	<1	1.2	Similar Potential Impact
71409	Walloon Coal Measures	<1	1.1	Similar Potential Impact
42231524	Walloon Coal Measures	<1	1.0	Similar Potential Impact
83742	Walloon Coal Measures	4.5	<1	Reduced Potential Impact
87941	Marburg Sandstone	1.1	5.2	Increased Potential Impact
64280	Marburg Sandstone	1.2	5.0	Increased Potential Impact
66782	Marburg Sandstone	<1	4.1	Increased Potential Impact
9564	Marburg Sandstone	1.2	3.8	Increased Potential Impact
17180	Marburg Sandstone	<1	3.3	Increased Potential Impact
64185	Marburg Sandstone	<1	3.3	Increased Potential Impact
94997	Marburg Sandstone	<1	2.3	Similar Potential Impact
52872	Marburg Sandstone	<1	2.2	Similar Potential Impact
107386	Marburg Sandstone	<1	2.1	Similar Potential Impact
38843	Marburg Sandstone	<1	1.5	Similar Potential Impact
17389	Marburg Sandstone	<1	1.2	Similar Potential Impact
55155	Marburg Sandstone	<1	1.2	Similar Potential Impact
119138	Marburg Sandstone	<1	1.1	Similar Potential Impact
147604	Marburg Sandstone	<1	1.1	Similar Potential Impact
42231590	Marburg Sandstone	<1	1.1	Similar Potential Impact
32885	Marburg Sandstone	<1	1.1	Similar Potential Impact
48270	Marburg Sandstone	<1	1.1	Similar Potential Impact
61183	Marburg Sandstone	<1	1.0	Similar Potential Impact
71462	Marburg Sandstone	<1	1.0	Similar Potential Impact

Notes: 1. Based on confidence in model predictions, uses a 2m change in predicted drawdown as a cutoff for a material change in predicted potential impact.
2. Where predicted drawdown is less than 1m, assumes a predicted drawdown of 1m for the purposes of defining a material change in predicted potential impact.

In all cases relating to the bores identified in **Table 5.1.5-A** and **Table 5.1.5-B**, NAC will seek to establish legally binding Landholder Agreements with the potentially affected landholders prior to operation of the revised Project. The Landholder Agreements will include reference to any negotiated Make Good measures.

NAC acknowledges that **Table 5.1.5-A** and **Table 5.1.5-B** do not identify bores within the predicted drawdown zone that do not have a source aquifer denoted in the DNRM database, as there is no way to assign these bores to a predicted drawdown level. NAC will seek to further characterise these bores and liaise with potentially affected landholders as part of ongoing baseline assessment works as outlined below.

NAC remains committed to undertaking baseline groundwater bore assessments in its area of potential impact, including all bores identified in **Table 5.1.5-A** and **Table 5.1.5-B**. The baseline assessment will comprise:

- Consultation with the landholder regarding their bores, including their operational history;
- Review of any landholder supplied information related to the bores; and
- Engagement of a groundwater specialist third party contractor to undertake on-ground assessment of the bore(s) in question to undertake:
  - Water quality testing.
  - Groundwater level measurement.
  - Assessment of the bore and infrastructure condition.

Within the draft EIS, commitments were made to undertake groundwater monitoring at selected landholder bores surrounding the revised Project site, following consultation with relevant landholders and the development of legally binding Landholder Agreements. Landholder bores targeted for monitoring were proposed to be selected based on a thorough review of bores within the predicted drawdown impact zone. Following the baseline assessment process, NAC remains committed to selecting appropriate and suitable private bores in conjunction with landholders for ongoing monitoring prior to any real or perceived impact occurring. Bores selected for ongoing monitoring on the basis of suitability will be added to NAC's routine groundwater monitoring program, with monitoring of water levels undertaken monthly and monitoring of water quality undertaken every 6 months. The data collected will be provided to the landholder following collection.

In the time since the draft EIS release, NAC has already undertaken landholder bore surveys in the area surrounding the revised Project site, in addition to those reported in the draft EIS. The results of these additional surveys are presented in **Appendix G** of the AEIS.

NAC will also undertake investigations and bore assessments if private bore complaints are received from landholders without Landholder Agreements with NAC, as outlined in the revised Project's

revised GMIMP (**Appendix H** of the AEIS) and in accordance with the Water Act. These investigations and bore assessments will involve:

- Consultation with the landholder regarding the details of the complaint;
- Review of any landholder supplied information related to the complaint; and
- Engagement of a groundwater specialist third party contractor to undertake on-ground assessment of the bore(s) in question to undertake:
  - Water quality testing.
  - Groundwater level measurement.
  - Assessment of the bore and infrastructure condition.
- Following a thorough review of the available information, NAC will make an informed assessment of the information and provide the landholder with written correspondence detailing the testing results and information review that has been undertaken. Comparison to NAC's groundwater model predictions will be made. Negotiations with the affected landholder will then be undertaken to determine the nature of any Make Good measures.
- The updated groundwater modelling as presented in **Appendix F** of the AEIS has not resulted in a change to the GMIMP groundwater monitoring network, except for the addition of a single new Marburg Sandstone monitoring bore (refer to **Appendix H** of the AEIS) to comply with the IESC's recommendations (refer to **Appendix N** of the AEIS).

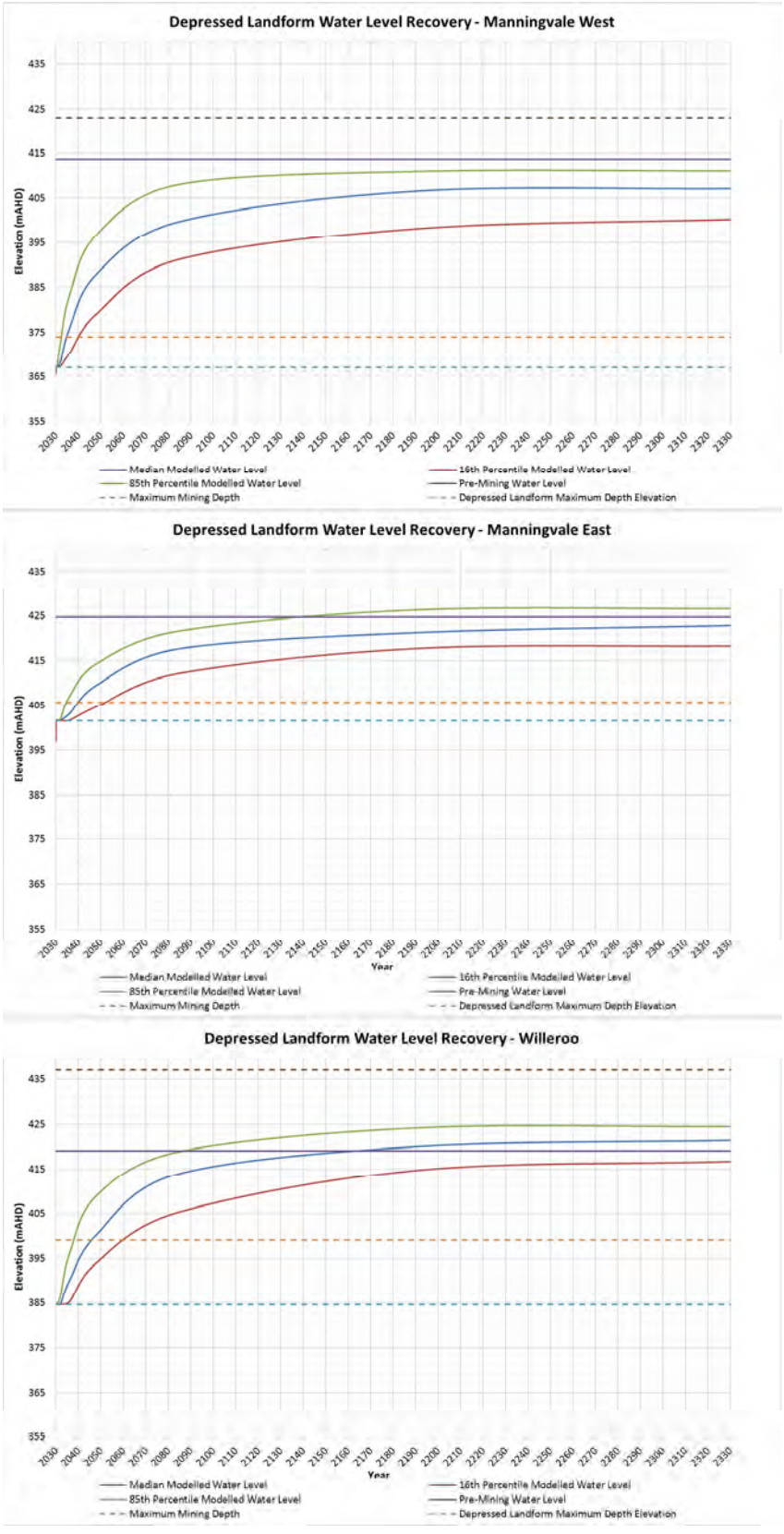

Figure 5.1.5-G Depressed Landform Lake Evolution

5.1.5.4 Community Consultation

Through the public submission process, a number of key issues were identified by stakeholders, requiring further consultation and engagement by NAC. NAC has subsequently documented a more detailed consultation and engagement program for those in the vicinity of the Project and the wider community, to ensure stakeholders receive regular, accurate information on the revised Project, and the opportunity to discuss issues and areas of concern. These consultation and engagement activities have been outlined in **Section 5.1.10** of the AEIS.

Community consultation and engagement activities addressing environmental concerns, including air quality, noise and vibration and groundwater are provided in **Table 5.1.5-E**.

Table 5.1.5-E Environmental Consultation – Air Quality, Noise & Vibration and Groundwater

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
High Priority Landholders (Tier 1) - Includes Acland Township Residents				
Regular general update and discussion.	Face to face meeting, or phone call	Six monthly or additional as requested	Life of Project	- Offer of minimum 2 face to face meetings each year - Updates will cover a range of key areas including: o Environmental monitoring o Health and coal mining o Enquiries and complaints process o Environment i.e. Ground Water, Noise/Vibration and Air Quality
Report on Monthly Environment Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly	Life of Project	- Overview of environmental monitoring sent out in hard copy quarterly
Landholder Agreement	Face to face	Approx. 1 – 5 meetings (or until finalised)	Pre-Approval and/or construction	- Provision of Landholder Agreement - Discussion of the purpose and process of a Landholder Agreement between NAC and the landholder
Discussion with a Hydrogeologist about NAC ground water modelling	Face to face	1 meeting offered	Pre-Approval	- Detailed explanation of modelling and potential ground water impacts, including specific information about landholder's bores - May be included as part of the regular update discussion
24hr phone number	Phone call	Available for landholders should it be required	Construction and Operation	- Phone number available to sensitive receptors 24 hours a day. Allows landholder to report urgent operation impacts e.g. noise at night, and speak to site personnel
Notification of blast events	Phone call	Before a blast	Operation	- Sensitive receptors to be notified of blasts within the 48hr period before a blast
Opportunity to talk to NAC technical staff	Face to face, Phone or mail	When requested	Operation	- Open offer to all sensitive receptors - Further explanation of NAC activities from technical staff member, with particular focus on potential impacts on the landholder's property

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
				- May be included as part of the regular update discussion
Tier 2 Landholders				
Regular general update and discussion.	Face to face, phone call	6 monthly (to be reviewed each phase of project through consultation with landholder)	Life of project	- Offer of minimum 2 face to face meetings each year - Updates will cover a range of key areas including: o Environmental monitoring o Health and coal mining o Enquiries and complaints process o Environment i.e. Ground Water, Noise/Vibration and Air Quality
Report on Monthly Environment Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly	Life of Project	- Overview of environmental monitoring sent out in hard copy quarterly
Landholder Agreement	Face to face	Approx. 1 – 5 meetings (or until finalised)	Pre-Approval and/or Construction	- Discussion of the purpose and process of a Landholder Agreement between NAC and the landholder - A Landholder Agreement may be instigated if landholder is interested
Opportunity to talk to a Hydrogeologist about NAC ground water modelling	Face to face	1 meeting offered	Pre-Approval	- Detailed explanation of modelling and potential ground water impacts, including specific information about landholder's bores - May be included as part of the regular update discussion
Opportunity to talk to NAC technical staff	Face to face, phone or mail	When requested	Operation	- Further explanation of NAC activities from a technical staff member, with particular focus on potential impacts on the landholder's property - May be included as part of the regular update discussion
Tier 3 Landholders				
Report on Monthly Environmental Monitoring	Community information session	Yearly	Life of Project	- Community Info session to discuss and explain environmental monitoring results and other issues - Tier 3 landholders sent letter of invitation
	NAC website	Monthly		- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly		- Overview of environmental monitoring sent out in hard copy quarterly
Opportunity to talk to an NAC community staff member and/or technical staff member	Face to face, Phone or mail	When requested	Operation	- Enquiries, concerns or complaints from landholders
All Landholders and General Community				
Report on Monthly	NAC website	Monthly	Life of	- Written report providing an overview

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Environmental Monitoring			Project	of environmental monitoring
Access to Community Staff	Oakey Community Information Centre	As required	Life of Project	- Easy access to NAC community staff for all general enquiries
Information and updates provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland o Environment e.g. Ground Water, Noise/Vibration and Air Quality o Progress of revised Project o Operational areas of interest
Community Information Centre	Oakey Community Information Centre	Ongoing	Life of Project	- Wide variety of information available for community members including: Posters Maps Fact sheets Community staff
Community representatives regularly discussing key issues, opportunities and information regarding NAC and the revised Project	Community Reference Group	1-2 months (as decided by CRG)	Life of Project	- Opportunity for community representatives to raise topics for discussion and have input for consideration by NAC
Education and Awareness Program	Community Partnership	Ongoing	Life of Project	- Variety of programs aimed at mining and environmental education e.g. NAC staff presenting to school groups on rehabilitation
Environmental Partnerships	Community Partnership	Ongoing	Life of Project	- Working in conjunction with local environmental groups on environmental initiatives
Targeted media releases	Media Releases	Ongoing	Life of Project	- Targeted information released on NAC programs and activities including. but not limited to, environmental monitoring, coal and health, Acland and Jondaryan updates, operational and community activities
Opportunity to view environmental management and mitigation practices and outcomes	Public Site Tours	Quarterly	Life of Project	- Local community invited to visit NAC site to view and experience environmental, operational and rehabilitation practices first hand

5.1.6 Transport Traffic and Roads

5.1.6.1 Issue 1 Provide further detail of the need for road closures and diversions with the potential additional travelling requirements of local stakeholders due to these closures

The revised Project involves the extension of the Mine's operating life to approximately 2029 with the inclusion and progressive development of two new resource areas which are identified as the Manning Vale and Willeroo resource areas. The road closures proposed for the revised Project are required to accommodate the extension of the mine areas during the construction and operations phase.

In addition to the extension of mine areas, four of the proposed road closures will be required to accommodate key infrastructure requirements for the revised Project such as the for the proposed realignment the Jondaryan-Muldu Road around the Manning Vale West resource area and the proposed railway crossings facilities. The current alignment of Jondaryan-Muldu Road and Cookes Road is proposed to be closed to accommodate the construction and operation of the proposed realigned Jondaryan-Muldu Road (Refer to **Figure 3-1-A** of the AEIS for more details of the proposed realignment). A section of McKays Road is proposed to be closed to accommodate the new spur rail level crossing facility.

Cherrys Road is a former public road within ML50170 and will be closed for public use. NAC have revised the northern access arrangement and propose to construct a new road off the Peachey-Maclagan Road which will enter into the new Mine Industrial Area (MIA). The new road will be designed to the appropriate standards to transport light vehicles into the revised Project site).

These road closures are scheduled to be implemented concurrently once the realignment of Jondaryan-Muldu Road is completed and MLA 50232 is granted. Appropriate signage and infrastructure will be in place when these closures are implemented to warn public of the restricted access. NAC will also ensure that the public is appropriately advised via its various public communication tools as further discussed in **Section 5.1.10** of the AEIS.

The proposed changes in travel routes and distances due to the road closures will be discussed within the following sections.

The proposed road closures for the revised Project are detailed in **Table 5.1.6-A**.

Table 5.1.6-A : Proposed Road Closures

Road	Sections
Acland Road	Between the re-aligned Jondaryan-Muldu Road and western boundary of Acland town
Acland Silverleigh Road	Between the Oakey-Cooyar Road and the eastern boundary of Acland town
Acland-Muldu Road	Between Francis Street (north of heritage site) and Muldu Road
Bothams Road	Between Acland-Sabine Road and Greenwood School Road
Campbells-Creber Road	Between the existing Jondaryan-Muldu Road and Acland- Muldu Road

Road	Sections
Conroys Road	Between the existing Jondaryan-Muldu Road and Acland- Sabine Road
Cookes Road	Between existing Jondaryan-Muldu Road and Acland- Brymaroo Road
Greenwood School Road	Between Acland Road and Oakey-Cooyar Road
Jondaryan–Muldu Road	North of Cookes Road to Muldu Road
McLaughlins Road	Between existing Jondaryan-Muldu Road and Osheas Road
Willeroo Mine Road	Between Acland-Sabine Road to Acland Road
McKays Road	Between Jondaryan-Muldu Road and the current paved section of Jondaryan Sabine Road
Woods Road	First section that runs West-East from the existing Jondaryan Muldu Road

5.1.6.2 Issue 2 Detail the expected travelling impacts of affected landholders due to the closure or diversions of current roads. Discuss any potential impacts that stakeholders may need to take across their properties

Each nearby landholder who has raised concerns regarding the additional travel distances due to the proposed road closures have been clustered into key areas/locations based on their proximity to the specified road link or township, and are outlined within **Table 5.1.6-B**.

Table 5.1.6-B: Cluster groups for affected submitters

Location – Road/ township	Landholders (Submitter Number)	TOTAL number of landholder/s
Acland	503	1
Brymaroo	5	1
Haden	520	1
Jondaryan	251,368	2
Jondaryan- Muldu Road	16,17,564,568	4
Kingsthorpe	228,585	2
Muldu	575	1
Oakey	474	1
Oakey-Cooyar Road	284,296,475,476,477,478,479	7

The following traffic route assumptions have been adopted to calculate the additional distances each landholder would have to travel due to the proposed road closures:

- The key north-south road network providing access to the landholders are: Jondaryan-Muldu Road, Jondaryan-Nungil Road and Oakey-Cooyar Road.
- The key east-west road network providing access to the landholders are mainly from Warrego Highway and Peachey-Maclagan Road.

- All landholders will use dedicated road reserves to access their respective property access (i.e. gazetted road owned by the local council or TMR).
- To access Acland from the southern end, all landholders will detour via Warrego Highway -Oakey Cooyar Road-Acland Sabine Road route.
- To access Acland from the northern end, all landholders will detour via Oakey-Cooyar Road-Acland Sabine Road route.
- Route selection between origin and destination was based on the quickest route.
- The additional travel distance was calculated from the difference in travel distance between the existing travel route (without proposed road closures) and the proposed travel route (with road closures in place). Note that the proposed travel route was based on the quickest route using Google maps travel.
- Childs Road is an unsealed dirt road that provides property access to the neighbouring farming property. The intersection of Childs Road and Jondarayan-Muldu Road will be realigned to accommodate an at grade level crossing. This road is not suitable as the key access road for general traffic to access the Acland township. Therefore, the proposed travel route assessment undertaken does not include Childs Road as a key access route to Acland township.
- Acland-Sabine Road will be sealed.

Based on the assumptions outlined above, the additional distances that landholders would have to travel to access their properties are summarised in **Table 5.1.6-C**.

Table 5.1.6-C: Additional travel distances matrix for key roads within close proximity to revised Project (km)

Origin Cluster/ Destination	Approximate additional travel distances (km) [1 2 3]				
	Jondaryan-Muldu Rd	Jondaryan-Nungil Rd	Oakey Cooyar Rd	Warrego Hwy	Peachy-Maclagan Rd
Acland	31	26	5	0	10
Brymaroo	0	0	0	0	0
Haden	0	0	0	3	0
Jondaryan	3	0	0	0	10
Jondaryan- Muldu Rd	✕	3	6	3	19
Kingsthorpe	3	0	0	0	0
Muldu	3	3	5	3	0
Oakey	3	0	0	0	0
Oakey-Cooryar Rd	3	0	✕	0	0

[1] Distances calculation were undertaken using Google maps travel distance.
[2] The origin and destination points for the existing proposed travel are the same. The distances above are calculated from the difference in the existing and proposed travel routes.
[3] Rounded to the nearest whole number.

Concerned landholders will have to travel an additional 0 km to 31 km to access properties located within the key road network outlined above. The furthest additional travel distance (31km) route is for a concerned landholder located within Acland accessing Jondaryan-Muldu Road.

The response to issue 3 outlines the additional travel distances for landholders to key townships within close proximity to the Study area.

5.1.6.3 Issue 3 Detail the expected travelling impacts for affected landholders to key townships or locations such as Acland; Jondaryan; Oakey and/New England Highway due to the closure or diversions of current roads

Based on the assumptions outlined within **Section 5.1.6.2**, the additional distances that landholders would have to travel to key townships within close proximity to the Study area are summarised in **Table 5.1.6-D**.

Table 5.1.6-D: Additional travel distances matrix for key townships and Warrego Highway (km)

Cluster groups/ locations	Approximate additional travel distances (km) [1 2 3]											
	Acland	Balgowan	Brymaroo	Goombungee	Haden	Jondaryan	Kingsthorpe	Muldu	Oakey	Sabine	Yalangur	Warrego Hwy
Acland	✕	20	17	10	9	19	0	24	0	0	7	3
Brymaroo	17	0	✕	0	0	0	0	0	0	0	0	0
Haden	10	0	0	0	✕	3	0	0	0	0	0	0
Jondaryan	19	3	0	16	4	✕	0	3	0	0	0	0
Jondaryan- Muldu Road	30	3	3	19	3	0	0	3	0	9	0	0
Kingsthorpe	3	3	0	0	0	0	✕	3	0	0	0	0
Muldu	24	0	0	0	0	3	0	✕	3	5	0	3
Oakey	0	0	0	0	0	0	0	5	✕	0	0	0

[1] Distances calculation were undertaken using Google maps travel distance.
[2] The origin and destination points for the existing proposed travel are the same. The distances above are calculated from the difference in the existing and proposed travel routes.
[3] Rounded to the nearest whole number.

Majority of concerned landholders would have to travel an additional 0 km to 30km to access key townships. The furthest additional travel distance route (30km) is for landholders located along Jondaryan-Muldu Road heading to Acland.

5.1.6.4 Issue 4 Discuss the additional travelling distances, service vehicles (including emergency and other services) will need to travel due to the proposed the closure or diversions of current roads

The nearest Queensland Police Services (QPS) stations, Queensland State of Emergency Services (QSES) and hospitals that would service Acland are as follows:

- QPS locations: - Jondaryan (Duke Street), Oakey (Bell Street & Campbell Street), Goombungee (Barker Street)
- QSES locations: - Toowoomba, Goombungee
- Key hospital: - Oakey, Toowoomba, Highfield

The main access to Acland would be maintained via the existing Acland-Sabine Road which is accessible via Oakey-Cooyar Road. It is assumed that all emergency services vehicles will be traversing sealed roads to access rural properties. The additional distance that emergency services vehicles would have to travel to access residents within Acland and the surrounding areas due to the proposed road closures are summarised within **Table 5.1.6-E**.

Table 5.1.6-E : Emergency services – additional distances travelled (km)

Origin	Destination	Approximate additional travel distance (km)[1]
Jondaryan	Acland	19.0 km
Oakey		0.3 km
Goombungee		10.0 km
Toowoomba		-8.0km
Highfield		9.5 km

[1] Distances calculation were undertaken using Google maps travel distance

The travel distance for emergency services vehicles travelling between Toowoomba and Acland has reduced by 8 km as the service vehicle will traverse Oakey-Cooyar Rd to access Acland rather than previously using Jondaryan-Muldu Road. Discussion (via telephone) with QPS and the emergency services department (on 7/08/2014) have confirmed that if an incident does occur at Acland township, the direct route that would be used to access the Acland township from Oakey town centre is Oakey-Cooyar Rd.

It should be noted that the all emergency departments will be formally notified of the proposed road closures in advance of the closures as part of the road closure application to TRC.

5.1.6.5 Issue 5 Detail the potential disruptions to nearby businesses (including if road closures restrict farm machinery movements between stakeholder properties) and the potential safety concerns of moving farm machinery on Jondaryan-Muldu Road due to the predicted increase in traffic on this road due to the closure or diversions of current roads

Access to all nearby business will be maintained. Travel distances for customers accessing business located within the key townships are outlined within **Table 5.1.6-D**.

The proposed road closures will not restrict farm machinery movement between landholders properties. Key roads such as Jondaryan-Muldu Road, Jondaryan Nungil Road and Oakey-Cooyar Road are still accessible to concerned landholders.

The proposed realigned Jondaryan-Muldu Road will follow the existing design criteria as per TRC's design requirements. Therefore, the proposed realigned roadway should not restrict movement of farm machinery between landholder properties.

5.1.6.6 Issue 6 Discuss the concern of proposed increased use of partly sealed Kudo-Silverleigh Road

Kudo-Silverleigh Road is located approximately 13 km east of the revised Project site .The traffic movements generated during the peak construction and operation phase for the revised Project are not anticipated to traverse Kudo-Silverleigh Road. Traffic diverted due to the road closures is also not ancipated to traverse Kudo-Silverleigh Road as it is not a key link for diverted traffic. Therefore, there will not be an increase in traffic along Kudo-Silverleigh Road.

Refer to **Chapter 13** of the draft EIS for further details of the roads that are anticipated to be impacted by the traffic generated by the revised Project.

5.1.6.7 Issue 7 Provide further detail of any planned consultation or engagement with local landholders regarding the need for road closures and diversions and how these are planned to be managed. In addition advise what other consultative processes are in place with relevant stakeholders (TRC or BCC) and the landholders can be involved in this process of review

Expected road impacts and safety issues related to the proposed closures will be addressed in detailed within the Road Use Management Plan (RMP) and the Traffic Management Plans (TMP) reports that will be submitted to DTMR and TRC when the project execution contracts have been awarded.

The RMP will outline all the relevant activities that will be undertaken by NAC and the proposed mitigations measures. The Commitments Table within the RMP will summarise all these activities to ensure that TMR and TRC can undertake a compliance audit easily. The TMP report will describe in detail how any required roadworks and proposed road closures undertaken during the construction phase will be safely undertaken in accordance with the *Manual of uniform traffic control devices* (MUTCD).

All landholders will be formally notified of the proposed road closures in advance of the closures via newsletters. Refer to **Section 5.1.9** and **Section 5.1.10** for additional information regarding the appropriate community consultation that would be undertaken by NHG to the affected landholders to explain the impacts of the proposed road closures and the procedures in place for landholders to obtain information in regards to the proposed closures.

5.1.6.8 Issue 8 The AEIS should indicate how the road closures and diversions will be managed and mitigated

Section 13.13 of the draft EIS provides a list of proposed mitigation measures for both the construction and operation phase.

Detailed mitigation measures and strategies related to the impact of the proposed road closures and diversions will be outlined within the RMP and the TMP documents which will be undertaken when the project execution contracts have been awarded. These documents will be submitted to DTMR and TRC for approval.

On site (the relevant roads), provisions of advance notice and clear signage of changes in traffic conditions will be in place to warn road users of the proposed road closures and diversions.

5.1.6.9 Issue 9 Update the Commitment Register; SIMP and EM Plan as required

The EM Plan (**Appendix C**) and SIMP (**Appendix E**) have been updated based on the issues raised in submissions on the draft EIS.

The Commitments Register located in **Appendix D** has been updated based on the issues raised in submissions on the draft EIS.

5.1.6.10 Further Community Consultation

NAC recognises that landholders surrounding Acland and residents in the town have a particular interest in understanding changes to transport, traffic and roads as a result of the revised Project. Information will be available and discussed through landholder engagement activities as outlined in **Section 5.1.10** of the AEIS.

Further activities specific to road closures are outlined in **Table 5.1.6-F**.

Table 5.1.6-F Acland Consultation – Township and Road Closures

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Opportunity to comment on, and provide feedback on Acland Management Plan and road closures	Information Session	1 meeting	Pre-construction	- Feedback on AMP including potential development of Acland Heritage Trail, Tom Doherty Park and Acland historical facilities - Consultation and feedback on road closures in the Acland area including route options and potential mitigation measures for inconvenience e.g. sealing of Acland-Sabine Road - Posters and factsheets
	Community Information Centre	Before and during implementation	Pre-construction	
Information regarding road closures to near neighbours	Face to face	Combined with regular update meeting	Pre-approval and /or construction	- Road closures discussed with landholders during regular meetings - May be included as part of the regular update discussion
Dedicated discussion at CRG meetings	CRG Meetings	As required	Pre-approval/pre construction and construction (operation as requested)	- Acland Management Plan and road closures both discussed at CRG meetings
Stakeholder letter notifying residents	Letter	As required	Pre-construction	- Detail of road closures and alternate routes

of road closures				- Reassurance regarding emergency vehicle access - Any mitigation measures for inconvenience - Expected dates that roads will close
Information provided through NAC newsletter	Newsletter Survey	One	Pre-construction	- Survey seeking feedback on aspects of the ongoing management of Acland
	Update stories	As appropriate	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest, specifically relating to Acland.
Regular media releases updating the community on Acland	Media Releases	Ongoing	Life of Project	- Includes information on key areas of interest relating to Acland including, the Tom Doherty Park, Acland No. 2 Colliery, and other aspects from the AMP.

5.1.7 Acland: The Acland Management Plan should provide details of what the plan will cover and the process for engagement, consultation and potential involvement of the community

The management of Acland is documented in the Acland Management Plan (AMP) located in **Appendix I** of the AEIS and is guided by the unique historical context of Acland, and the safety, security and environmental objectives which stakeholders have raised during community consultation activities conducted by NAC over a number of years. In order to achieve the outcomes documented in the AMP, Acland has been excised from the area of MLA 50232.

The centre of Acland contains a small number of significant local heritage properties which will be preserved and maintained during the revised Project and in perpetuity while under the NHG's management. These properties include a town hall, Tom Doherty Park, Acland War Memorial, a former school and a miner's cottage. Acland also contains the Acland No. 2 Colliery Conservation Area, which is a State heritage listed place, protected under the *Queensland Heritage Act 1992*. This site will be managed by NAC in accordance with the Acland Colliery Management Plan (**Appendix J.12** of the draft EIS), which has been developed to preserve and enhance the unique historical elements of this site.

The NHG will maintain a number of key sites within Acland, in a manner which preserves their historical significance in a safe and sustainable way. Due to the age and former land uses of many sites within Acland, a number of safety hazards needed to be addressed in order to ensure the safety of residents, the public and company personnel. A program of asbestos removal and the demolition of derelict buildings has been undertaken. A number of contaminated sites as listed on the EMR Register will be managed according to site environmental management plans. The current management status of key sites throughout Acland is tabulated in detail in the AMP.

The vacant land within Acland is now being progressively converted into 'treed parkland', which achieves a number of outcomes relating to public access, visual amenity and wildlife habitat.

Arrangements for the on-going management and maintenance of key sites within Acland will be negotiated with key stakeholders such as TRC, the local RSL Branch, and the local public. NAC is committed to targeted community engagement activities to ensure local stakeholders have the opportunity to comment on Acland. A detailed overview of community consultation and engagement can be found in the **Section 5.1.10** of the AEIS.

A range of community consultation and engagement commitments are detailed in **Section 5.1.10** of the AEIS. Consultation activities specific to Acland are also outlined in **Table 5.1.7-A**

Table 5.1.7-A: Acland Consultation – Township and Road Closures

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Opportunity to comment on, and provide feedback on Acland Management Plan and road closures	Information Session	1 meeting	Pre-construction	- Feedback on AMP including potential development of Acland Heritage Trail, Tom Doherty Park and Acland historical facilities - Consultation and feedback on road closures in the Acland area including route options and potential mitigation measures for inconvenience e.g. possible sealing of dirt road - Posters and factsheets
	Community Information Centre	Before and during implementation	Pre-construction	
Information regarding road closures to near neighbours	Face to face	Combined with regular update meeting	Pre-approval and /or construction	- Road closures discussed with landholders during regular meetings - May be included as part of the regular update discussion
Dedicated discussion at CRG meetings	CRG Meetings	As required	Pre-approval/pre construction and construction (operation as requested)	- Acland Management Plan and road closures both discussed at CRG meetings
Stakeholder letter notifying residents of road closures	Letter	As required	Pre-construction	- Detail of road closures and alternate routes - Reassurance regarding emergency vehicle access - Any mitigation measures for inconvenience - Expected dates that roads will close
Discussions with local heritage and historical organisations	Face to face, Phone	As required	Pre-construction	- Consultation with groups regarding the Acland Management Plan
Information provided through NAC newsletter	Newsletter Survey	One	Pre-construction	- Survey seeking feedback on aspects of the ongoing management of Acland
	Update stories	As appropriate	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest, specifically relating to Acland.
Regular media releases updating the community on	Media Releases	Ongoing	Life of Project	- Includes information on key areas of interest relating to Acland including, the Tom Doherty Park, Acland No. 2

Acland				Colliery, and other aspects from the AMP.

NAC has further detailed its commitment to manage Acland in response to issues raised in submissions on the draft EIS. The updated Commitments Register is presented in **Appendix D** of the AEIS.

5.1.8 Health Impacts

A number of submissions raised concerns about the potential for health impacts from the operation of the revised Project. The submissions have identified the following aspects of the revised Project that may have potential for health impacts:

- air quality/blasting/noise impacts from mining operations;
- change in water quality in rainwater tanks; and
- the operation of the JRLF.

5.1.8.1 EIS Findings

The EIS examined these aspects of the revised Project with the following key findings:

- Air quality guidelines in Queensland are specified in the EPP (Air). The purpose of the EPP (Air) is to protect the air quality environment for human health and wellbeing, the health and biodiversity of ecosystems, the aesthetics of the environment and for agricultural use. The air quality assessment (**Chapter 9** of the draft EIS) found the revised Project is expected to comply with the ambient air quality objectives in the EPP (Air) provided NAC successfully implements a comprehensive air quality management strategy. For additional information on this matter, please refer to **Section 5.1.3** of the AEIS.
- Noise guidelines in Queensland are specified in the *Environmental Protection (Noise) Policy 2008* (EPP (Noise)). The purpose of the EPP (Noise) is to protect acoustic environment for the health and biodiversity of ecosystems, for human health and wellbeing (ensuring individuals can sleep, study, and be involved in recreation and for the amenity of the community). The noise assessment (**Chapter 11** of the draft EIS) found the revised Project is expected to comply with the ambient air quality objectives in the EPP (Noise) by implementing noise management and mitigation measures including reduced night time operation and using attenuated equipment. For additional information on this matter, please refer to **Section 5.1.3** of the AEIS. Deposited dust from mining operations that is captured in rainwater tanks has the potential to affect rainwater quality through a potential increase in levels of suspended solids or concentrations of metals. Water quality sampling results from rainwater tanks in the vicinity of the Mine in 2007 and 2009, for metals concentrations, met the recommended health and aesthetic guideline values in the ADWG (NHMRC & NRMMC, 2011). For additional information on this matter, please refer to **Appendix O** of the AEIS.
- The community consultation process for the EIS identified community concerns regarding dust and noise impacts from the operation of the JRLF. NAC proposes to construct a new TLF on MLA 50232 and decommission the JRLF. The benefits of decommissioning the JRLF and removing the coal stockpiles include a reduced potential for dust and noise impacts at Jondaryan

and improved amenity at Jondaryan. For additional information on this matter, please refer to **Section 5.1.4** of the AEIS.

The Social Impact Assessment (SIA) undertaken for the draft EIS was informed by the outcomes of community and stakeholder consultation undertaken by NAC for the revised Project. The following health bodies provided input to the SIA:

- Queensland Health;
- Queensland Health – Oakey Hospital;
- Cherry Street Medical Centre, Oakey;
- Oakey Community Care Nursing;
- Emergency Management Queensland; and
- Department of Community Safety.

Discussions with these health professionals indicated that Oakey was generally well-serviced in terms of health and medical services. The majority of accident and emergency incidents in the region are treatable by a General Practitioner (GP) and relate primarily to road accidents and farm trauma.

5.1.8.2 Additional Information

Issues relevant to health that were raised by Private Submitters included:

- a belief that the revised Project will lead to unacceptable health impacts for sensitive receptors, Jondaryan residents and surrounding areas due to coal dust from revised Project;
- noise from revised Project will be disruptive at night and harmful to health (e.g. through sleep disturbance); and
- the revised Project will cause impacts on mental health as a result of noise, stress, anxiety or solastalgia, and mental health in the local area was affected by the acquisition of land by APC.

NAC consulted with the Manager of the Cherry Street Medical Centre and Oakey Hospital Superintendent (the Manager) and the Oakey Hospital Director of Nursing (DON), to discuss the local health status and any health impacts from existing mining activities in the area.

The catchment for the Oakey Hospital is the Oakey, Jondaryan and Kingsthorpe area, whilst the Oakey practice is the primary health care practice for people in the region from south of Dalby to north of Toowoomba, including Oakey, Jondaryan, Kingsthorpe, Acland, Goombungee and Pittsworth.

Coal Dust and Noise

Based on data and evidence held by local health service providers, the catchments for the hospital and medical centre do not experience higher than average levels of respiratory illness, beyond those indicated by demographic characteristics (i.e. a high proportion of older people, and low socio-economic indicators). There is no evidence of elevated respiratory illnesses for patients within a 10 km radius of Acland, and there have been no recent increases or spikes in respiratory illness in the area.

Neither the Manager nor the hospital have seen any patients who attributed adverse health symptoms to noise, dust or other aspects of NAC operations, and neither had seen any patients whose

symptoms they would attribute to the mine's operations. The DON is a member of the Oakey Community Care Committee which comprises health and community service workers from across the district. No concerns have been raised about health impacts from the Mine in that forum.

The only publicly available study of coal dust and health in the area was published recently. In March 2013 the Department of Science, Information Technology, Innovation and the Arts (DSITIA) commenced an investigation into particle levels along the Western and Metropolitan Rail Systems, to obtain information on ambient particle levels along the rail corridor and evaluate the effectiveness of a coal wagon veneering trial which commenced at the Mine in early 2013. Coal from the Mine accounts for approximately 60% of all coal transported to the Port of Brisbane on the Western and Metropolitan rail systems (DSITIA, 2014).

During both the pre and post-veneering monitoring periods, the passage of trains was found to result in little change in 10-minute average PM_{10} and $PM_{2.5}$ levels at the monitoring sites, and there was little difference seen between the particle level variations associated with the passage of different train types past the monitoring sites, as per the DSITIA investigation.

The Queensland Department of Health concluded that, for people living along the rail corridor, the dust concentrations resulting from all particle sources measured during the investigation are unlikely to result in any additional adverse health effects.

As noted in **Section 3.3.1** of the draft EIS, NAC has consulted and will continue to consult with residents nearest the revised Project regarding air and noise matters. For additional information on this matter, please refer to **Section 5.1.10** of the AEIS.

Mental Health

The World Health Organisation defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" (http://www.who.int/features/factfiles/mental_health/en/).

On the evidence of the health providers consulted, the Oakey Hospital catchment does not have a higher than average prevalence of mental health issues beyond what would be expected in an ageing community with areas of low socio-economic status. Incidences of depression related to drought have been seen in the region, and youth suicide has been an issue of concern. Neither the Manager nor the DON were aware of any incidences of depression or mental illness relating to Acland or changes to the area.

Similarly, there were no elevated levels of affective disorders such as depression or mental health issues in the region. However, the Manager had spoken with patients from the Oakey area who were anxious about the potential for the Mine to encroach upon Oakey. The Manager also noted that some local residents were concerned or anxious about changes to the local area, however these concerns did not present as requiring a mental health or other diagnosis.

There is some vulnerability to depression resulting from drought and the hardships it has brought to families in the region. A 2009 study by the Australian Institute of Family Studies (AIFS) found that areas that were currently in drought had almost twice the rate of mental health problems than in areas that had not been in drought in the last 3 years (AIFS, 2009). The potential for 'solastalgia' was raised by Private Submitters. Solastalgia is defined as *'a feeling of chronic distress caused by negatively perceived changes to a home and its landscape'* (Albrecht, 2012).

In SIA terms, solastalgia would reflect distress about changes to 'sense of place'. De Wit's definition of 'sense of place' includes the human experience of place, beliefs, perceptions, and attitudes held toward a place, and residents' conscious and unconscious attachments to place (De Wit, 2012).

Residents' sense of place in the district around Acland has a strong relationship to rural uses, village life with access to regional centres, and the area's heritage, including its agricultural and mining heritage. Sense of place in Acland has changed since properties were acquired by APC, in that the number of houses and other buildings has decreased. In addition, aspects of Acland's landscape have changed. The loss of residents and businesses was already occurring (with just 100 people counted in Acland in 2001, down from more than 300 during the 1940's and 1950's).

People who were attached to the area and who derived a sense of wellbeing from living in Acland are likely to have experienced a significant change in their sense of place, and for some, this led to a sense of loss and distress. Neighbouring residents who will be able to see the revised Project from their properties and those who will travel past are likely to find their sense of place affected in that the locality's landscape has changed.

Sense of place is highly subjective – local people who see the revised Project as incongruent with their rural or environmental values will feel their sense of place has been diminished, whereas others who derive personal and business income from the revised Project may have a different perspective. Changes to the physical and social environment in the Acland area over the past 10 years have been substantial. NAC acknowledges that these changes have distressed some residents who felt connected to the area, and valued its former attributes.

Health service providers did not identify any presentations by patients in relation to solastalgia or other mental health issues related to NAC. In recognition of community concerns about the loss of Acland's sense of place, NAC committed as part of the revised Project to avoid annexing the town and to maintain its services. The AMP presented in **Appendix I** of the AEIS) includes commitments to protect and enhance the Acland area.

In summary:

- There is no epidemiological evidence, and no evidence from the experience of the local hospital and general practice, which would indicate health issues are being caused by NAC, or would be expected to result from the revised Project.
- NAC has instituted veneering of coal trains, has committed to the relocation of the JRLF, consultation with residents living closest to the mine, and has committed to an adaptive management approach for air quality and noise. For additional information on these matters, please refer to **Section 5.1.3** of the AEIS.

Longer term residents who valued the rural landscape over mining, or who find the changes to Acland unacceptable, are likely to feel their sense of place will be diminished by the revised Project, whilst other residents who are employed by NAC or will derive other benefits from the revised Project may view it as important to the ongoing well-being of the area. NAC is implementing the commitments in the AMP to ensure aspects valued by the local and regional community are preserved.

5.1.8.3 Ongoing Consultation

Whilst investigations have shown that coal mining is unlikely to result in adverse health effects, and health professionals in the vicinity of the current NAC operations do not report any adverse population trends relating to the Mine, NAC recognises that it is important to ensure residents are aware of the facts regarding health and coal.

NAC is therefore committed to the ongoing provision of information and engagement with communities on this important issue. **Table 5.1.8-A** outlines a range of community consultation and engagement activities that have been strengthened as part of the AEIS, to assist in alleviating community concern regarding health and the revised Project.

In addition to activities specific to health concerns, key stakeholders such as landholders and Jondaryan residents, will have the opportunity to consult with NAC representatives as part of their ongoing engagement activities (as outlined in **Section 5.1.10** of the AEIS)

Table 5.1.8-A : Consultation and Community Engagement regarding Health Concerns

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Discussion with landholders about health concerns and management of NAC activities linked to health concerns	Face to Face	Yearly	Life of Project	- Air Quality management plans, including mitigation measures aimed at reducing potential environmental impacts - Information about NAC monitoring programs - Other information as tailored to landholders concerns (discussion included in regular landholder updates. Ref: Table 5.1.10 – A)
Access to a health specialist	Information Session	1 session	Pre-construction	- Information session with a health specialist (visiting and/or local)
		Regularly	Life of Project	
Information and reminders provided through NAC newsletter	Newsletter	As required	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland - Environment e.g. Ground Water, Noise/Vibration and Air Quality
Health representative on the CRG	Community Reference Group	Held every 1-2 months (as decided by CRG)	Life of Project	- Health representative on the CRG - Opportunity for both community representatives and NAC representatives to raise topics for discussion and distribution of information regarding health
Participation in local health organisations	Community Participation	Ongoing	Life of Project	- NAC representative to participate in health related organisations and events e.g. Oakey Community Care Committee and RUOK day - Partnerships with major health services such as CareFlight Rescue Helicopter Service, Darling Downs
Opportunity to view environmental practices and outcomes	Public Site Tours	Quarterly	Life of Project	- Local community invited to visit NAC site and see practices first hand

5.1.9 Complaints and Dispute Resolution

- Discuss and provide further information on how complaints and dispute resolution will operate; the timeframes envisaged to address complaints and a mediation process to be adopted. These are to be included in the Commitment Register; SIMP and the EM Plan as required.

5.1.9.1 Overview

NAC believes that effective complaints management is integral to building communication, respect and trust between its operations and local communities. It also assists in detecting and addressing local concerns at an early stage.

The following are key principles across the revised Project for all community concerns and complaints raised by stakeholders:

- timeliness – concerns and complaints will be verbally responded to within two days working days;
- sensitivity – both parties' feelings and perspectives are to be respected;
- fairness and impartiality – both parties will be afforded substantive and procedural fairness in the resolution process; and
- confidentiality – only parties directly involved in the complaint or those involved in decision making about outcomes will have access to information about the complaint.

Wherever possible, the NAC will seek resolution to concerns through dialogue and joint problem solving with affected stakeholders. The way in which complaints are resolved will vary according to the particular issue, and may range from a reasonable rejection of the complaint (with a full explanation provided to the complainant) to mitigation or change in practices.

Mechanisms available to provide feedback or raise grievances are as follows:

- The 1800 number (**1800 882 142)** has business hour coverage. Outside of business hours a message service is available for callers to leave return call details;
- Email – community@newhopegroup.com.au;
- Community members can provide feedback or grievances formally or informally to a NAC employee;
- Community Information Centre, 90/88 Campbell St, Oakey; and
- Stakeholders may elect to provide feedback such as grievances to an external third party such as a government department (e.g. DEHP)

All communications and details related to a complaint are recorded in accordance with NAC's EA requirements.

Upon receipt of a complaint, the responsible Manager will commence an investigation into the cause of the complaint and where mitigation is required, take any reasonable actions required to address the complaint.

A verbal response on the facts identified and progress with the investigation will be provided to the Complainant within two business days (unless the complainant agrees otherwise).

Upon closing out a complaint, the Complainant will be contacted by the relevant NAC representative to determine if they are satisfied with the resolution. If dissatisfied, the Complainant can appeal to NAC for further consultation and investigation. In the event that a Complainant rejects a proposed resolution, they will be invited to resubmit the complaint with an explanation or reconsideration and a response. Further dispute resolution processes are in place for sensitive receptors and are communicated through the relevant Landholder Agreement.

Beneath the key principles, NAC has 3 protocols which outline further details in relation to the type of concern or complaint and the Complainant. These include:

1. Stakeholder Engagement Plan (SEP).

2. Landholder Engagement Protocol.

3. LSMP.

Figure 5.1.9-A shows the place each of the 3 protocols/plans fit beneath NAC's key principles for complaints and concerns raised by the community.

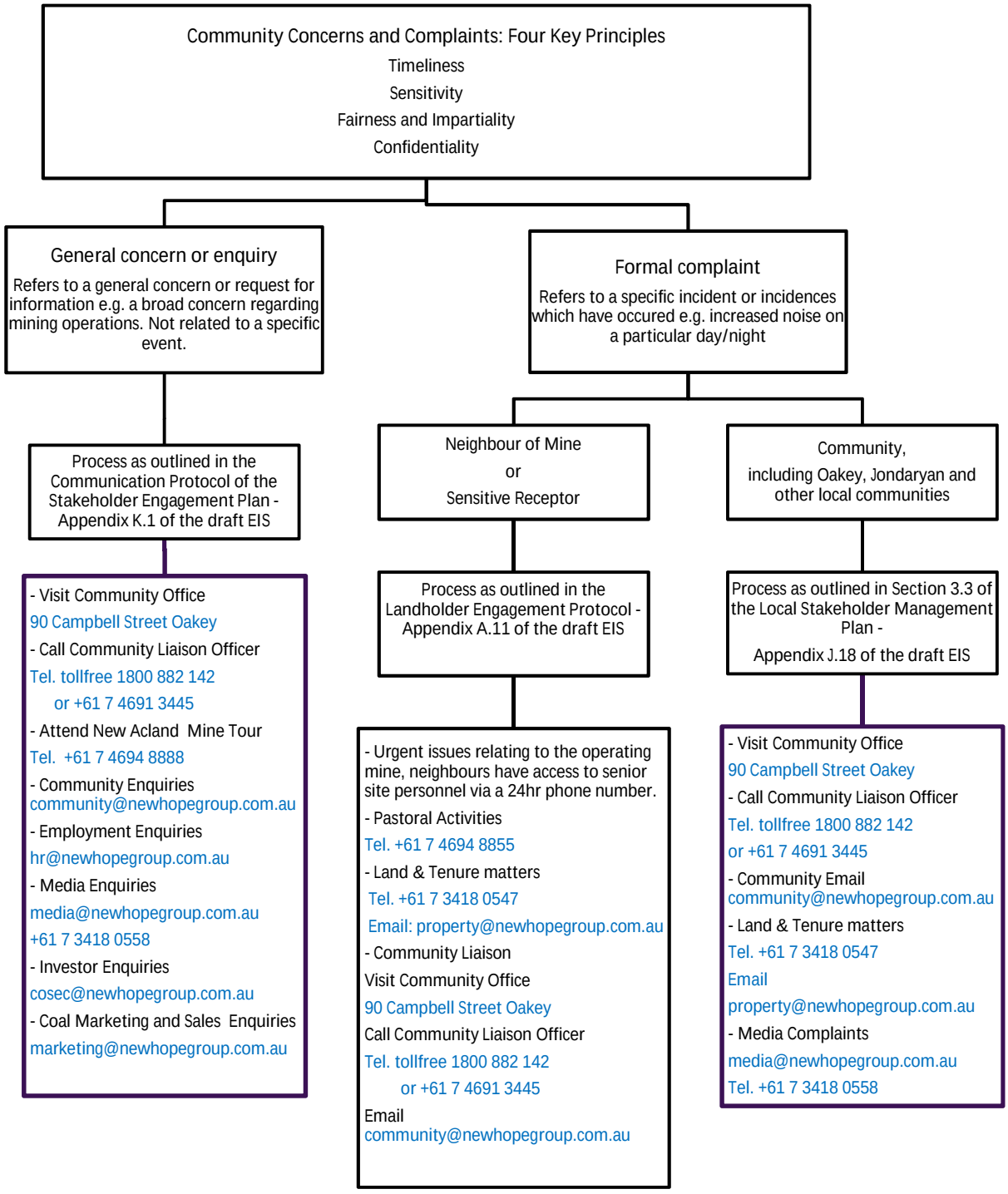

Figure 5.1.9-A Complaint and Concern Overview

5.1.9.2 Stakeholder Engagement Plan (Appendix K.1 of the draft EIS)

The SEP outlines key principles, actions and initiatives to inform, consult, involve and collaborate with the community about the revised Project.

Stakeholder engagement will involve an interactive process in which key stakeholders and the wider community are engaged as active partners.

Integral to this engagement process are the Communication Protocols which include External Stakeholder and Land Owner Protocols. Where possible, concerns and complaints are dealt with immediately using available information, but if this cannot be done the stakeholder is advised that NAC will respond within two business days.

Field staff are also provided with Record of Contact forms for any informal contacts with stakeholders and all interactions are recorded in the NAC's consultation database.

The SEP outlines the objectives which include engaging stakeholders and the community to capture their concerns or views and ensure they are understood by the team and considered in decision-making where possible. The SEP also strives to ensure early identification of potential stakeholder issues and the implementation of appropriate mitigation strategies.

5.1.9.3 Landholder Engagement Protocol (Appendix A.11 of the draft EIS)

One of the main purposes of the Landholder Engagement Protocol is to describe the process for the resolution of any concerns. It is also designed to explain how landholders can access and openly engage with NAC representatives.

The Concerns Management Procedure is detailed in the Landholder Engagement Protocol and states that NAC records the landholder's name, contact details, their method of communication and the date. A NAC representative then identifies the urgency of the concern and defines the type of concern, for example whether it is an environmental issue, relating to land access or the project's progress. A NAC representative then records the details of the concern in the consultation database and refers the issue to the appropriate company representative.

All concerns are acknowledged and assessed and where possible, an immediate response and resolution is provided. NAC's response to the landholder may require investigation, monitoring, and/or changes in practices. The procedure also provides that the landholder is advised on the progress of the assessment in a timely manner, and that NAC undertakes follow-up communication to seek landholder feedback on the resolution of their concern.

NAC recognizes that stakeholders nearer to the revised Project i.e. neighbours and sensitive receptors may have concerns that are urgent. As such, access to senior site personal via a telephone number which operates 24 hours a day, is available to near neighbours for issues relating directly to the operation.

5.1.9.4 Local Stakeholder Management Plan (Appendix J.18 of the draft EIS)

The Local Stakeholder Management Plan (LSMP) also aims to ensure that complaints raised by residents and their suggested mitigation measures are considered, by facilitating open communication and active complaint resolution.

The LSMP sets out NAC's local stakeholder engagement approach which seeks to involve the local community during the planning, construction, operation and decommissioning of the revised Project.

In particular, NAC seeks to understand and address local community concerns about the environmental and social impacts of the revised Project's activities. To facilitate open communication and active compliant resolution, it is important that local stakeholders are able to raise issues and complaints in a formal way.

The revised Project has dedicated Community Liaison Officers with whom local stakeholders can raise complaints and concerns about the revised Project.

5.1.9.5 Dispute Resolution

Upon closing out a complaint, the Complainant will be contacted by the relevant NAC representative to determine if they are satisfied with the resolution. If dissatisfied, the Complainant can appeal to NAC for further consultation and investigation. In the event that a Complainant rejects a proposed resolution, they will be invited to resubmit the complaint with an explanation for reconsideration.

For neighbouring landholders and sensitive receptors who chooses to enter into Landholder Agreements, NAC provide access to additional dispute resolution mechanism as set out below.

Disputes can be classified into two areas namely;

a) **technical matter**, which means a matter which is capable of determination by reference to engineering or scientific knowledge and practice; and

b) **legal matter**, which means a matter involving the meaning or interpretation of the provisions of a Landholder Agreement or EA which is capable of determination by reference to the law.

All disputes between the parties can be resolved in accordance with the provisions of these guidelines below, but nothing prevents a party from taking urgent interlocutory steps in any court of competent jurisdiction. A Complainant may give NAC a Notice (Notice of Dispute) setting out the particulars of the dispute and requiring that it be dealt with in the manner set out below.

Technical Dispute

If the dispute is in relation to a technical matter (Technical Dispute):

a) within 10 Business Days of the receipt of a Notice of Dispute, a senior officer of NAC must meet with the Complainant to seek to resolve the Technical Dispute; and

b) failing resolution of the Technical Dispute, within 20 Business Days of receipt of the Notice of Dispute, the Technical Dispute may be referred to determination by an Independent Expert by both parties.

c) If the parties are unable to agree upon the appointment of an independent expert within 10 Business Days, any party may refer the matter to the President for the time being of the Australasian Institute of Mining and Metallurgy or, if no longer in existence, other professional body that includes a similar group of professions, to nominate a suitably qualified and experienced person to act as the independent expert to determine the Technical Dispute.

An independent expert appointed must;

a) have reasonable qualifications and practical experience in the area of the Technical Dispute;

b) have no interest or duty which conflicts or may conflict with his or her function as an expert, he or she being required to disclose fully any relevant interest or duty before his or her appointment;

c) not be a current employee or officer of NAC or of the Complainant;

d) related to the Complainant; or

e) act as an expert and not as an arbitrator.

Within 20 Business Days after the independent expert is appointed, each party must produce to the other party and the independent expert a written submission that sets out its opinion about the Technical Dispute and the party's proposed method for resolution of the Technical Dispute and any materials or evidence which that party believes is relevant to the matter in question.

Each party will make available to the independent expert and the other party all materials requested by the independent expert and all other materials which are relevant to the independent expert's determination.

Within 10 Business Days of the receipt of the last of the written submission, each party may make a further written submission or modify its previously provided written submission. A copy of any new submission must be provided to the other party.

Unless otherwise agreed by the parties, the independent expert will be required to keep confidential all material and evidence made available for the purposes of the determination.

Legal Dispute

If the dispute is in relation to a legal matter (Legal Dispute):

a) within 10 Business Days of the receipt of a Notice of Dispute, a senior officer of NAC must meet with the Landholder to seek to resolve the Legal Dispute; and

b) failing resolution of the Legal Dispute, within 20 Business Days of receipt of the Notice of Dispute, either party may refer the Legal Dispute to a court of competent jurisdiction for determination.

Determination

Within 50 Business Days after the independent expert is appointed, the independent expert must make a determination to the Technical Dispute.

The independent expert may, with the prior written consent of both parties (such consent not to be unreasonably withheld), engage such consultants or advisors as are reasonably necessary to assist the independent expert in making its determination.

In the absence of fraud or manifest error, the determination of the independent expert will be final and binding upon the parties.

Unless otherwise agreed to by the parties, the independent expert will be required to keep confidential the determination made in relation to any matter.

Costs

Each party will be responsible for its own legal and other costs in relation to preparing any submission but the costs of the independent expert will be borne by the party whose proposed method of resolution is not chosen.

5.1.9.6 Further Community Consultation

To ensure stakeholders are informed about the enquiry, concern and complaint procedures, proactive engagement will be undertaken. A particular focus will be on ensuring High Priority Landholders understand the processes for raising concerns and complaints should they occur. **Table 5.1.9-A** outlines NAC's community engagement activities regarding the complaints procedures.

Table 5.1.9-A: Consultation – Complaints Procedures

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
High Priority Landholders				
Meeting with sensitive receptors to clarify the complaints procedure and refresh as required.	Face to face	Yearly	Pre-Approval - Life of Project	- Opportunity to talk landholders through the complaints procedure, including more detailed items for Sensitive Receptors i.e. Landholder Agreement and 24hour phone number - (Discussion included in regular landholder updates. Ref: **Table 5.1.10 – A**)
	Face to face	As requested	Life of Project	- Additional face to face meetings organised specifically on Complaints Procedures, if requested.
Phone numbers	Fridge Magnet	Distributed as updated and	Life of Project	- Details of key contact numbers for making complaints or raising concerns

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
provided to landholders		available at NACs Community Information Centre		
Information regarding the procedure	Factsheet	Ongoing	Life of Project	- A 'How to' factsheet information for making enquiries, raising concerns or making a complaint - Factsheet distributed through: o Landholder face to face meetings o Community Information Sessions o Oakey Community Office o Jondaryan staff visits o Wedbsite o Post to general community members by request
Tier 2 and 3 Neighbours				
Phone numbers provided to landholders	Fridge Magnet	Distributed as updated and available at NAC's Community Information Centre	Life of Project	- Details of key contact numbers for making complaints or raising concerns
Information regarding the procedure	Factsheet	Ongoing	Life of Project	- A 'How to' factsheet information for making enquiries, raising concerns or making a complaint - Factsheet distributed through: o Landholder face to face meetings o Community Information Sessions o Oakey Community Office o Jondaryan staff visits o Wedbsite o Post to general community members by request
All Neighbours and General Community				
Information regarding the procedure	Factsheet	Ongoing	Life of Project	- A 'How to' factsheet information for making enquiries, raising concerns or making a complaint - Factsheet distributed through: o Landholder face to face meetings o Community Information Sessions o Oakey Community Office o Jondaryan staff visits o Wedbsite - Post to general community members by request
Access to Community Staff	Oakey Community Information	Ongoing	Life of Project	- Easy access to NAC community staff for general enquiries, concerns and complaints

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
	Centre			
Information and reminders provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3500 people across NAC local communities - Information and reminders on areas of key community interest. Containing reminders on the complaints procedure and how to contact NAC staff. - Topics may also include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland o Environment e.g. Groundwater, Noise/Vibration and Air Quality
Advertisements	Local newspapers	Regularly		- Containing information about the Complaints Procedure and how to contact NAC staff.

5.1.10 Consultation and Social Environment

A number of submissions on the draft EIS raised issues regarding the engagement and consultation activities undertaken for the Mine and the revised Project, including benefits for the community. NAC acknowledges these submissions and has endeavoured to provide further information and commitments to address these issues. This Section will address three key areas of consultation and community engagement namely:

- Additional consultation and community engagement.
- Consultation and community engagement progress.
- Social environment consideration.

As detailed in the revised Project's SEP located in **Appendix K.1** of the draft EIS, NAC's stakeholder engagement program has been developed around a core set of objectives to include:

- providing open, honest and timely communication with stakeholders;
- engaging stakeholders and the community to capture their concerns or views and ensure they are understood by the team and considered in decision making where possible;
- providing factual information and promoting the revised Project's benefits and opportunities;
- engaging with the local community to generate a greater level of support for current and future operations;
- ensuring early identification of potential stakeholder issues and implementation of appropriate mitigation strategies; and
- maintaining a positive reputation for the revised Project and the NHG in the community.

5.1.10.1 Additional Consultation and Community Engagement

Through the public submission process, a number of key issues were identified by stakeholders, requiring further consultation and engagement by NAC. NAC has subsequently documented a more detailed consultation and engagement program for those in the vicinity of the revised Project and the wider community, to ensure stakeholders receive regular, accurate information on the revised Project, and the opportunity to discuss issues and areas of concern. As such, further consultation and engagement activities have been outlined below, in addition to the activities outlined in **Chapter 19** of the draft EIS.

The key areas identified through the submission process include:

- Environmental monitoring for NAC neighbours and Acland residents, including air quality, noise, vibration and ground water impacts;
- NAC's Management Plan for the Acland Township, including traffic management and road closures;
- Environmental monitoring, decommissioning and relocation activities at Jondaryan;
- Information regarding health and coal mining;
- Clarity of the NAC Complaints and Disputes Procedures; and
- General community engagement and consultation activities.

5.1.10.1.1 Consultation Regarding Environmental Concerns

NAC acknowledges that landholders near the Mine have a particular interest in understanding the potential impacts from the revised Project.

There are a range of key commitments NAC has made regarding interactions with neighbours:

- NAC is committed to regular ongoing engagement and communication with neighbours;
- Ongoing dust, noise and vibration, and ground water monitoring to ensure impacts are managed and mitigated;
- Preference will be given to at least two positions on the New Acland CRG for landholders or landholder representative groups;
- For urgent issues relating to the operating mine, near neighbours have access to senior site personnel via a 24hr phone number; and
- Neighbours will be kept informed of revised Project construction activities that may impact them e.g. road closures.

For the purpose of consultation, landholders in the vicinity of the revised Project have been classified into 3 tiers based on potential impact, and level of concern/interest in the revised Project. These tiers are guidelines only, and individual landholders will be consulted as to their expectations regarding ongoing engagement with the Mine.

- High Priority/Tier 1 Landholders: Landholders who are potentially impacted by the revised Project (as shown through the EIS and AEIS environmental modelling). Residents in Acland are also considered High Priority stakeholders.
- Tier 2 Landholders: Landholders in close proximity to the Mine, smaller probability of potential impact (as shown through the EIS and AEIS environmental modelling). Tier 2 Landholders includes neighbours who may have concerns or particular interest in the Mine.
- Tier 3 Landholders: Landholders in the outer area surrounding the Mine. These landholders may have an interest in, or concerns regarding the revised Project.

In addition to stakeholders located near the Mine, NAC recognises that members of the general community may also have an interest in NAC's environmental management and monitoring programs, as well as general operational and community information. As such, a range of engagement activities will continue to be undertaken to provide information for the general public and respond to community enquiries and concerns.

Table 5.1.10-A of the AEIS contains an outline of community consultation and engagement activities relating the revised Project and the environment.

Table 5.1.10-A Environmental Consultation – Air Quality, Noise & Vibration and Ground Water

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
High Priority Landholders (Tier 1) - Includes Acland Township Residents				
Regular general update and discussion.	Face to face meeting, or phone call	Six monthly or additional as requested	Life of Project	- Offer of minimum 2 face to face meetings each year - Updates will cover a range of key areas including: o Environmental monitoring o Health and coal mining o Enquiries and complaints process o Environment i.e. Ground Water, Noise/Vibration and Air Quality
Report on Monthly Environment Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly	Life of Project	- Overview of environmental monitoring sent out in hard copy quarterly
Landholder Agreement	Face to face	Approx. 1 – 5 meetings (or until finalised)	Pre-Approval and/or construction	- Provision of Landholder Agreement - Discussion of the purpose and process of a Landholder Agreement between NAC and the landholder
Discussion with a Hydrogeologist about NAC ground water modelling	Face to face	1 meeting offered	Pre-Approval	- Detailed explanation of modelling and potential ground water impacts, including specific information about landholder's bores - May be included as part of the regular update discussion
24hr phone number	Phone call	Available for landholders should it be required	Construction and Operation	- Phone number available to sensitive receptors 24 hours a day. Allows landholder to report urgent operation impacts e.g. noise at night, and

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
				speak to site personnel
Notification of blast events	Phone call	Before a blast	Operation	- Sensitive receptors to be notified of blasts within the 48hr period before a blast
Opportunity to talk to NAC technical staff	Face to face, Phone or mail	When requested	Operation	- Open offer to all sensitive receptors - Further explanation of NAC activities from technical staff member, with particular focus on potential impacts on the landholder's property - May be included as part of the regular update discussion
Tier 2 Landholders				
Regular general update and discussion.	Face to face, phone call	6 monthly (to be reviewed each phase of project through consultation with landholder)	Life of project	- Offer of minimum 2 face to face meetings each year - Updates will cover a range of key areas including: o Environmental monitoring o Health and coal mining o Enquiries and complaints process o Environment i.e. Ground Water, Noise/Vibration and Air Quality
Report on Monthly Environment Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly	Life of Project	- Overview of environmental monitoring sent out in hard copy quarterly
Landholder Agreement	Face to face	Approx. 1 – 5 meetings (or until finalised)	Pre-Approval and/or Construction	- Discussion of the purpose and process of a Landholder Agreement between NAC and the landholder - A Landholder Agreement may be instigated if landholder is interested
Opportunity to talk to a Hydrogeologist about NAC ground water modelling	Face to face	1 meeting offered	Pre-Approval	- Detailed explanation of modelling and potential ground water impacts, including specific information about landholder's bores - May be included as part of the regular update discussion
Opportunity to talk to NAC technical staff	Face to face, phone or mail	When requested	Operation	- Further explanation of NAC activities from a technical staff member, with particular focus on potential impacts on the landholder's property - May be included as part of the regular update discussion
Tier 3 Landholders				
Report on Monthly Environmental Monitoring	Community information session	Yearly	Life of Project	- Community Info session to discuss and explain environmental monitoring results and other issues - Tier 3 landholders sent letter of invitation
	NAC website	Monthly		- Written report providing an overview of environmental monitoring
	Mail or email	Quarterly		- Overview of environmental monitoring sent out in hard copy

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
				quarterly
Opportunity to talk to an NAC community staff member and/or technical staff member	Face to face, Phone or mail	When requested	Operation	- Enquiries, concerns or complaints from landholders
All Landholders and General Community				
Report on Monthly Environmental Monitoring	NAC website	Monthly	Life of Project	- Written report providing an overview of environmental monitoring
Access to Community Staff	Oakey Community Information Centre	As required	Life of Project	- Easy access to NAC community staff for all general enquiries
Information and updates provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3,500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland o Environment e.g. Ground Water, Noise/Vibration and Air Quality o Progress of revised Project o Operational areas of interest
Community Information Centre	Oakey Community Information Centre	Ongoing	Life of Project	- Wide variety of information available for community members including: Posters Maps Fact sheets Community staff
Community representatives regularly discussing key issues, opportunities and information regarding NAC and the revised Project	Community Reference Group	1-2 months (as decided by CRG)	Life of Project	- Opportunity for community representatives to raise topics for discussion and have input for consideration by NAC
Education and Awareness Program	Community Partnership	Ongoing	Life of Project	- Variety of programs aimed at mining and environmental education e.g. NAC staff presenting to school groups on rehabilitation
Environmental Partnerships	Community Partnership	Ongoing	Life of Project	- Working in conjunction with local environmental groups on environmental initiatives
Targeted media	Media	Ongoing	Life of	- Targeted information released on

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
releases	Releases		Project	- NAC programs and activities including. but not limited to, environmental monitoring, coal and health, Acland and Jondaryan updates, operational and community activities
Opportunity to view environmental management and mitigation practices and outcomes	Public Site Tours	Quarterly	Life of Project	- Local community invited to visit NAC site to view and experience environmental, operational and rehabilitation practices first hand

5.1.10.1.2 Acland Consultation – Township and Road Closures

Section 5.1.10.2 of the AEIS provides information in response to submissions relating to the history of Acland and consultation regarding the future of Acland. Submitters to the draft EIS raised issues regarding changes in population, community cohesion, displacement and sense of place. Submitters requested further information on the ongoing management of Acland by NAC, particularly in relation to the Tom Doherty Park and the Acland No.2 Colliery. NAC acknowledges submitter concerns and has subsequently clarified and extended its consultation activities relating specifically to Acland.

Key activities include, but are not limited to:

- The development of the Acland Management Plan (AMP) which provides information regarding NACs plans for Acland and its immediate surrounds. For additional information please refer to **Section 5.1.7** and **Appendix I** of the AEIS.
- A community information session with the opportunity for further community input into the AMP;
- The AMP displayed at the Oakey Community Information Centre, including community staff available to answer questions, provide information and gather feedback; and
- Information on road closures in the Acland area and options for access.

Table 5.1.10-B provides a detailed overview of consultation and community engagement activities regarding Acland, transport and road closures. Please note that consultation relating to environmental management and monitoring in the Acland area is covered in **Section 5.1.10.1** of the AEIS.

Table 5.1.10-B Acland Consultation – Township and Road Closures

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Opportunity to comment on, and provide feedback on Acland Management Plan and road closures	Information Session	1 meeting	Pre-construction	- Feedback on AMP including potential development of Acland Heritage Trail, Tom Doherty Park and Acland historical facilities - Consultation and feedback on road closures in the Acland area including route options and potential mitigation measures for inconvenience e.g. sealing of Acland-Sabine Road
	Community Information	Before and during	Pre-construction	

	Centre	implementation		- Posters and factsheets
Information regarding road closures to near neighbours	Face to face	Combined with regular update meeting	Pre-approval and /or construction	- Road closures discussed with landholders during regular meetings - May be included as part of the regular update discussion
Dedicated discussion at CRG meetings	CRG Meetings	As required	Pre-approval/pre construction and construction (operation as requested)	- Acland Management Plan and road closures both discussed at CRG meetings
Stakeholder letter notifying residents of road closures	Letter	As required	Pre-construction	- Detail of road closures and alternate routes - Reassurance regarding emergency vehicle access - Any mitigation measures for inconvenience - Expected dates that roads will close
Discussions with local heritage and historical organisations	Face to face, Phone	As required	Pre-construction	- Consultation with groups regarding the Acland Management Plan
Information provided through NAC newsletter	Newsletter Survey	One	Pre-construction	- Survey seeking feedback on aspects of the ongoing management of Acland
	Update stories	As appropriate	Life of Project	- Distributed to over 3,500 people across NAC local communities - Information and reminders on areas of key community interest, specifically relating to Acland.
Regular media releases updating the community on Acland	Media Releases	Ongoing	Life of Project	- Includes information on key areas of interest relating to Acland including, the Tom Doherty Park, Acland No. 2 Colliery, and other aspects from the AMP.

5.1.10.1.3 Jondaryan

A range of actions and commitments have been made by NAC to address community concerns relating to NAC's rail loading facility at Jondaryan (i.e.,JRLF). A key commitment of the revised Project is the decommissioning and relocation of the JRLF away from Jondaryan and onto a remote site within MLA 50232. NAC currently has an extensive air quality monitoring program underway in Jondaryan, as well as a variety of dust and noise mitigation measures. The facility routinely meets strict EA conditions set, and overseen, by the DEHP. NAC has also proactively introduced veneering and profiling of coal trains to improve perceptions around air quality for residents.

NAC accepts that residents of Jondaryan have concerns regarding the location of the JRLF prior to its decommissioning. As such, NAC will strengthen engagement activities in the Jondaryan area in the provision of updated information, results of air quality monitoring, and opportunities for regular discussion and feedback on the facility and potential impacts. Specific engagement activities will continue through decommissioning and rail construction and until such time as the facility is relocated from its current location. Following relocation, Jondaryan residents will continue to be considered part of the Mine's broader community for engagement activities.

Commitments specifically relating to Jondaryan include:

- NAC community staff to regularly visit Jondaryan and be available for residents to provide information, answer questions and respond to concerns regarding the rail construction and JRLF decommissioning;
- Additional community information sessions to provide Jondaryan residents with further specific information around the revised Project timelines;
- Preference will be given to at least one position on the CRG for a Jondaryan Community Representative. Note that the CRG includes 2 Jondaryan representatives for 2014 calendar year;
- Ongoing engagement with the Jondaryan District Resident's Association (JDRA), including presentations to JDRA meetings; and
- Jondaryan residents will receive mailed information on environmental monitoring and key milestones.

Consultation and engagement regarding activities at Jondaryan is outlined in **Table 5.1.10-C**.

Table 5.1.10-C Consultation and Community Engagement for Jondaryan

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Construction and Decommissioning				
Environmental monitoring and mitigation information to all residents	Letter	Yearly	Until decommissioning completed	- Outline of mitigation measures and environmental monitoring measures - Explanation of where to obtain further information e.g. Community Office, monthly visits by community staff to Jondaryan - Offer to meet face to face with any resident - Details of availability of air quality monitoring results
Environmental monitoring,	Community information session	Yearly	Until decommissioning completed	- Community Info session to discuss and explain environmental monitoring - Opportunity for consultation on decommissioning activities and timelines, and relocation progress
	Community noticeboard, NAC website, mail/email by request	Monthly		- Written report providing an overview of environmental monitoring
Discussion with NAC community and/or technical staff members	Face to face, Phone or mail	When requested	Until decommission completed	- In response to enquiries, concerns or complaints from Jondaryan residents
Notification to all residents - Key decommissioning milestones and relocation progress	Letter	Yearly	Until decommissioning completed	- Outline of expected activities and milestones relating to relocation and decommissioning of the JRLF - Invitation to provide input at monthly Community Staff Visits

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Jondaryan representative on the CRG	Community Reference Group	CRG held every 1-2 months (as decided by CRG)	Until decommissioning completed	- Jondaryan representative on the CRG - Opportunity for both community representatives and NAC representatives to raise topics for discussion and distribution of information regarding Jondaryan
Opportunity to provide input into JRLF activities	Community staff visit to Jondaryan	Monthly	Until decommissioning completed	- Community staff regularly based in the town to engage with Jondaryan residents, and to discuss concerns, monitoring results and opportunities etc.
Information through NAC newsletter	Newsletter	Quarterly	Until decommissioning completed	- Inclusion of information relating specifically to JRLF. Information may relate to environmental monitoring and mitigation, timelines/progress for relocation, community partnerships etc. -
Information through local media	Media releases and statements	Key milestones	Until decommissioning completed	- Distribution of targeted media releases and statements to local newspapers and media outlets, highlighting key milestones of the relocation process and significant aspects of environmental monitoring and mitigation practises.
General				
NB: After decommissioning is complete, Jondaryan stakeholders will be considered part of the broader community for engagement activities.				
Information and reminders provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3,500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland - Environment e.g. Ground Water, Noise/Vibration and Air Quality
Regular media releases updating the community on key NAC activities	Media Releases	Ongoing	Life of Project	- Includes information on key areas of interest including: o Acland Township o Jondaryan o Community Investment o Environment e.g. Ground Water, Noise/Vibration and Air Quality o And other areas as appropriate
Access to Community Staff	Oakey Community Information Centre	As required	Life of Project	- Easy access to NAC community staff for all general enquiries
Community	Oakey	Ongoing	Life of Project	- Wide variety of information

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Information Centre	Community Information Centre			available for community members including: Posters Maps Fact sheets Community staff

5.1.10.1.4 Health Consultation

Private Submitters noted perceptions around coal mining and potential health impacts, including:

- a belief that the revised Project could result in health impacts for sensitive receptors, Jondaryan residents and surrounding areas due to coal dust;
- noise from the revised Project could be disruptive at night and harmful to health (e.g. through sleep disturbance); and
- the revised Project could impact mental health as a result of noise, stress, anxiety or solastalgia, due to the acquisition of land by APC.

Whilst investigations have shown that coal mining is unlikely to result in adverse health effects, and health professionals in the vicinity of the current NAC operations do not report any adverse population trends relating to the Mine, NAC recognises that it is important to ensure residents are aware of the facts regarding health and coal.

NAC is therefore committed to the ongoing provision of information and engagement with communities on this important issue. **Table 5.1.10-D** outlines a range of community consultation and engagement activities that have been strengthened as part of the AEIS, to assist in alleviating community concern regarding health and the revised Project.

Table 5.1.10-D Consultation and Community Engagement regarding Health Concerns

Engagement / Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Discussion with landholders about health concerns and management of NAC activities linked to health concerns	Face to Face	Yearly	Life of Project	- Air Quality management plans, including mitigation measures aimed at reducing potential environmental impacts - Information about NAC monitoring programs - Other information as tailored to landholders concerns (discussion included in regular landholder updates. Ref: **Table 5.1.10 – A**)
Access to a health specialist	Information Session	1 session	Pre-construction	- Information session with a health specialist (visiting and/or local)
		Regularly	Life of Project	
Information	Newsletter	As required	Life of	- Distributed to over 3,500 people

and reminders provided through NAC newsletter			Project	across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland - Environment e.g. Ground Water, Noise/Vibration and Air Quality
Health representative on the CRG	Community Reference Group	Held every 1-2 months (as decided by CRG)	Life of Project	- Health representative on the CRG - Opportunity for both community representatives and NAC representatives to raise topics for discussion and distribution of information regarding health
Participation in local health organisations	Community Participation	Ongoing	Life of Project	- NAC representative to participate in health related organisations and events e.g. Oakey Community Care Committee and RUOK day - Partnerships with major health services such as CareFlight Rescue Helicopter Service, Darling Downs
Opportunity to view environmental practices and outcomes	Public Site Tours	Quarterly	Life of Project	- Local community invited to visit NAC site and see practices first hand

5.1.10.1.5 Consultation – Complaints Procedure

NAC believes that effective complaints management is integral to building communication, respect and trust between its operations and local communities. It also assists in detecting and addressing local concerns at an early stage.

The following are key principles across the revised Project for all community concerns and complaints raised by stakeholders:

- timeliness – concerns and complaints will be verbally responded to, within two working days;
- sensitivity – both parties' feelings and perspectives are to be respected;
- fairness and impartiality – both parties will be afforded substantive and procedural fairness in the resolution process; and
- confidentiality – only parties directly involved in the complaint, or those involved in decision making about outcomes, will have access to information about the complaint.

Wherever possible, NAC will seek resolution to concerns through dialogue and joint problem solving with affected stakeholders. The way in which complaints are resolved will vary according to the particular issue, and may range from a reasonable rejection of the complaint (with a full explanation provided to the complainant) to mitigation or change in practices.

To ensure stakeholders are informed about the enquiry, concern and complaint procedures, proactive engagement will be undertaken. A particular focus will be on ensuring High Priority Landholders understand the processes for raising concerns and complaints should they occur. **Table 5.1.10-E** outlines NAC's community engagement activities regarding the complaints procedures.

Table 5.1.10-E Consultation – Complaints Procedures

Engagement / Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
High Priority Landholders				
Meeting with sensitive receptors to clarify the complaints procedure and refresh as required.	Face to face	Yearly	Pre-Approval - Life of Project	- Opportunity to talk landholders through the complaints procedure, including more detailed items for Sensitive Receptors i.e. Landholder Agreement and 24hour phone number - (Discussion included in regular landholder updates. Ref: **Table 5.1.10 – A**)
	Face to face	As requested	Life of Project	- Additional face to face meetings organised specifically on Complaints Procedures, if requested.
Phone numbers provided to landholders	Fridge Magnet	Distributed as updated and available at NACs Community Information Centre	Life of Project	- Details of key contact numbers for making complaints or raising concerns
Information regarding the procedure	Factsheet	Ongoing	Life of Project	- A 'How to' factsheet information for making enquiries, raising concerns or making a complaint
Tier 2 and 3 Neighbours				
Phone numbers provided to landholders	Fridge Magnet	Distributed as updated and available at NAC's Community Information Centre	Life of Project	- Details of key contact numbers for making complaints or raising concerns
Information regarding the procedure	Factsheet	Ongoing	Life of Project	- A 'How to' factsheet information for making enquiries, raising concerns or making a complaint
All Neighbours and General Community				
Information regarding the procedure	Factsheet	Ongoing	Life of Project	- A 'How to' factsheet information for making enquiries, raising concerns or making a complaint
Access to Community Staff	Oakey Community Information Centre	Ongoing	Life of Project	- Easy access to NAC community staff for general enquiries, concerns and complaints
Information and reminders provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3,500 people across NAC local communities - Information and reminders on areas of key community interest. Containing reminders on the complaints procedure and how to contact NAC

Engagement / Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
				staff. - Topics may also include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland o Environment e.g. Ground Water, Noise/Vibration and Air Quality
Advertisements	Local newspapers	Regularly		- Containing information about the Complaints Procedure and how to contact NAC staff.

5.1.10.1.6 General Community Consultation and Engagement

Along with targeted community engagement activities, NAC is committed to continuing engagement and consultation with the broader community. This includes regularly communicating, engaging and working with the community to understand both concerns and opportunities.

As part of NAC's commitment to community relationships and development, the CRG was established in October 2012 to provide on-going communication with local stakeholders and to address community concerns and opportunities arising from the Mine. NAC works with the community to ensure that the CRG membership is representative of local interests. CRG members ensure that topics discussed are relevant and reflect areas of local community importance.

A key function of the CRG is to advise NAC about partnership creation through the implementation of the Community Investment Fund (CIF). CRG members assess applications made through the CIF and provide feedback and recommendations to NAC regarding projects that they believe will have the most benefit for the local community.

The CRG comprises representatives from a broad cross section of local and regional stakeholder groups. The majority, 9 of the 11 community members in the 2014 Group, live or work in the communities immediately surrounding the Mine and the remainder reside within the TRC area. The current Chairperson of the CRG is a local landholder and neighbour of the Mine. The CRG members include representatives from:

- TRC;
- Local landholder representatives;
- Agforce;
- Health;
- Education;
- Business;
- Emergency Services;
- Environment e.g. Landcare;

- Aboriginal and Torres Strait Islander community;
- Regional communities surrounding the mine, including Jondaryan; and
- NHG.

The matrix of the CRG membership is reviewed annually by its members. An application process is conducted every 12 months, and community members are encouraged to apply through advertisements and notifications in the local media and through the Community Information Centre. All applicants to the initial CRG in 2012 were accepted for the 12 month tenure. Community groups are also invited to present to the CRG in relation to local projects, issues or opportunities. CRG membership and meeting minutes are regularly updated on the NAC website: www.newhopegroup.com.au.

The past and future communication activities specific to the broader community are presented in **Table 5.1.10-F**.

Table 5.1.10-F Consultation and Community Engagement – General Community

Engagement/ Consultation Activity	Type of Engagement	Frequency	Phase of Project	Detail
Landholders				-
Initial presentation of the revised Project	Face to face	1 – 2 meetings	Beginning of Approval Process	- Overview of revised Project - Outline of key differences between original Stage 3 Project and revised Project - Opportunity for landholder to provide input into planning e.g. location of infrastructure - Question and answer with landholder, including opportunity to raise issues
Informal neighbour function	Informal Event	Yearly	Life of Project	- Informal event to gather as a community - May also include a site tour for neighbours
Landholder representatives on NAC CRG	CRG	Held every 1-2 months (or as decided by CRG community members)	Life of Project	- Representative on the CRG to ensure landholder issues and opportunities remain a priority for NAC community conversations
Partnering opportunities for regional landholder activities	Participation in Programs	As opportunities arise	Life of Project	- Participation in some NAC activities addressing broader landholder concerns e.g. baiting programs, emergency response exercises
Participation in the Social Impact Assessment (SIA) for the revised Project	Face to face, phone	Prior to release of EIS	Approval Process	- Landholder representatives given the opportunity to contribute to the SIA
Notification of key construction milestones	Face to face, phone or mail	As required	Construction	- Notification of key milestone relating to the revised Project. Milestones may include: o Road closures o Construction start and finish

				o Employment opportunities
All community				-
Community representatives regularly discussing key issues, opportunities and information regarding NAC	Community Reference Group	Held every 1-2 months (or as decided by CRG community members)	Life of Project	- Community Representative Group including representatives from groups such as: o Local landholders o TRC o Oakey health o Indigenous o Jondaryan o Local business o Emergency services o Environment groups - Opportunity for both community representatives and NAC representatives to raise topics for discussion and information distribution
Access to NAC staff at the Oakey Community Centre	Oakey Community Information Centre	As required	Life of Project	- Community staff on hand to provide information, respond to concerns, discuss opportunities and address general enquiries
Information and reminders provided through NAC newsletter	Newsletter	Quarterly	Life of Project	- Distributed to over 3,500 people across NAC local communities - Information and reminders on areas of key community interest included regularly in NAC newsletter. Topics may include: o Health and Coal o Enquiries and Complaints o NAC Activities in Jondaryan and Acland - Environment e.g. Ground Water, Noise/Vibration and Air Quality
Regular communication of NAC community activities and information	Letters and email	Ongoing	Life of Project	- General updates and information on the revised Project - Information on key issues
Opportunity to view and experience the mining operations and rehabilitation practises in person	Public Site Tours	Quarterly	Life of Project	- Tours open to members of the local community to see and learn more about the New Acland Nine, the Acland Pastoral Company and rehabilitation practises.
Dedicated Social Investment Programs	Community Funding	Ongoing	Life of Project	- Funding for community projects and organisations
Supporting community groups and events	Community Participation	Ongoing	Life of Project	- Participating in community groups and events - Sharing knowledge with community groups e.g. joint emergency training
Online information available for wider public	Website	Ongoing	Life of Project	- Information regarding the project available on the website and updated regularly

5.1.10.2 Consultation and Community Engagement Progress

NAC utilises leading industry practices to record the community engagement activities it conducts. These records provide an overview of key topics raised through community engagement and consultation activities and assists in identifying trends within the community. Data captured in the past 12 months highlights key topics raised during NAC's engagement activities over that period that can be divided into 3 areas:

- Visitors to NAC's Oakey Community Information Centre;
- Engagement with NAC neighbours; and
- General engagement with community stakeholders.

5.1.10.2.1 Visitors to NAC's Oakey Community Information Centre

In the period from 1 July 2013 to 1 July 2014, the Community Information Centre has had 257 reported visitors. Of the 257 reported visits, by far the most common enquiry was related to employment opportunities constituting 55% of reported visits. Employment enquiries were primarily from residents within the Toowoomba region. The topics raised are indicated in **Table 5.1.10-G**.

Table 5.1.10-G Topics Raised – NAC Community Information Centre

Topic	Events
Employment	141
EIS	27
Sponsorship and donation	24
Community Partnerships / CIF	16
Engagement activities	8
Rental enquiry	5
General Enquiry	5
Dust	4
General Support	2
Approvals process	2
Asset / property management	2
Acquisition process	2
Social impact	2
Business Opportunity	2
Land Development	1
Weeds	1
Reinstatement	1
Other	12

Enquiries regarding community funding (Sponsorship and donations - 9% and Community Partnerships - 6%) were also common, followed by general questions regarding the draft EIS of approximately 11% including how to comment and how to obtain a copy of the draft EIS. Depiction of the enquiries are indicated in **Figure 5.1.10-A**.

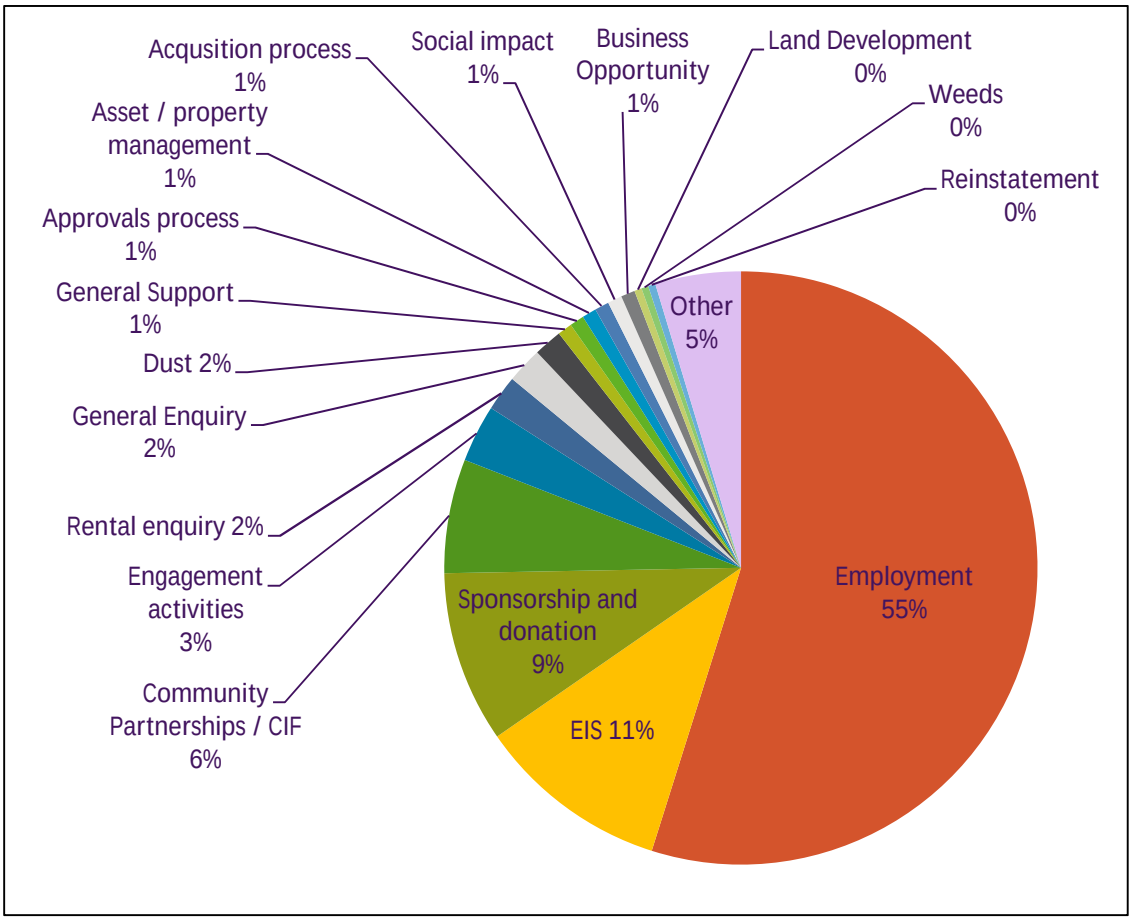

Figure 5.1.10-A Topics Raised – NAC Community Information Centre

5.1.10.2.2 Engagement with NAC neighbours

In the period from 1 July 2013 to 1 July 2014, there were 337 reported engagements with neighbours of the Mine. This data includes sensitive receptors near the Mine. It should be noted that a large number of these engagements, 97, relate to blasting. This is a result of blasting notifications to neighbours from current operations and creates a misrepresentation of blasting as a topic.

Neighbour engagement data shows a range of topics raised. In particular, general EIS information (EIS - 12%), Acquisition Process (9%) and APC related activities (Asset/Property Management- 7%) were key topics raised.

A summary of the data is depicted in **Table 5.1.10-H** and **Figure 5.1.10-B**.

Table 5.1.10-H Topics Raised – Neighbour Engagement

Topic	Events
Blasting	97
EIS	41
Engagement activities	31
Acquisition process	30
Asset / property management	25
Pastoral Activities	11
Approvals process	10
Dust	9
Sponsorship and donation	8
General Support	8
Community Partnerships / CIF	8
Noise	7
Social impact	7
Ground water	7
Lease-back	3
Rental enquiry	3
Water supply	3
Other	29
Total event search	337

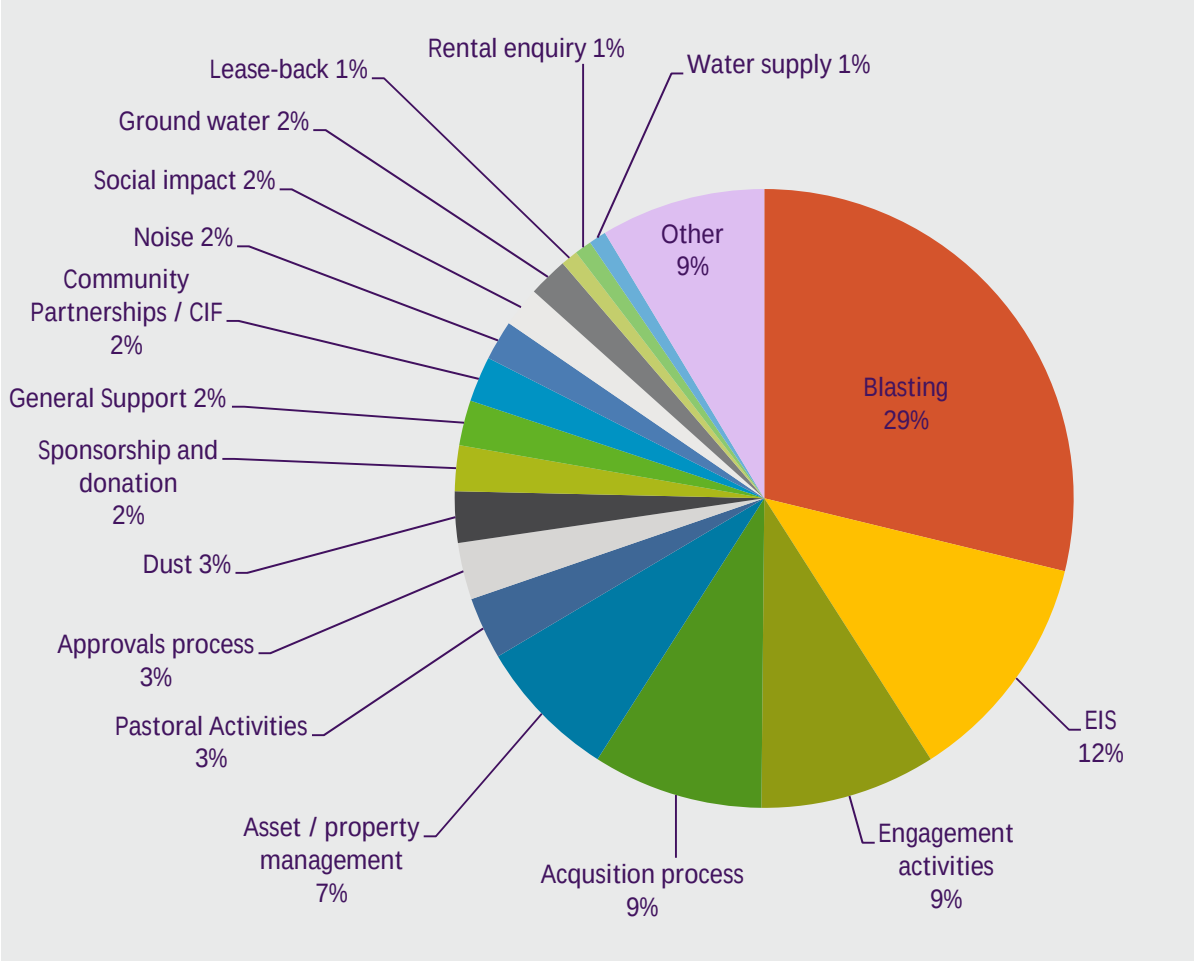

Figure 5.1.10-B Topics Raised – Neighbour Engagement

5.1.10.2.3 General Engagement with community stakeholders

In the period from 1 July 2013 to 1 July 2014, there were 1,315 reported engagements with the broader community. General engagement encompasses all community activities, including: the Community Information Centre, stakeholder visitors, community meetings, community events and site tours. Enquiries regarding employment and community funding make up a third of all general enquiries.

The following as key topics (along with total percentage) were raised through engagement over this period:

- Employment 12% - enquiries from community members looking for employment with NAC;
- Sponsorship and donations 10% and Community Partnerships/CIF 10% - enquiries regarding community funding opportunities for community groups;
- EIS 9% and Approval process 5% - enquiries relating to the release, commenting and obtaining of the draft EIS, and general enquiries regarding the approval process; and
- Blasting 8% - as noted earlier, this number is high due to blasting notifications conducted on an almost weekly basis to neighbours of the Mine.

A summary of the data is depicted in **Table 5.1.10-I** and **Figure 5.1.10-C**.

Table 5.1.10-I Topics Raised – Broad Community Engagement

Topic	Events
Employment	164
Sponsorship and donation	130
Community Partnerships / CIF	125
EIS	119
Engagement activities	118
Blasting	102
Approvals process	63
Education and training opportunity	45
Social impact	40
Dust	38
General Enquiry	36
Acquisition process	35
Asset / property management	32
Benefits	32
General Support	23
Business Opportunity	23
Pastoral Activities	21
Other	169
Total event search	1315

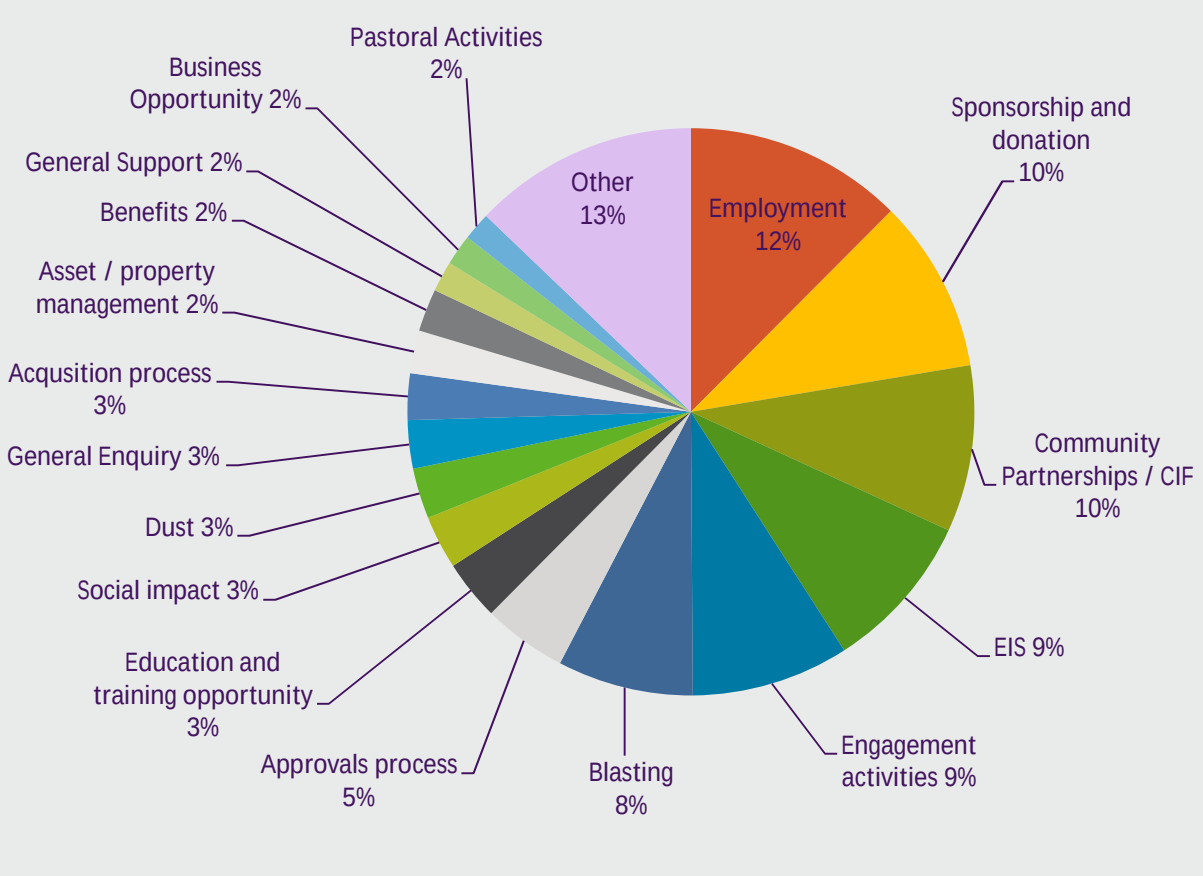

Figure 5.1.10-C Topics Raised - Broad Community Engagement

5.1.10.3 Social Environment

An assessment of the submissions identified seven themes regarding social environment. These themes, along with a summary of the issues raised, is summarised in **Table 5.1.10-J**. These perceptions have been consolidated by NAC into seven themes and discussed in more detail in this Section.

Table 5.1.10-J Social Environment concerns

Theme	Topics raised
Property acquisition	Property acquisition caused the decline of Acland and displaced local residents. Adverse social impact from wide-spread land purchases and amalgamations should be recognised in the draft EIS.
	Property acquisition and NAC's operations have negatively impacted on community cohesion.
	The revised Project will affect sense of place in the Acland area.
	There has been an increase in crime and loss of community sentiment since the Mine began.
Social licence	NAC needs to build a social licence to operate.
	Description of change in work practices at JRLF.
	Need demonstrate tangible "community benefits" to the community.
Amenity	Study area did not include residents within 1km of the mining lease area.
	Impacts to local connectivity, e.g. access to Oakey/Toowoomba through Acland will be

Theme	Topics raised
	shut.
	Concerns that properties will be affected by unacceptable levels of dust and noise pollution.
	Amenity impacts (various – Acland area, Jondaryan, properties to north east).
Employment	Provide more detailed information about mining employment in the region.
	Consult with DATSIMA in implementation/construction of future strategies for Indigenous employment, apprenticeships and business development opportunities.
	Potential for local businesses to experience employee shortages due to revised Project employment opportunities.
Population and Housing	Clarify statement on sources of workforce and proposed location of workforce residences.
	Community profile is an incomplete assessment of the local and regional profile.
	Concern that the ingress of 150 families will lead to decreased housing affordability and reduced housing availability for low income households.
	Impacts on accommodation and housing are underestimated.
	Impacts on Toowoomba acknowledged but not considered to be significant.
Health	Provide results of consultation with health bodies on health issues raised.
	Health impacts for residents of Jondaryan and the surrounding area due to noise, dust and other operational impacts.
	Impacts on mental health as a result of noise, stress, anxiety or solastalgia.
Alignment with planning objectives	Does not consider the TRC Community Plan.
	Under-estimation of the 'negative severity' of decreased rural and agricultural amenity and dust, noise and visual impacts.
	EIS focusses on the positive benefits to the community and does not address many outstanding community concerns.

5.1.10.3.1 Property Acquisition

Submitters believe that the decline of Acland is solely due to NAC's acquisition of properties which has resulted in increased crime, decreased community cohesion and displacement of residents. Additional information is provided below regarding these matters.

Population decline

Historical population data published by Queensland Treasury and presented in **Figure 5.1.10-D** (OESR, 2009 – supplemented by data from OESR on Collector District populations for 1996-2011). This data is based on the Census Districts most closely aligned with the name and area of the town. (Note; There are gaps in the available historical population data which do not allow for presentation of data at equal time intervals. There were likely to be changes in Census District borders over the timeframe shown but the data provide the best available indication of the long term historical population trend.)

The data indicates that the Acland area population began to decline in the 1950's, halving between 1954 and 1966, growing slightly during the 60's, and declining from 1996. During the 1990's, there was a resurgence in the population around Acland, due to 'tree changers' seeking rural lots for lifestyle and affordability reasons. The Acland State School closed in August 2005 (Department of Education, 2014), as the declining population could no longer support a school.

NHG undertook most of the property acquisitions for the revised Project during the period of 2005 to 2007. At this time the population was less than 70 people.

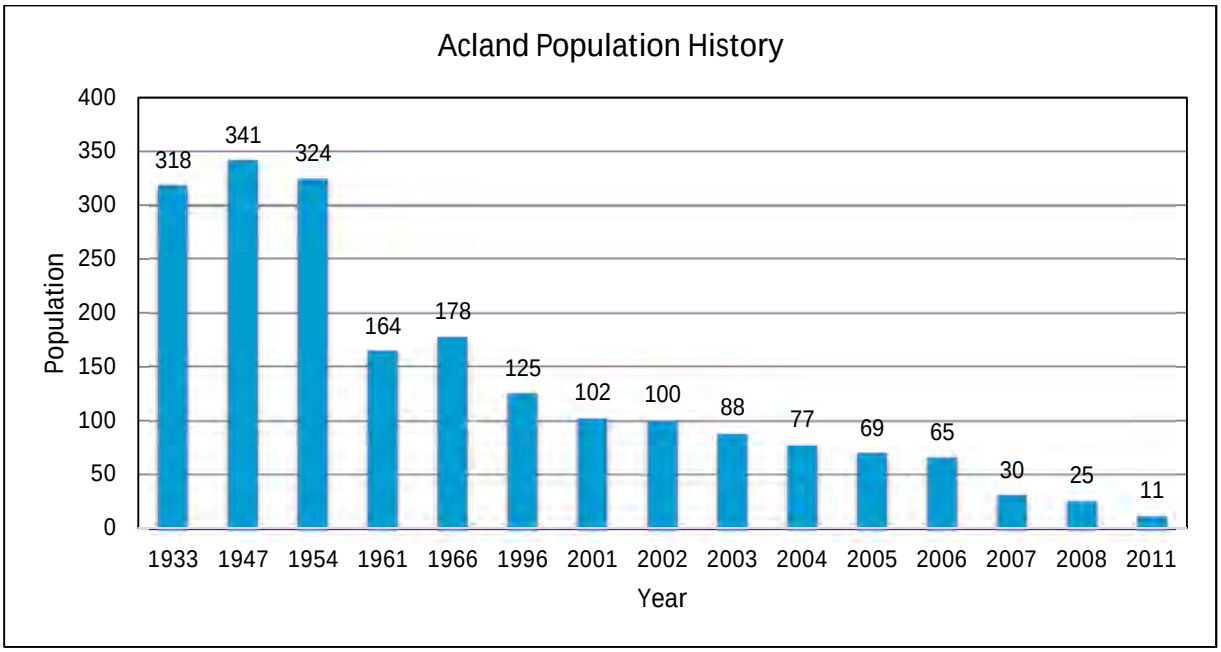

Figure 5.1.10-D Acland Population 1933-2008 (Estimated)

Acland was situated within Rosalie Shire at the time, and reflected the trend across its region, with the population of Rosalie Shire declining from almost 8,000 people in 1911, to 6,190 people in 1961, and 5,218 people in 1981 (Centre for Government of Queensland, 2014). The population decrease was due to the decline of dairying and small farm holdings, increasing mechanisation (with fewer jobs), closure of the Southern Branch Railway lines to Acland during the 1960's and the general drift from rural areas to coastal and urban centres, primarily by young people seeking wider options, and people seeking employment as rural industries declined.

NAC commenced property acquisitions for the revised Project in early 2007, but made prior purchases in response to approaches by property owners. Since the inception of the Mine, NAC has acquired 156 land parcels in the Acland area. Of these, 123 parcels were acquired to facilitate development of the revised Project. A number of rural landholders remain in the Acland area, and several farmers who sold their properties have entered into lease-back arrangements with NAC and continued to live on the property. Others have moved to rural localities and towns (Jondaryan, Oakey and Toowoomba) in the region.

More detailed data for recent periods is available at the State suburb level. In the ABS Census of Population and Housing in 2006, the Acland State Suburb (ABS, 2014) covered 13 km^2 and included 20 occupied dwellings and 42 unoccupied dwellings. The Acland State Suburb was home to 15 families and had a population of between 53 and 65 (OESR, 2011) people. By 2011 the ABS (as part of the move to a new national statistical geography system) had extended the boundaries of the Acland State Suburb to include an area of 187 km^2. The revised State Suburb contained 69 occupied dwellings and 22 unoccupied private dwellings, and had a population of 208 people, including 57

families. This indicates that whilst the population of Acland has declined, there are up to 60 families still living in the area surrounding Acland.

Displacement

During 2004 to 2005, NAC made opportunistic purchases (i.e. the company purchased properties for sale in the market). During 2005 to 2006, approximately 80% of acquisitions were made in response to approaches from property owners. The remaining acquisitions followed active approaches by the company to property owners.

Many residents and farmers in the area chose to leave for life cycle reasons (e.g. children leaving for further education, or retirement), or to improve their circumstances (as the company acquired a number of properties at above market valuation). Others chose to leave due to changes to the area as a result of mining. As noted in **Section 16.7.3** of the draft EIS approximately 80% of property owners approached NAC to negotiate a purchase. A number of people who sold their properties to NAC moved to nearby villages and towns such as Kulpi, Jondaryan, Oakey, Pittsworth and Kingsthorpe and remained in the region.

Community cohesion

Population decline commenced in the Acland area during the 1950's. Property acquisitions by NAC have resulted in families leaving the area, and as such there was a loss in cohesion around Acland. A number of property owners settled in the areas around Acland as noted above, and are likely to have made contributions which would increase community cohesion in those areas.

NAC, through its CIF and Sponsorship and Donation program, has made substantial investments in programs, networks and services which support community cohesion in the Toowoomba region, including areas such as Acland, Jondaryan and Oakey. Whilst the decline in cohesion in the immediate Acland area is known, this has been offset to an extent by the support offered by NAC to other nearby communities, many of which include former Acland residents.

A number of submitters noted the community benefits of NAC's operations, including employment, community investment, and local business opportunities. Without the approval of the revised Project, the Mine will close in 2017. This would lead to the loss of approximately 300 jobs at the Mine, and is likely to lead to a significant population drain as workers leave to seek other employment. As workers and their families are part of the local community, and as business would lose significant revenue from the loss of workers' incomes in the local economy, this would have a negative effect on community cohesion in local and regional areas.

Crime

A decline in community safety was raised as an impact from the Mine's operations. Queensland Police Service Crime statistics were compared for the ten year period to 1 January 2014 in Acland and Jondaryan (QPS, 2014).

As shown in **Figure 5.1.10-E**, there was no discernable trend in the crime rate in Acland over the ten year period, with between zero and two crimes committed each month, except for a 'spike' of three offences in late 2007 and another of eight offences in mid-2008. No discernable trend to the crime rate in Jondaryan was evident, as shown in **Figure 5.1.10-F**.

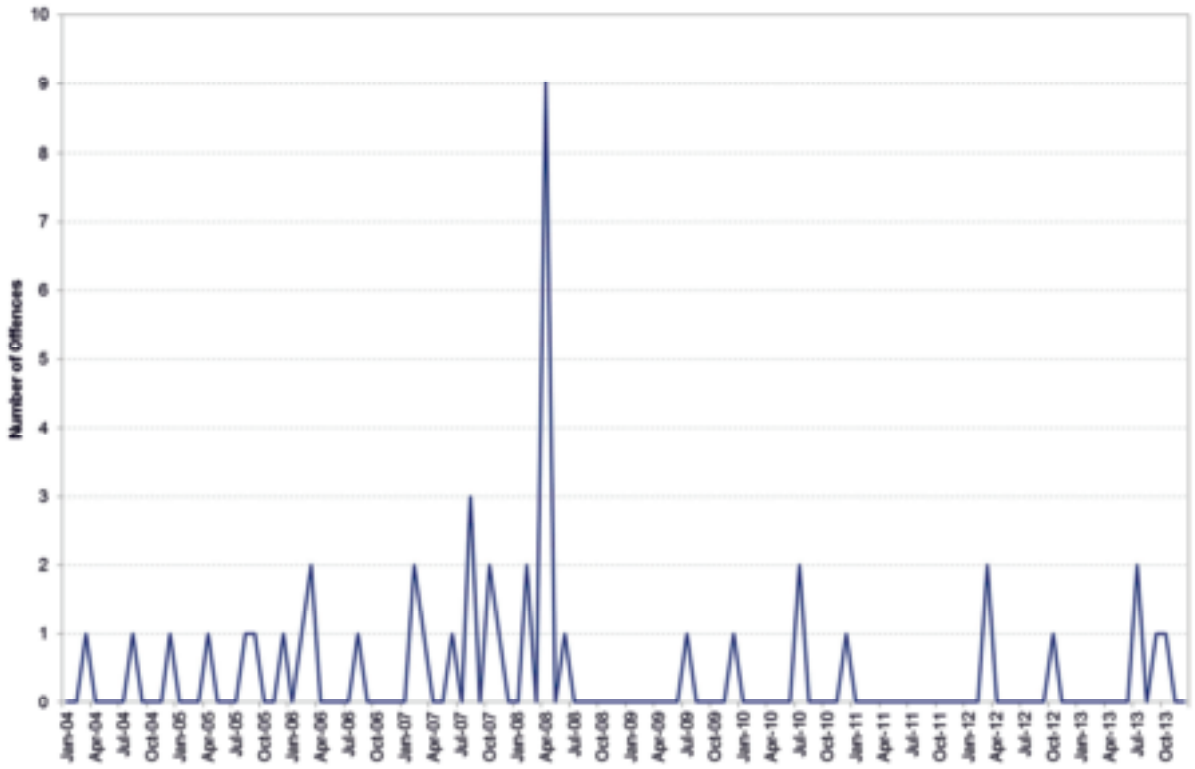

Figure 5.1.10-E Acland Crime Trend 2004-2014

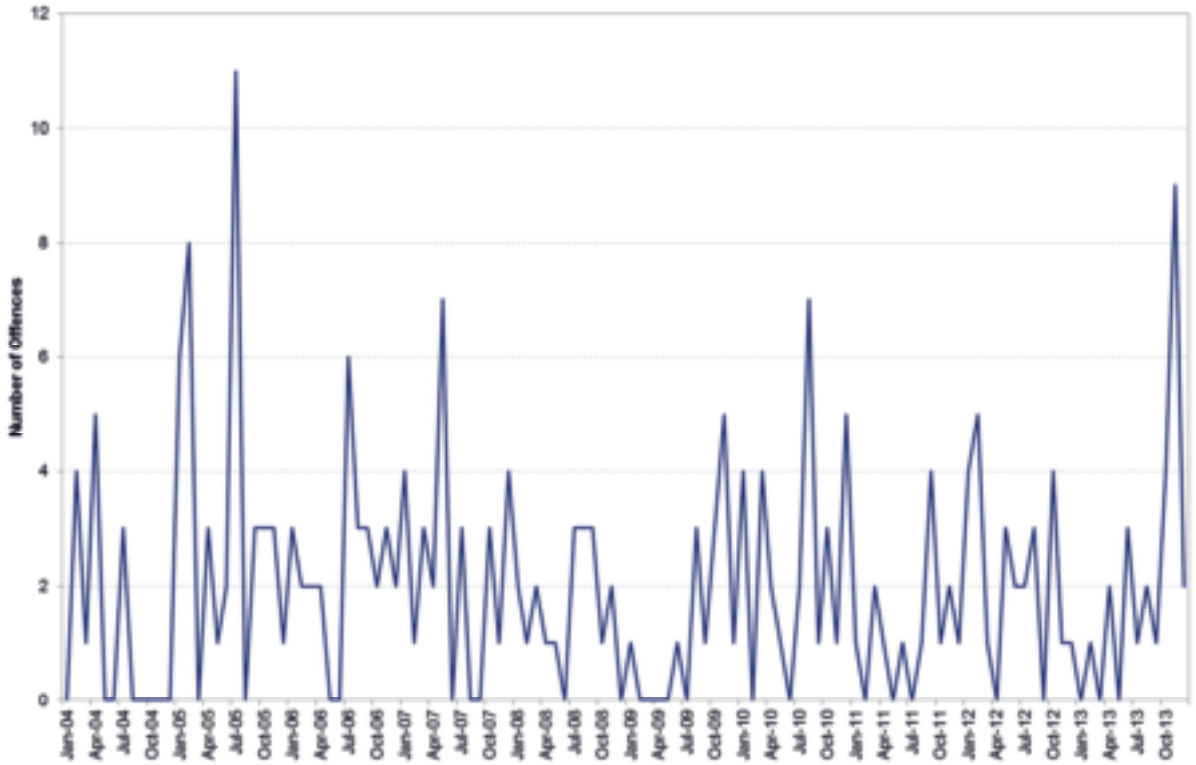

Figure 5.1.10-F Jondaryan Crime Trend 2004-2014

Conclusion

The population of Acland had been decreasing steadily since the 1950's, in line with the regional population trend, and in response to factors including declining community services (e.g. closure of the railway line and later the school), changes to the productivity and profitability of farms (e.g. dairy industry deregulation) and a trend for young people to leave rural areas.

Acquisition of properties in 2004 to 2006 by NAC accelerated the number of people leaving the area during the period 2006 to 2011. In 2011, there were up to 60 families in the area according to ABS within the Acland State suburb.

Community cohesion in and around Acland has decreased as a result of property acquisitions. However community cohesion in other local areas is likely to have improved due to a combination of Acland residents moving to nearby areas, mine workers contributing to local communities, and NAC's community investment program.

5.1.10.3.2 Social Licence

The following Section discusses issues raised by submitters in relation to their current experience of the Mine, including noise, dust and amenity impacts. In addition, some Private Submitters documented their dissatisfaction with the level of consultation offered to people in the area, which is discussed in **Section 5.1.10.1** of the AEIS.

NAC has refined the revised Project and implemented a number of enhancements to communication, consultation and environmental management processes in response to community input on the draft EIS. NAC's commitments in support of its social licence to operate include the following:

Project revisions to address concerns about encroachment on towns:

- increasing the distance between the Mine and Oakey to 10 kms;
- exclusion of Acland from the revised MLA;
- commitment for the relocation of the JRLF;
- environmental protection measures such as veneering of coal trains;
- development of the AMP; and
- a comprehensive communication and engagement strategy with a focus on sensitive receptors, neighbouring landholders and community members.

Protecting the amenity of neighbouring properties:

- consultation with land holders in the vicinity of the revised Project to identify and address their concerns;
- landholder agreements with neighbours to ensure a defined investigation process is available for direct complaints or standard compliance monitoring triggers, and if required, a mitigation process is defined to address the identified problem;
- provision of detailed management plans as part of the draft EIS;
- continuation of the TARP based on real-time noise monitoring and communication with neighbouring property owners; and
- consultation with local health providers to preclude any health effects from NAC's current or future operation.

NAC has also invested in community services, facilities and networks to ensure NAC is making a positive contribution to community cohesion and resilience in local and regional communities.

A number of submissions to the draft EIS highlighted the value of NAC's CIF and donations. Examples of organisations who have benefitted from NAC's community investments in recent years include:

- CareFlight Queensland (a major sponsorship);
- South Myall Catchment Landcare;
- Oakey State High School;
- the Oakey and Jondaryan State Primary Schools;
- Jondaryan Rural Fire Brigade;
- Health organisations including Goondir Aboriginal & Torres Strait Islanders Corporations for Health and Lifeline Darling Downs;
- the Oakey Agricultural, Pastoral and Rodeo Society;
- local Parents and Citizens (P&C) associations;
- Public and Memorial halls across the district;
- Sporting groups and rodeos;
- Toowoomba Chamber of Commerce and Industry; and
- Friends of the Jondaryan Woolshed.

A number of submissions expressed their support for the revised Project. Grounds for support of relevance to social impacts included the following themes:

- NAC supports the community by using local contractors to supply goods and services to the mine;
- NAC is a valued and important customer to a number of local and Queensland-based businesses;
- there will be a loss of jobs and population should the revised Project not proceed;
- there are significant flow-on economic contributions to local economy from NAC;
- the revised Project will support local and regional growth;
- NAC supports community organisations and demonstrates good corporate citizenship;
- Mine jobs have allowed employees to farm part-time; and
- NAC is invaluable to the learning and development for mining and environmental students of University of Queensland.

NAC values its social licence to operate, and has made a number of project revisions and commitments in order to enhance community acceptance of the revised Project.

Consultation with stakeholders prior to, during and after the draft EIS display has identified a number of property-specific issues which will be managed in consultation with property owners to avoid or minimise impacts, and in accordance with the detailed Environmental Management Plans provided as part of the draft EIS.

Community benefits of the revised Project were identified in the draft EIS and in submissions to the draft EIS, and include employment, business opportunities, support for local growth, and social investment.

5.1.10.3.3 Amenity

Amenity in Acland has been changed by prior acquisitions by NAC, due to changes to streetscapes, and housing availability. As discussed in **Section 5.1.8** of the AEIS, sense of place has also changed during the past ten years as a result of property acquisitions and the mine's development, and this has been experienced as a detraction from the amenity of the Acland area. As noted in **Section 5.1.10.1.2**, NAC has committed to implementing the AMP, which includes a series of measures to protect and enhance cultural heritage items, service access and the appearance of Acland. For additional information please refer to **Section 5.1.7** and **Appendix I** of the AIES.

A number of submissions related to the impacts of the JRLF on amenity in Jondaryan. As described in **Section 2.2** of the draft EIS, the revised Project would see the decommissioning of the JRLF, which will remove the source of these impacts. For further information on this matter please refer to **Section 5.1.4** of the AEIS.

Issues raised by submitters included the belief that sensitive receptors adjacent to the Mine will experience decreased amenity, particularly in Acland, Muldu, Balgowan and Brymaroo.

NAC has undertaken an extensive range of management actions to address noise and dust from the existing operation, including the development of a TARP based on real-time noise monitoring and adaptive management actions including the immediate cessation, reduction or relocation of identified mining activities. NAC has provided its near neighbours with an after-hours contact telephone number to allow mine personnel to respond to noise issues or other operational issues that may cause sleep

disturbance immediately if they occur (i.e. rather than retrospectively as a complaint the next day). This system has worked well for neighbours who have used it.

The draft EIS found that noise impacts during both the construction and operational phases of the revised Project are predicted to be within acceptable limits, including limits for sleep disturbance, for all sensitive receptors.

NAC has consulted and will continue to consult with residents nearest the Mine to ensure noise mitigations are satisfactory. For further information on these matters, please refer to **Section 5.1.3** of the AEIS.

Some submissions identified the need for increased available data on air quality and noise monitoring data at Jondaryan. This information has been publicly available since June 2011 at the local fuel service station Community Information Board and is also accessible on the website http://www.aclandproject.com.au/content/sustainability. An independent Jondaryan air quality monitoring station operated by DSITIA has been located in Jondaryan near the JRLF since March 2014 and will continue for at least 12 months. The results of DSITIA monitoring are also publicly available on the website http://www.ehp.qld.gov.au/air/data/search.php (and refreshed hourly). NAC will provide monthly environmental monitoring data in further consultation with concerned residents in the Jondaryan and Acland areas.

Submissions to the draft EIS noted that access to Oakey and Toowoomba from Acland will be closed causing submitters to take a longer route, and that realignment of Jondaryan Muldu Road and Cooke's Road may result in property access restrictions.

Should the revised Project be approved, there will be a number of road closures that may impact travel distances for the community and services depending on travel directions. Based on the revised Project description presented in **Chapter 3** of the draft EIS, the access roads to the north, west and east of Acland will be required to be closed as these locations will be part of active mining operations. **Chapter 13** of the draft EIS describes these road closures and provides a series of management strategies to reduce the impact on travellers. **Section 5.1.6** of the AEIS provides an assessment of the impact to near landholders affected by road closures and diversions. This assessment also covers the additional distances that landholders and service vehicles would need to travel to places such as Acland, Jondaryan, Oakey and the Warrego Highway.

5.1.10.3.4 Employment

Submissions to the draft EIS in respect to employment included the following key topics:

- requests to provide more information about the region's employment profile including mining as a percentage of the region's employment;
- requests to clarify the origin of the workforce;
- seeking acknowledgement of NAC's commitment to equal opportunity employment and Indigenous employment;
- support that the revised Project should be approved to protect employment opportunities (existing and future potential); and
- concerns on potential impacts on other business' capacity to attract staff.

These key topics are discussed below.

As at March 2014, the Toowoomba Region (Statistical Area 4) had a working age population of 123,485 people, of whom 6,089 were seeking jobs. The unemployment rate was 4.5% and the average age of job seekers was 34 years (Australian Government Department of Employment, 2014). This compared to the South East Queensland unemployment rate for the same period of 5.8%, and the Queensland rate of 5.9%.

As such, the job market in Toowoomba has more employment opportunities than the Queensland average, but includes a large cohort of job seekers.

The percentages of employees across key occupational categories in the Toowoomba region during the ten years to 2011 is presented in **Figure 5.1.10-G** (Australian Government Department of Employment, 2014).

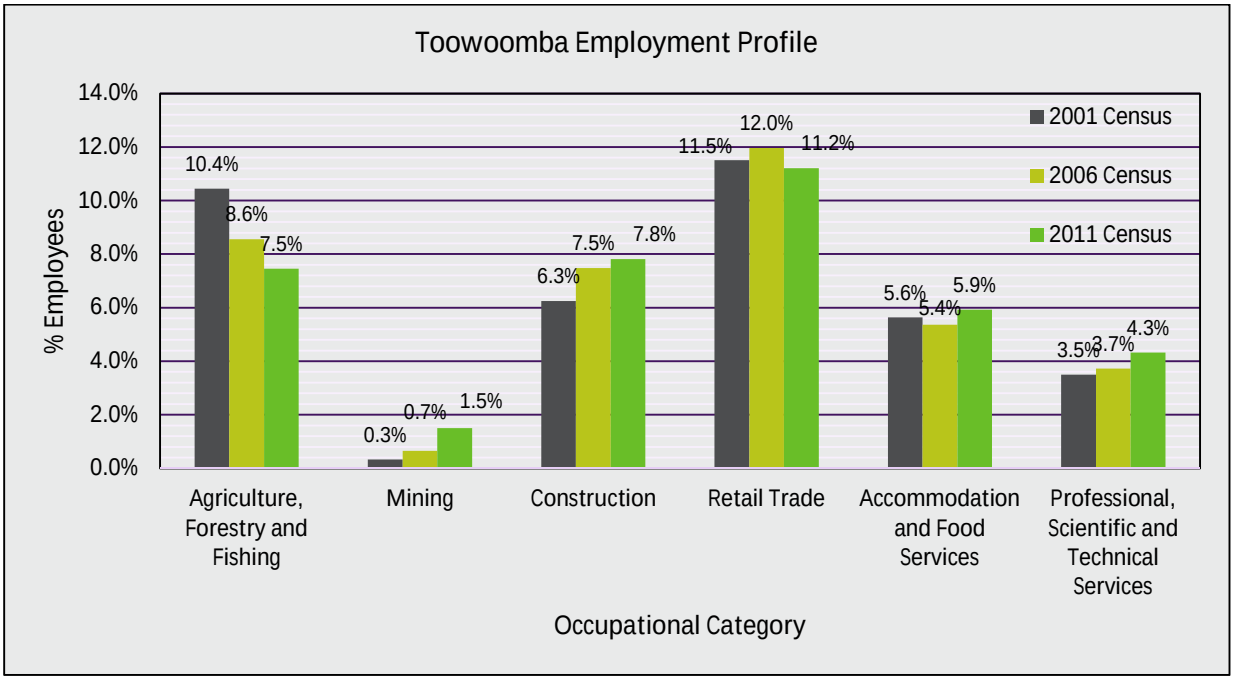

Figure 5.1.10-G Industry Categories Toowoomba Region 2001-2011

A decrease in the percentage of agricultural industry workers (from 10.4% to 7.5%), and a small decrease in retail trade employees (from 11.5% to 11.2%) is evident in **Figure 5.1.10-G**. There were increases in the mining industry (from 0.3% of the region's labour force to 1.5%), construction (from 6.3% to 7.8%) and professional and technical services (from 3.5% to 4.3%). The decrease in agricultural employment shows the effects of drought.

At the 2011 Census, 3,485 people in the Toowoomba LGA described themselves as employed in the construction industry. The number of people employed across categories in construction presented in **Figure 5.1.10-H** indicates there was a good supply of construction workers relative to the number required for construction of the revised Project.

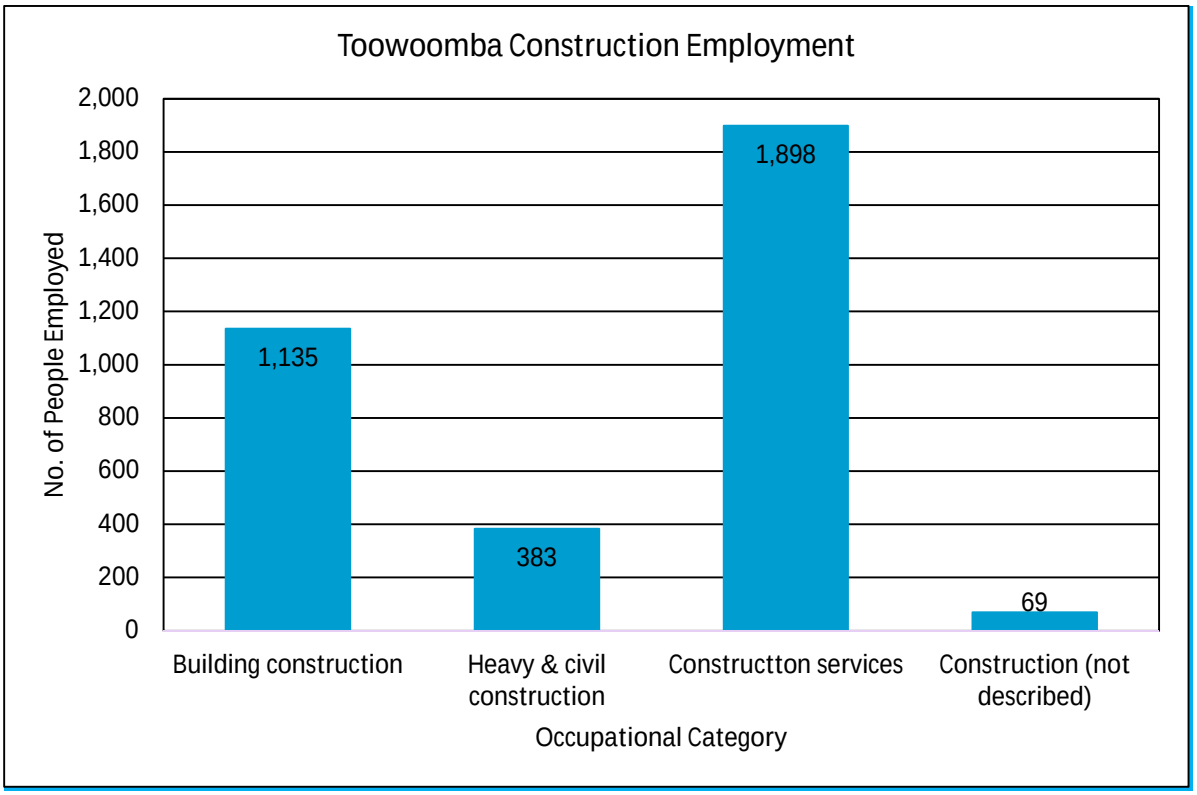

Figure 5.1.10-H Construction Industry Occupational Employment Toowoomba LGA 2011

Given the downturn in construction over the past two to three years, it's likely that fewer construction industry workers in the region are currently employed, and that the revised Project could draw a proportion of the construction workforce from within the Toowoomba region. It's also likely that a large number of construction workers who have completed work on CSG facilities in adjacent LGAs will be available to NAC. It is assumed that 40% of the construction workers would be drawn from the region, and 60% would have home bases elsewhere and live in the region (on a full or part time basis) during the construction period.

From the 2011 Census, there were 1,245 people living in the Toowoomba region who were employed in the mining industry. The number of people employed across occupational categories in the mining industry is displayed in **Figure 5.1.10-I**.

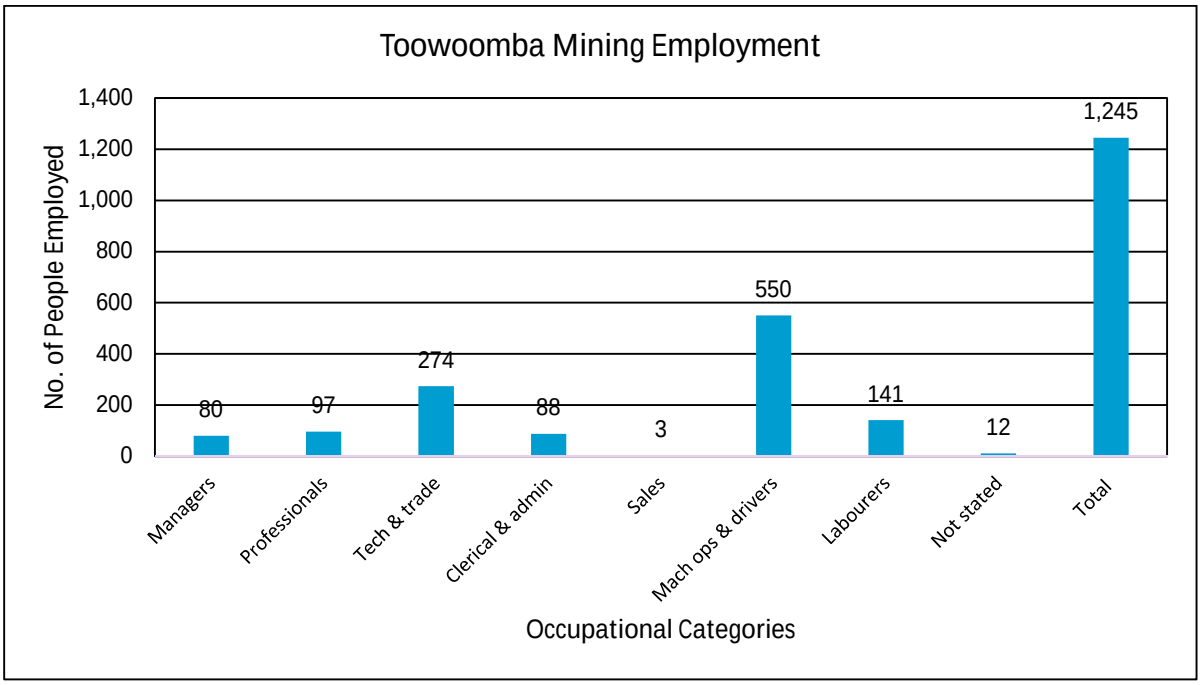

Figure 5.1.10-I Mining Industry Occupational Employment Toowoomba LGA 2011

Contact has been made with representatives from the Queensland Department of Aboriginal and Torres Strait Islander and Multicultural Affairs in relation to the revised Project. Further discussions will take place between NAC and departmental officers regarding potential employment and business development opportunities for Aboriginal and Torres Strait Islander people.

NAC's commitment also encompasses an internal Equal Employment Opportunity Policy and Guidelines which aim to foster a workplace where employees feel that they are valued members of the organisation and that they are treated fairly.

NAC is committed to continuing its established relationship with Aboriginal and Torres Strait Islander people in the local area, including engagement through the Oakey Reconciliation Committee. A representative from the Oakey Reconciliation Committee currently sits on NAC's CRG.

If the revised Project does not proceed, mining at the Mine will cease in 2017. This would see the loss of employment for approximately 300 people, and the loss of regular work for approximately 160 full time equivalent contractors who currently supply specialist services to NAC. Additional impacts on business revenues would also result from the loss of NAC's supply relationships with local businesses, and the decline in employee spending, therefore additional job losses are likely. A number of NAC's suppliers and local businesses derive significant income from the operation and NAC employee spending; therefore there is a potential threat to some local businesses' viability.

Of NAC's current employees, 228 live in the Toowoomba region. As at March 2014, there were 6,089 job seekers in the Toowoomba region. If this number was stable to 2017, cessation of mining could directly increase the number of jobseekers in the region by approximately 3.5%. As discussed in

Section 5.1.11 of the AEIS, NAC's employment and expenditure in the local and regional area contributes significantly to employment in the Toowoomba region.

Given the lack of other mining employment in the area, some NAC employees would need to relocate. Should 50% the local workers need to leave the Toowoomba region for other employment, the region would experience a population loss of more than 180 people (based on the average household size of 2.6 people per household).

This would not be significant at the regional level, however many of NAC's employees live in local communities near Acland. They include 66 employees living in the towns and localities of Oakey, Goombungee, Jondaryan, Kulpi, Quinalow, and Brymaroo, and an additional 43 employees living in Highfields or Meringandan. The loss of jobs would see many employees and their families leaving the area, due to the lack of similar employment in the region. Given the small populations in local communities, small population losses are felt more acutely.

The loss of 109 jobs for employees located in the area between Jondaryan and Highfields would also see additional local jobs lost due to decreased employee spending the local area, and the consequent outflow of population.

As some NAC employees would leave the area, and others would turn to remote work opportunities which constrain community participation, cessation of mining at NAC may also lead to a loss of community cohesion in local towns, including disruption to neighbourhood and social networks, and fewer people to contribute to community and sporting organisations.

The loss of jobs is also likely to see employees' houses being released to the market in local towns. Whilst this would be positive for housing affordability, it would be negative for home owners and investors seeking to realise the value of their homes.

NAC provides significant social investment funds to school communities, health providers, sporting and cultural associations, emergency services and business organisations across the area. The loss of this funding source also has potential to constrain service provision and opportunities for community participation.

The number and staging of increases in employment opportunities as a result of the revised Project have been clarified in **Section 5.1.10.3.5** of the draft EIS. At start-up of the revised Project operations in 2018, the revised Project will require an additional 38 employees, of whom a proportion would be drawn from outside the region. The slow ramp-up of production to 7.5Mtpa will not require the full additional complement of 135 additional employees until 2024. This is not expected to have a significant impact on local and regional business' capacity to attract and retain labour, in the context of planned economic growth in the Toowoomba region.

This Section has provided additional information on the employment profile of the Toowoomba region, and availability of labour relevant to the construction and operational phases of the revised Project.

Continuation of NAC through the approval of the revised Project would protect the employment of 300 current workers, 160 contractors and local business employees who provide goods and services to

NAC. It would also create additional employment opportunities, commencing in 2018. Negative impacts on local businesses' capacity to attract labour are not likely to be significant.

5.1.10.3.5 Population and Housing

A number of Private Submitters raised concerns about a potential decline in population, excess housing in the market (leading to decreased housing values), declining business trade and declining community cohesion if the revised Project were not approved and mining ceased in 2017.

As described in **Section 16** of the draft EIS, population changes due to the revised Project are expected to accrue at both local and regional levels. This Section clarifies the timing and likely quantum of population change expected as a result of the revised Project in:

- the local area, including the Statistical Area Level 2 areas of Crows Nest-Rosalie (which includes the Goombungee and Acland districts), and Jondaryan (which includes the towns of Oakey and Jondaryan); and
- the Toowoomba Statistical Local Area Level 3 region.

Construction is expected to span 2015 to 2017 subject to obtaining all required approvals in 2015, and operations are expected to commence in 2018. Population projections (OESR, 2013) for these periods are shown in **Table 5.1.10-K**.

Table 5.1.10-K Local and regional population projections 2011-2036 (Medium Series)

Area	2011 (b)	2016	2021	2026	2031	2036
	(number)					
Crow's Nest - Rosalie	8,232	8,324	8,448	8,576	8,713	8,856
Jondaryan	7,556	7,808	8,115	8,418	8,735	9,065
Total Crows-Nest Rosalie Jondaryan	15,788	16,132	16,563	16,994	17,448	17,921
Toowoomba (R)	155,473	163,960	174,824	188,412	202,278	216,270

The total Local Area (Crows-Nest Rosalie-Jondaryan) projected population is 16,132 people in 2016 and 16,563 people in 2021. These figures have been used as the baseline for modelling local population impacts, and projections for Toowoomba (2016 and 2021) are used as the baseline for regional population impacts.

The construction phase is expected to require an average workforce of approximately 136 people, and a peak workforce in the vicinity of 260 people.

On the basis of labour availability discussed in **Section 5.1.10.3.4** of the AEIS**,** this updated assessment has assumed that approximately 40% of the construction workers would be drawn from the region, and 60% would live temporarily in the region for the construction period.

Many construction workers choose to stay in the area during rostered days on; however for the purpose of estimating the maximum population increase, all non-local workers have been counted as

full time residents. It has also been assumed that 50% of construction workers will be married, and bring their families to the area for the construction period.

The construction period would have an average of 136 workers. With 40% local employment, this would see an increase of 82 workers in the region. Apportioning these workers on a 50/50 basis to the local (Jondaryan/Oakey) area and regional (Toowoomba area) would see 41 workers temporarily living in the local area for the construction period (2015 to 2017), and another 41 workers living elsewhere in the Toowoomba region. Assuming 50% of these workers (21 workers) brought families to the area for the 26 month period, at an average of two family members per married worker, this would see a total population increase of approximately 82 people in the local area and the same number in other parts of the Toowoomba region, as shown in **Table 5.1.10-L**.

Table 5.1.10-L Population increase during construction (average)

Construction employees = Average No. ~136							
Area	**Est. Pop. 2016**	**Non-local (60%)**	**Married (50%)**	**Single (50%)**	**Family members @ 2 per worker**	**Total pop increase**	
	(number)						**(percent)**
Local area	16,132	40.8	20.4	20.4	40.8	81.6	0.51%
Toowoomba LGA	163,960	81.6	40.8	40.8	81.6	163.2	0.10%

Of note, the Toowoomba region includes the Jondaryan-Crows Nest Rosalie area (the local area), thus the total population increase in the Toowoomba region includes local impacts.

There is also likely to be an increase in population due to increased stimulation of businesses and the need for extra service personnel to meet the demands induced by the direct population increase. For additional information on this matter please refer to **Section 5.1.11** of the AEIS.

For the construction peak, up to 260 workers would be required. Assuming as the worst case that more workers could not be found in the region, these additional workers would be non-local, and would therefore represent an additional 124 temporary residents in the Toowoomba region. As the peak is relatively short, these workers are unlikely to relocate their families, and are therefore assumed for modelling purposes to be single status.

Housing implications are discussed in **Section 5.1.10.3.5** of the AEIS.

The Mine's current operational workforce is approximately 300 people. Should the revised Project proceed, the workforce is expected to increase to 338 people in 2018, and to a total of 435 people by 2024.

For operations, the updated assessment assumes (as did the draft EIS) that 70% of the workers could be found in the local or regional area, and 30% would move to the region from other areas. Assuming that 60% of the workers would be married with dependents, for the start-up of operations (requiring 17 non-local workers), this would see a population increase of about 13 people in the local area, and a total of 25 people in the Toowoomba region as a direct result of the revised Project (see **Table**

5.1.10-M). Against the 2016 baseline, this is an increase of approximately 0.08% in the local area, and 0.03% in the Toowoomba LGA as a whole.

Table 5.1.10-M Population increase – start-up operations

Operations start-up – 2018 = ~38							
Area	**2016**	**Non local (30%)**	**e (40%)**	**Married (60%)**	**y members**	**Total**	**crease**
	(number)						**(percent)**
Local area	16,132	5.7	2.28	3.42	6.84	12.54	0.08%
Toowoomba	163,960	11.4	4.56	6.84	13.68	25.08	0.03%

Peak operations would be reached in 2024, requiring a total additional workforce of 135 people. Using the same assumptions (30% non-local, 60% married and 2 dependents per married worker), this would see approximately 33 additional people in the area (45 people minus the 13 people added in 2018), and approximately 64 people in the Toowoomba region (89 people minus the 25 people added in 2018). Against the 2021 baseline, this is an increase of approximately 0.27% in the local area population, and 0.05% in the Toowoomba LGA as a whole. This is shown in **Table 5.1.10-N**.

The quantum of population changes is not expected to have a significant impact on the capacity of social infrastructure to meet local demands, the context of growth planned for the Toowoomba region over the next ten years.

Table 5.1.10-N Population increase – peak operations

Ops peak – 2024 = ~135							
Area		**Non-local 30%**	**Single**	**Married workers**	**y members**		**% increase**
	(number)						**(percent)**
Local area	16,563	20.3	8.1	12.2	24.3	44.6	0.27
Toowoomba	174,824	40.5	16.2	24.3	48.6	89.1	0.05

Please refer to **Section 5.1.11** of the AEIS for additional information on indirect population increases.

Construction Impacts

The updated assessment of population impacts during construction indicated that on average approximately 41 workers may move to the local area or live there on a part time basis. This would see the requirement for approximately 20 family homes and 10 additional shared homes to accommodate single-status workers (at 2 people per unit or house), for a total of 30 homes. At the regional level approximately 41 family homes and 20 homes to accommodate single status workers may be required (including those already counted in the local area).

Whilst some workers would purchase houses (and there are at least 200 dwellings currently available in the Oakey - Jondaryan area), TRC data (TRC, 2014) indicates that as at March 2013, the demand for houses was strongest for houses priced between $300,000 and $450,000, and there appears to a shortage of stock in this range available for purchase. Most construction workers are therefore likely to rent, given the shortage of housing stock under $500,000 and the time- limited period of employment.

At April 2014, there were 18 dwellings available for rent in Oakey (with a rental vacancy rate of 2.2%), and none in Jondaryan (SQM Research, 2014). There are occasionally dwellings for rent in villages such as Kulpi and Quinalow, however demand from workers settling locally during construction would overwhelm supply. The low vacancy rates are evidence of a 'landlord's market', so any increased pressure on housing stock is likely to increase rental prices, and therefore increase the proportion of local to moderate income families experiencing housing stress (paying more than 30% of their income in housing payments).

Construction workers will therefore be encouraged to rent dwellings across the Toowoomba region rather than focus on local towns nearest Acland. At April 2014, there were approximately 429 rental dwellings available in the Toowoomba region, which includes 19 postcodes (Postcodes include 4350,4352, 4354, 4355, 4356, 4357, 4358, 4359, 4360, 4361, 4363, 4364, 4400, 4401, 4402, 4403, 4404, 4407, and 4614). Vacancy rates ranged from 0.5% to 6.7%, but most postcodes had vacancy rates of less than 3%, which is indicative of the potential for price increases if demand increases.

The requirement for approximately 60 homes during construction across the Toowoomba region is equivalent to approximately 14% of the housing stock listed as available in April 2014. Given local demand (and low vacancy rates) Toowoomba is attractive to investors, and it's likely there will be some growth in rental housing stock during 2014 and 2015. As such, Toowoomba has some current capacity to meet housing needs for construction workers, however housing availability and any cost increases will need to be monitored to ensure the revised Project is not negatively affecting low income households, in order to consider the need for alternative housing strategies.

For the construction peak period (during 2016), there would be a short-term need to accommodate up to 124 additional workers in the region. Rental of properties in Toowoomba for or by workers would see a short term requirement for rental of approximately 62 dwellings. This may result in demand pull inflation rental housing prices, therefor NAC intends to encourage construction contractors to accommodate extra workers during the peak period in hotels, motels and units in Toowoomba, and Oakey.

In the Darling Downs region for the year ended June 2013, there were 112 short stay accommodation establishments (hotels, motels, short term units and boarding houses), with approximately 2,800 total rooms available. There was an average vacancy rate for the region of 34%, which would see an average of approximately 950 rooms available across the region. As such, there is capacity for 'peak' construction workers to be accommodated in short stay accommodation in the region (Tourism and Events Queensland, 2014). There is unlikely to be any displacement of other short stay accommodation users (and therefore no impact on tourism or business visitors), and construction workers are likely to bring a welcome boost to trade (including accommodation and hospitality) during peak construction.

Operations Impacts

For the start-up of revised Project operations in 2018, on the basis of assumptions outlined in **Section 5.1.10.3.5** of the AEIS, three or four homes would be required in the local area for families, and one or two homes would be required for single workers, for a maximum of six dwellings. At the regional level, and including local demands, operational start-up would see a requirement for seven family homes and two or three shared dwellings for single people, for a maximum of 10 homes (including those required in the local area.)

By 2024, the demand for homes for the revised Project employees would increase to approximately 32 homes, including 24 for families and six for shared accommodation. This is inclusive of the ten homes required at start up.

In the context of Toowoomba's housing availability, this is considered a negligible requirement and is not likely to impact on housing affordability in Toowoomba.

The Government Statistician's advice of September 2012 to TRC stated that there were approximately 3,940 hectares of broad hectare land suitable for residential development in the Toowoomba Region, and that this supply could yield some 21,000 dwellings (TRC, 2014). Revised Project's operational workers are likely to contribute to overall demand for new housing development in the Toowoomba region, but with no disproportionate effect on supply.

The revised Project could bring an additional 260 people to the Toowoomba region during construction, which is a negligible increase of 0.1% against Toowoomba's projected population for 2016. Operations start-up in 2018 would see a population increase of about 13 people in the local area and 25 people in the Toowoomba region as a whole. Against the 2016 baseline, these are also negligible increases of approximately 0.08% in the local area, and 0.03% in the Toowoomba region. Peak operations would see approximately 89 people added to the Toowoomba region.

Housing availability in the Oakey-Jondaryan area and adjacent localities is limited, however there is capacity (based on the April 2014 baseline of 429 rental dwellings in the Toowoomba, and a small number of dwelling available in the Oakey-Jondaryan area) to accommodate non-local construction workers. Housing availability and any cost increases will need to be monitored to ensure the revised Project is not negatively affecting low income households, in order to consider the need for alternative housing strategies. There is sufficient capacity in short stay accommodation across the Darling Downs to accommodate peak construction workers.

Housing demand for non-local employees for the revised Project is likely to be negligible at start up, and well within regional capacity by 2024.

5.1.10.3.6 Health

Issues relevant to health are discussed in **Section 5.1.8** of the AEIS.

5.1.10.3.7 Alignment with planning objectives

The Toowoomba Community Plan (the Community Plan) sets out the long-term vision, goals and priorities to strengthen the assets of the TRC area, and serves as the key driver for TRC's Corporate Plan and Regional Planning Scheme and other planning projects within Council (TRC, 2013). The Community Plan identifies a range of outcomes sought for the TRC Local Government Area. Key themes and outcomes relevant to social impacts of the revised Project are summarised in **Table 5.1.10-O**, along with the Project's alignment to the Community Plan's outcomes.

Table 5.1.10-O Alignment with Toowoomba Community Plan Outcomes

Theme	Outcomes	Project Alignment
Theme 1 - Settlement pattern		
Rural Landscape	Development within the rural landscape does not compromise primary production, and considers cultural, heritage, environmental biodiversity and water network values.	The draft EIS has outlined management of impacts on primary production, including the formation of the APC to manage land acquired for the revised Project and secure on-going farm based employment and agricultural production at the cessation of mining. Relevant sections of the draft EIS also outline management of impacts on visual amenity, cultural heritage, biodiversity and the water network. NAC will work with neighbouring property owners and community members to ensure revised Project's social impacts on agricultural uses can be avoided or mitigated.
Incompatible Land Uses	Avoid impacts arising from the development or intensification of incompatible activities.	NAC's acquisition of properties in and around Acland was undertaken to minimise impacts on residential and rural uses in the area. All acquisitions were completed on voluntary terms, with premium prices paid in many cases. NAC has a comprehensive consultation program which includes liaison with neighbouring property owners and where necessary development of property-specific plans to avoid impacts on neighbouring properties.
Theme 6 - Community Identity		
Rural Community Identity	Our diverse rural communities have a strong sense of place linked to individual local heritage, character and identity.	Agriculture and mining have been part of the region's growth since soon after European settlement. Currently, 228 of NAC's employees live in the Toowoomba region. The revised Project will provide for the continuation of their jobs, an additional 135 jobs over ten years and ongoing work for contractors and business, supporting the viability of rural towns.
Community Facilities and Services	Social, community and cultural infrastructure and services are planned, coordinated and delivered in a timely manner to support the regional settlement pattern and desired community outcomes.	The revised Project is likely to have minimal impacts on community facilities and services. NAC's community investment funding strengthens the capacity of community facilities and services as described in **Section 5.1.10.3.2** of the AEIS.
Urban Parks and Public Spaces	Public spaces and urban parks are integrated, accessible and high quality environments that create memorable places and promote interaction between people.	NAC has outlined its plans for the preservation and care of Acland's Tom Doherty Park and other urban spaces within Acland in its AMP.

Theme	Outcomes	Project Alignment
Theme 7 - Strong communities		
Learning Communities	Our communities embrace lifelong learning and forward thinking for the betterment of individuals and the community as a whole.	The revised Project is unlikely to make demands on education facilities and services, with the exception of accessing training services for its employees, and a small demand on school services from families who could move to the Toowoomba region, with up to 18 additional families at full production in 2024. CIF funding Project: Computer usage in Rural area. State schools, high schools and Parents and Citizens' Associations are regular recipients of NAC's community investment programs.
Health Services	The region's good quality and well-integrated health services, including associated social support services and environmental health services, meet the community's needs.	Oakey Hospital has advised that it has capacity to meet the needs induced by the revised Project, and local doctors are planning for expansion to their services to meet growing community needs. NAC's parent company NHG is a major sponsor for the CareFlight Rescue Helicopter service. Provisions of on-site Emergency Response Team.
Public Safety	Collaborative approaches to the prevention of injury, crime and property damage ensure the safety and security of our communities.	Data provided in **Section 5.1.10.3.1** of the AEIS indicates there has been no increase in crime in the Acland or Jondaryan area during the past ten years. The revised Project is not expected to have any impact on community safety or crime levels.
Social Capital	Our communities are vibrant and resilient and actively foster social interaction and inclusiveness through strong people networks.	NAC invests in social networks (including P&Cs, sporting clubs, cultural associations and heritage groups) through its CIF and Sponsorship and Donations Program.
Cultural Diversity and Heritage	Our communities value our cultural heritage and diverse backgrounds. We actively share our cultural heritage and intergenerational knowledge and skills.	NAC has outlined its plan for the preservation and care of cultural heritage and character elements in its AMP.
Aboriginal and Torres Strait Islander Engagement	Aboriginal and Torres Strait Islander peoples are actively involved in community planning and decision-making processes, with Aboriginal traditional owners engaged in business about their country.	Aboriginal and Torres Strait Islander peoples were consulted during the draft EIS. Ongoing engagement will continue through the project life and through their participation in the CRG.
Social Justice and Equity	Our diverse and family-friendly communities are defined by fairness, where every individual has equal opportunity and lives free of discrimination	NAC supports family-friendly communities through its social investments, and works with neighbouring landholders and community members to ensure social impacts are minimised.

Some Private Submitters believed that that the SIA conducted for the revised Project underestimated negative impacts, and that the significance evaluation did not take full account of negative impacts.

The SIA undertaken for the revised Project included an analysis of social impacts and benefits at multiple levels, from property owners neighbouring the revised Project, to communities that would benefit from economic and business opportunities, to State royalties and tax revenues. Significance evaluation considers the severity, duration and scope of social impacts in context with local, regional and broader values.

NAC acknowledges these concerns about the potential for noise, dust and amenity impacts. NAC's commitments to minimising, avoiding and mitigating potential impacts are described in **Appendix D** of the AEIS. They include, but not limited to veneering of coal train wagons (completed in 2013), decommissioning of the JRLF, continuation of a TARP based on real-time noise monitoring and adaptive management actions and consultation with Private Submitters who raised concerns about these issues.

NAC believes that, given the range of mitigation and communication mechanisms which will be applied by the revised Project, any impacts on residential amenity from noise, dust or other impacts can be managed appropriately.

In recognition of Acland's importance to community members, NAC has designed the revised Project to exclude Acland from the revised MLA. Through the implementation of the AMP, the majority of the social and cultural values will be preserved and maintained. For additional information on this matter please refer to **Section 5.1.7** and **Appendix I** of the AEIS.

At the regional level, concerns were raised about the potential for the revised Project employees to increase pressure on social infrastructure and housing in the Toowoomba region. Clarification of construction workers' origin and housing impacts is provided in **Section 5.1.10.3.5** of the AEIS. The potential for revised Project's construction workforce to impact on housing supply is noted, and further information on mitigation of these potential impacts is provided in the updated SIMP in **Appendix E** of the AEIS. **Section 5.1.10.3.5** of the AEIS has provided clarification on the number of non-local employees who may move to the local or regional area by 2024, and assessed the increases as minimal in the context of the Toowoomba region's planned growth.

This Section of the AEIS has also provided clarification of the opportunities and benefits of the revised Project proceeding. In summary, they include:

- continuation of current employment, contract arrangements and supply opportunities for local businesses;
- an increase in operational employment over time, with benefits accruing primarily within the Toowoomba region;
- maintenance and incremental growth of the population of rural towns in the Toowoomba region; and
- contributions to community cohesion, through maintenance of the population, and community investment funding to local and regional community organisations.

5.1.11 Economics

The following updates to the economic assessment are provided in response to additional information requested by the Coordinator-General.

For the purpose of the AEIS, the study areas for the economic modelling are as per those defined in the economic assessment (**Chapter 17** of the draft EIS). Unless otherwise stated, all other modelling assumptions are also as per those outlined in the draft EIS.

5.1.11.1 Notes on modelling approach

The Terms of Reference for the draft EIS did not specify a modelling approach which should be adopted for the economic assessment. Input-Output (IO) modelling was therefore selected as a commonly used tool within industry for estimating economic impacts for projects of this nature. This approach is most common for relatively small investments such as for the revised Project, which is an expansion of existing operations. An alternative tool, Computer Generated Equilibrium (CGE) typically requires relatively large 'shocks' (investment expenditure) to produce meaningful results.

Application of IO model

The model inputs have been informed by assumptions provided by the proponent. Key input included a detailed breakdown of project expenditure and estimated direct employment requirements. Given that this is an expansion of an existing project, this input data is based on prior experience and lessons learnt. As such, the direct economic output and direct employment estimates are reasonably certain if the revised Project goes ahead. However, as noted above, the estimates do not necessarily represent 'generated impact' but rather potential impacts if labour and resources are not constrained.

To improve the accuracy of the IO assessment, the following additional key assumptions have been captured in the model:

- Expenditure which is known to be imported from overseas locations has been removed from the revised Project's expenditure allowing for the assessment of potential impacts on the domestic economy only. In addition, a direct allocation of imports method is used. Therefore, where expenditure is allocated to industries with typically high dependencies on imports (such as for example, vehicle manufacturing), the IO model estimates impacts for the domestic economy only.
- Royalties and taxes have been excluded from the analysis as they represent a transfer payment.

The following sections outline adjustments to the estimate of impacts from the revised Project expenditure. **Section 5.1.11.5** provides an update to the impacts on agricultural land. All sections preceding this section exclude agricultural impacts from land acquisitions.

5.1.11.2 Update to estimates of economic benefits of the revised Project

The following tables provide adjustments to the estimates for the revised Project's contribution to economic output, value added, household income and employment in the regional study area, Queensland and Australia. The revised estimates are provided to account for the following changes:

- Removal of induced impacts from the modelling, which were previously provided in the Economic Assessment (**Chapter 17** of the draft EIS). This is adopted as a conservative approach to estimate economic benefits in line with recent assessments such as the Rolleston Coal Expansion Project, Economic Impact Assessment, 27-Nov-2013 (Prepared for – Xstrata Coal Queensland)
- Correction for an error to the previous value added approach estimate provided for the regional study area in **Table 17-11** of the economic assessment (**Chapter 17** of the draft EIS).

More detail is provided on these items below.

Table 5.1.11-A provides adjusted output impacts from construction and operation of the revised Project. The total output impact excludes induced impacts, and is estimated at approximately $1.9 billion in the construction phase and $12.5 billion in the operations phase (at a State and National level). From these estimates, a total of $547 million during construction and $3.26 billion during operation is estimated to be retained in the regional study area. **Table 5.1.11-A replaces Table 17-10 in the draft EIS.**

Table 5.1.11-A Output impacts

Region	Construction / Capital			Operations			Total Output Impact		
	Direct ($M)	Indirect ($M)	Total ($M)	Direct ($M)	Indirect ($M)	Total ($M)	Direct ($M)	Indirect ($M)	Total ($M)
Regional Study Area	250.8	295.8	546.6	1,255.7	1,459.9	2,715.6	1,506.5	1,755.8	3,262.2
Total Queensland	895.6	1,038.5	1,934.1	5,572.1	4,834.9	10,407.0	6,467.6	5,873.4	12,341.1
Total Australia	895.6	1,056.5	1,952.1	5,742.9	4,835.7	10,578.6	6,638.5	5,892.2	12,530.7

Table 5.1.11-B provides adjusted estimates of the revised Project's contribution to value added. The estimates are provided to replace **Table 17-11** of the economic assessment in the draft EIS, including to correct an error previously reported (relating to the estimate of total indirect value added impacts for the regional study area) and also for removal of induced impacts. The total estimated value added impact excluding induced impacts is estimated at approximately $724 million during construction and $5.89 billion during operation. From these estimates, a total of $263.1 million during construction and $807.8 million during operation are estimated to be retained in the regional study area.

Table 5.1.11-B Value added impacts

Region	Construction / Capital			Operation			Total Value Added Impact		
	Direct ($M)	Indirect ($M)	Total ($M)	Direct ($M)	Indirect ($M)	Total ($M)	Direct ($M)	Indirect ($M)	Total ($M)
Regional study area	165.4	97.7	263.1	338.7	469.2	807.8	504.1	566.8	1,071.0
Total Queensland	259.6	442.2	701.7	1,934.4	2,062.7	3,997.1	2,193.9	2,504.9	4,698.8
Total Australia	273.6	450.4	724.0	2,791.8	2,094.8	4,886.5	3,065.4	2,545.1	5,610.5

Note: In Table 17-11 of the economic assessment the indirect value added estimate for the regional study area was $1,852 million. This estimate is corrected in the AEIS.

Table 5.1.11-C provides adjusted estimates of supported employment impacts, excluding induced impacts. During construction, an average of 297 full time equivalents (FTEs) per year are estimated to be supported by the revised Project across Australia (directly and indirectly). Of these, a maximum of 105 FTEs per year are estimated to remain in the regional study area. During operation, an average of 1,556 FTEs per year are estimated to be supported by the revised Project, of which 1,107 are estimated to remain in the regional study area. **Table 5.1.11-C** is provided as a replacement to **Table 17-12** in the draft EIS.

It is important to note that the employment contribution is estimated based on the steps below:

1. Direct employment for the revised Project is equal to the information/forecast provided by the proponent for this assessment
2. Indirect employment is estimated using the regional IO model, and is based on an expenditure approach i.e. number of indirect FTEs per $1 million of expenditure

While the employment contribution is estimated using different methods, it is useful to consider the implied ratio of direct to indirect employment which emerges. The economic modelling for indirect employment indicates a ratio of 1.7 indirect FTEs for every FTE employed directly for the revised Project during construction (national) and 2.8 during operation (based on the total numbers for Australia). Other sources, such as the the economic impact assessment for the Carmichael Coal Mine and Rail Project EIS place the ratio at an average of 1.4 indirect FTEs for every direct FTE during operation, but are as high as 2.4 for some years.

Reasons for this difference is unknown without access to the assumptions underpinning the Carmichael Coal Mine and Rail Project EIS assessment. In particular, a comparison of the results cannot be made without more information on what industries the expenditure has been allocated to within the Carmichael Coal Mine and Rail Project EIS economic model. As the employment multipliers differ across industries, this will have an impact on the results of the economic modelling relative to other assessments, depending on the assumptions applied.

The differences in the estimates provided in this assessment for the indirect/direct employment ratios observed between the regional study area and the total for Australia can be attibuted in some part to differences in resource intensity required across regions (efficiency of output production) but also to the level of accuracy of the economic modelling, which diminsishes when the study area is smaller than the Australian economy, since the model is built from Australian IO tables.

Table 5.1.11-C Employment impacts (FTE/year)

Region	Construction / Capital			Operation		
	Direct	Indirect	Total	Direct)	Indirect	Total
Regional study area	22	83	105	392	716	1,107
Total Queensland	109	185	293	412	1,144	1,556
Total Australia	109	189	297	412	1,144	1,556

Table 5.1.11-D provides adjusted household income impacts for the revised Project, which exclude induced impacts. The maximum household income impact is estimated at approximately $356 million from construction/capital expenditure and $3.03 billion from operational expenditure over the life of the revised Project. When dividing the total household income estimates to derive a yearly estimate, compared to supported employment estimates, this indicates an average salary of approximately $58,824 per year from construction / capital expenditure and $76,923 from operational expenditure. These values are considered conservative. **Table 5.1.11-D** is provided as a replacement to **Table 17-13** in the draft EIS.

Of the estimated impacts, approximately $75.7 million is estimated to remain in the regional study area from construction / capital expenditure and $1.13 billion is estimated to remain in the regional study area from operational expenditure.

Table 5.1.11-D Household income impacts

Region	Construction / Capital			Operation			Total Household Income Impact		
	Direct ($M)	Indirect ($M)	Total ($M)	Direct ($M)	Indirect ($M)	Total ($M)	Direct ($M)	Indirect ($M)	Total ($M)
Regional study area	21.0	54.7	75.7	795.0	262.2	1,057.2	816.0	316.9	1,132.9
Total Queensland	119.9	228.2	348.0	1,853.1	1,094.0	2,947.2	1,973.0	1,322.2	3,295.2
Total Australia	126.9	229.2	356.2	1,921.9	1,105.6	3,027.5	2,048.8	1,334.9	3,383.7

5.1.11.3 Regional distribution of impacts

Figure 5.1.11-A depicts a summary of the regional distribution of the total economic impacts from construction / capital expenditure required for the revised Project, which is provided to replace **Figure 17-14** of **Chapter 17** of the draft EIS.

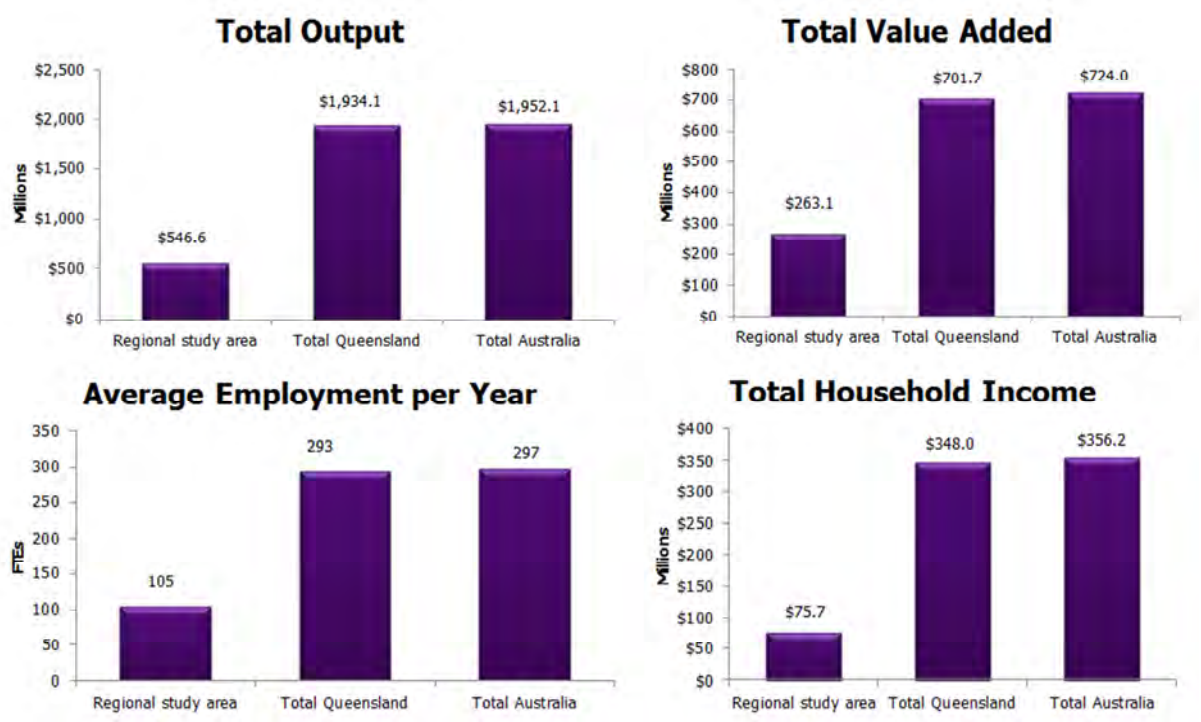

Figure 5.1.11-A Regional distribution of impacts from construction / capital expenditure

Figure 5.1.11-B depicts the regional distribution of the total economic impacts from the revised Project's operation, which is provided as to replace **Figure 17-15** of **Chapter 17** of the draft EIS.

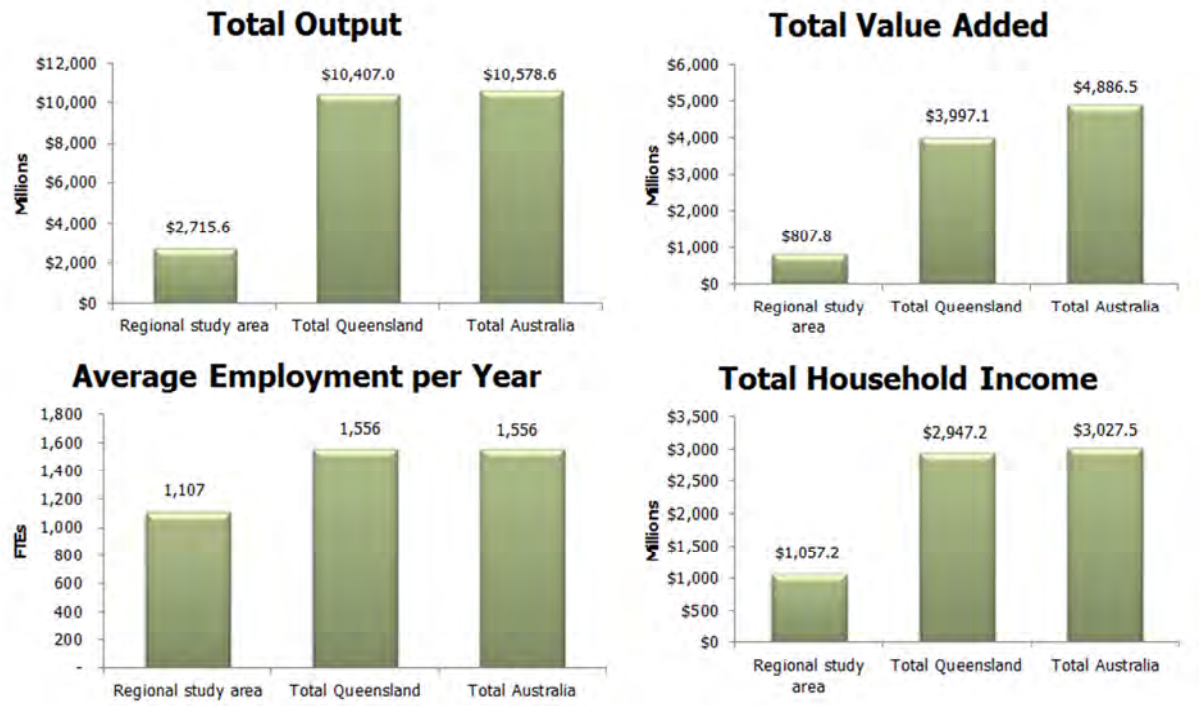

Figure 5.1.11-B Regional distribution of impacts from operational expenditure

Table 5.1.11-E outlines revised Project employment impacts (average per year) as a proportion of the total labour force in the local and regional study areas. **Table 5.1.11-E** is provided to replace **Table 17-14** in the draft EIS.

As the economic modelling has not been conducted for the local study area, it is necessary to apply some assumptions to derive an approximate contribution from the revised Project. These include:

- During construction, NAC estimates that 20% of the workforce will be sourced from the regional study area
  - It is unknown how many of the workers will reside in the local study area itself
- During operation, NAC estimates that 95% of the workforce will reside within the regional study area
  - A total of 35% of the workforce is assumed to reside within the local study area itself, as per existing levels of employment

Table 5.1.11-E Employment impacts as a proportion of the labour force

Impact	Proportion of labour force (local study area)	Proportion of labour force (regional study area)
Direct Revised Project Employment		
Construction	Unknown	0.02%
Operation	5.01%	0.36%
Total Revised Project Employment (including indirect impacts)		
Construction	Unknown	0.1%
Operation	5.01%	1.0%

Table 5.1.11-F outlines the revised Project's contribution to regional gross value added as a proportion of 2010-11 gross value added in the Darling Downs region. The contribution is measured as the average annual value added impact over the life of the revised Project, excluding induced impacts. **Table 5.1.11-F** is provided to replace **Table 17-15** in the draft EIS.

Table 5.1.11-F Contribution to regional value added (average/annum)

Impact	% of Darling Downs
Direct contribution to regional gross value added	
Construction	0.1%
Operation	0.2%
Total contribution to regional gross value added (including indirect impacts)	
Construction	0.1%
Operation	0.5%

5.1.11.4 Industry distribution of impacts

Table 5.1.11-G provides the approximate industry distribution of impacts per year from construction / capital expenditure. Impacts are provided as the total for Australia, including direct and indirect impacts. As previously discussed, the IO results are interpreted as supported economic contributions. Therefore the values below should not be interpreted as growth for a given industry, but rather as maximum assuming unlimited resources.

Table 5.1.11-G shows that impacts could flow to all industries in the economy. Although the direct revised Project expenditure is allocated to a small number of industries, the flows between industries to source goods and services required for the production process (indirect impacts) means that a range of industries are beneficiaries. For example, the agricultural industry could benefit by up to approximately $3.8 million per year, since the Australian direct requirements matrices indicate that the construction and manufacturing industries source goods and services from this industry as part of the production process. As expected, the construction and manufacturing industries are the biggest beneficiaries.

Table 5.1.11-G Average annual distribution of revised Project impacts by industry during construction

Industry	Output Impact ($M) per year	Value Added Impact ($M) per year	Household Income Impact ($M) per year	Employment Impact (Average FTE per year)
Agriculture, Forestry and Fishing	3.8	1.4	0.7	9.7
Mining	4.5	1.7	0.8	11.7
Manufacturing	29.9	11.1	5.5	77.4
Electricity, Gas, Water and Waste Services	9.6	3.6	1.7	24.8
Construction	22.9	8.5	4.2	59.4
Wholesale Trade	3.8	1.4	0.7	9.8
Retail Trade	3.2	1.2	0.6	8.2
Accommodation and Food Services	2.2	0.8	0.4	5.6
Transport, Postal and Warehousing	4.5	1.7	0.8	11.7
Information Media and Telecommunications	2.3	0.9	0.4	6.0
Financial and Insurance Services	7.3	2.7	1.3	18.8
Rental, Hiring and Real Estate Services	7.0	2.6	1.3	18.2
Professional, Scientific and Technical Services	6.1	2.3	1.1	15.8
Administrative and Support Services	2.5	0.9	0.5	6.5
Public Administration and Safety	0.6	0.2	0.1	1.6
Education and Training	1.0	0.4	0.2	2.6
Health Care and Social Assistance	1.3	0.5	0.2	3.3
Arts and Recreation Services	0.6	0.2	0.1	1.6
Other Services	1.7	0.6	0.3	4.4
Total Impact Per Year	**114.8**	**42.6**	**21.0**	**297.2**

Table 5.1.11-H provides the approximate industry distribution of impacts per year from operational expenditure. Impacts are provided as the total for Australia including direct and indirect, and should be interpreted as supported economic activity, not economic growth.

Like construction / capital impacts, impacts are expected to flow to all industries in the economy. For operations, the transport, postal and warehousing industry is a major beneficiary since all affected industries rely on transport as part of the production process. In addition, over 50% of direct revised Project expenditure during operation is required for road, rail and water transport.

Table 5.1.11-H Average annual industrial distribution of revised Project impacts during operation

Industry	Output Impact ($M) per year	Value Added Impact ($M) per year	Household Income Impact ($M) per year	Employment Impact (Average FTE per year)
Agriculture, Forestry and Fishing	12.1	5.6	3.5	23.1
Mining	59.0	27.2	16.9	112.8
Manufacturing	70.6	32.6	20.2	135.0
Electricity, Gas, Water and Waste Services	16.9	7.8	4.8	32.4
Construction	78.6	36.3	22.5	150.3
Wholesale Trade	27.6	12.8	7.9	52.8
Retail Trade	26.1	12.1	7.5	49.9
Accommodation and Food Services	17.9	8.3	5.1	34.2
Transport, Postal and Warehousing	191.8	88.6	54.9	366.8
Information Media and Telecommunications	21.6	10.0	6.2	41.3
Financial and Insurance Services	52.1	24.1	14.9	99.6
Rental, Hiring and Real Estate Services	60.2	27.8	17.2	115.1
Professional, Scientific and Technical Services	60.5	28.0	17.3	115.7
Administrative and Support Services	21.7	10.0	6.2	41.5
Public Administration and Safety	6.8	3.2	2.0	13.1

Industry	Output Impact ($M) per year	Value Added Impact ($M) per year	Household Income Impact ($M) per year	Employment Impact (Average FTE per year)
Education and Training	8.4	3.9	2.4	16.1
Health Care and Social Assistance	10.2	4.7	2.9	19.6
Arts and Recreation Services	5.2	2.4	1.5	9.9
Other Services	66.2	30.6	19.0	126.6
Total Impact Per Year	813.7	375.9	232.9	1,555.9

5.1.11.5 Economic impact on agricultural production

Economic impacts on agricultural production associated with acquisitions for the revised Project have been estimated based on information provided by the Acland Pastoral Company (APC) during the draft EIS stage. This information is outlined in **Table 5.1.11-I.** Of the total acquired land (7,840 ha) 6,376 ha is land previously used for grazing, 1,361 ha is cropping land (mapped as potential strategic cropping land or SCL) and 103 ha is woodland areas (remnant vegetation). **Table 5.1.11-I** is consistent with **Table 17-16** in the draft EIS.

Within the total acquired land, not all of the land is actually impacted by the revised Project. The APC estimates that up to 5,376 ha of the acquired grazing land located outside the disturbance footprint will still be available for grazing. As such the total impacted grazing land is estimated at 1,000 ha of the 6,376 ha of the acquired grazing land. The total impacted SCL is estimated at 1,361 ha, and comprises mixed uses of sorghum, mung beans, sunflowers, maize and wheat, which have been distributed evenly across the impacted area. 2,500 pigs from piggeries on site were also disturbed from acquisition for the revised Project. Socio-economic impacts of changes to remnant vegetation (total of 103 ha acquired) have not been estimated.

Table 5.1.11-I Impacted land

Impacted Land	Impact Type	
Total acquired land	7,840 ha	
Total woodland (remnant vegetation)	103 ha	
Total potential SCL Total impact on potential SCL	1,361 ha 1,361 ha	Equal proportions of sorghum, mung beans, sunflowers, maize and wheat
Total grazing land Total impacted grazing land	6,376 ha 1,000 ha	Approximately 500 heads of cattle (Approximately 1 head of cattle per 2 ha)
Impacted pigs (no.)	2,500 pigs	

Economic impact on agricultural production during the life of the revised Project

Table 5.1.11-J is provided to replace Table 17-17 in the draft EIS and provides the total estimated gross value of impacted agricultural production. The estimates are derived using ABS value of agricultural production in the Toowoomba Regional Council, and use the average gross value per ha of impacted crops, the average gross value per head of grazing cattle (meat production) and the average gross value per pig (from the 2011 Agricultural Census). The total output impact per year (gross value) is estimated at $2.3 million per year (March 2014 dollars- in the draft EIS, the total impact was presented in June 2013 dollars. The total impact was updated for the AEIS in line with more recent price consumer price index data published by the ABS), or $37 million over the life of the revised Project.

Table 5.1.11-J Estimated impact on agricultural output (gross value) per year

Impact type / Price year	$June 2011	$March 2014
Cropping	$1,266,414	$1,345,565
Grazing	$100,516	$106,798
Piggeries	$863,032	$916,971
Total	$2,229,961	$2,369,334

The direct employment impact associated with the estimated reduction in agricultural output during the life of the revised Project has been estimated using the regional IO model developed for the draft EIS. Direct employment multipliers were estimated for the Sheep, Grains, Beef and Dairy Cattle industry (cropping and grazing impacts) as well as the Poultry and Other Livestock industry (Piggeries impact).The total direct employment impact is estimated at approximately 13 FTEs per year. The indirect employment impact is estimated at approximately 8 FTEs per year. These numbers are presented as updates to the numbers provided in the draft EIS. In the draft EIS, the employment multipliers used to estimate the employment impact were Queensland multipliers rather than regional multipliers, since IO modelling for a smaller region becomes more uncertain. The regional multipliers have been used in the AEIS to represent a worst case scenario (the impact is higher than previously estimated).

Economic impact for loss of potential agricultural production after decommissioning of the revised Project (opportunity cost)

During de-commissioning of the revised Project, it is expected that the majority of impacted agricultural land will be returned to a condition which is suitable for grazing. Where land was previously marked as SCL, there is an ongoing economic cost from the change in land use since grazing has a lower economic value than cropping. The opportunity cost is equal to the value of cropping minus the value of grazing. It is also expected that land use previously used for piggeries will be returned to a state suitable for grazing. For these areas, only the number of displaced pigs is known and the total land size is unknown, therefore the value of grazing cannot be calculated. As a conservative measure, the full opportunity cost of the loss of piggeries is assumed.

In addition, while the majority of impacted land is returned to a useful state, approximately 457 ha are estimated be voided as a result of the project. The opportunity cost of voided land is equal to the full value of cropping.

The total ongoing opportunity cost after the revised Project's decommissioning is equal to the opportunity cost of change in land use from SCL to grazing plus the opportunity cost of voided SCL.

Table 5.1.11-K provides a description of impacted land which will be converted from SCL land to grazing, as well as voided SCL land.

Table 5.1.11-K Change in SCL land suitability after revised Project decommissioning

Land use	Ha	Future land use after revised Project decommissioning
SCL change in land use	923.5	Grazing
SCL voided	437.5	Void
Total Impacted SCL	1,361	Grazing / Void

Note: The remainder of the total void area is mapped as remnant vegetation.

The opportunity cost for a change in land use has been estimated based on the difference between the values of SCL per year compared to the value of grazing per year.

Table 5.1.11-L provides assumptions which have informed the estimate of opportunity costs from the change in land use. The approach for estimating the total economic opportunity cost for a change in land use from SCL to grazing is outlined below.

1. The total estimated opportunity cost per year after the revised Project rehabilitation was estimated as the difference between the value of SCL and Piggeries less the value of grazing (i.e. (SCL economic value – grazing value) + (Piggeries economic value – grazing economic value)). This estimates the difference in economic value associated with a change in land use

2. The ongoing opportunity cost was calculated utilising the economic theory of perpetual annuities. An annuity represents a fixed economic value at regular intervals (i.e. the annual opportunity cost of change in land use). A perpetual annuity indicates that there is no end date, or the impact is indefinite. The economic formula which is utilised to calculate the value (which is expressed in present value terms to account for the time value of money) is the total annual impact divided by an appropriate discount rate. The discount rate selected for the analysis was 7% (This discount rate was proposed by the Department of State Development, Infrastructure and Planning).

The total estimated ongoing agricultural impact is in addition to the agricultural cost during the life of the revised Project. These estimates have not been subtracted from the total revised Project contribution.

Table 5.1.11-L Ongoing economic opportunity cost of impacted agricultural land

Impact / assumption	Value
Annual value of SCL which will be converted to grazing (based on the proportion of converted land and the annual value in Table 5.1.11-J) ($March 2014)	$1,345,565
Total SCL Area which will be converted to grazing (ha)	923.5
Total estimated grazing cattle per ha (heads)	0.5
Total heads of cattle for previous SCL	462
Total value of cattle grazing per year on previous SCL ($March 2014)	$92,824
Total Opportunity Cost per Year (SCL less grazing value) ($March 2014)	$820,176
Total ongoing opportunity cost of SCL converted to grazing land (discount rate 7%) ($March 2014)	$11,716,793
Total Opportunity Cost per Year of Piggeries (based on total annual impact during the revised Project's lifecycle, assumes full opportunity cost) ($March 2014)	$863,032
Total Ongoing Opportunity Cost (discount rate 7%) ($March 2014)	$12,329,025
Total ongoing opportunity cost for change in SCL to grazing ($March 2014)	**$24,045,819**

The total estimated opportunity cost for voided SCL is provided in **Table 5.1.11-M**.

Table 5.1.11-M Economic impact of voided agricultural land

Impact / assumption	Value
Total voided SCL (ha)	437.5
Annual value of voided SCL ($ March 2014)	$432,565.5
Total Ongoing Opportunity Cost for voided SCL (discount rate 7%) ($March 2014)	**$6,179,506.5**

Table 5.1.11-N provides the total economic impact of change in land use plus voided agricultural land, which is estimated at just over $30 million.

Table 5.1.11-N Total agricultural economic cost after revised Project decommissioning

Impact / assumption	Value ($March 2014)
Total ongoing opportunity cost for change in SCL to grazing ($March 2014)	$24,045,819
Total Ongoing Opportunity Cost for voided SCL (discount rate 7%) ($March 2014)	$6,179,506.54
Total agricultural opportunity cost after revised Project decommissioning	**$30,225,325**

The associated total employment impact has been estimated using the regional employment multipliers from the IO model. The direct annual employment impact is estimated at 12 FTEs per year

and the indirect impact is estimated at 7 FTEs per year. The impacts include loss in cropping output as well as piggeries ouptut.

Importantly, as a result the NHG's sustainability vision and holistic approach to land management within the Acland district, the APC will continue to manage the post mined and surrounding land as an agricultural enterprise into the future, which will secure on-going farm based employment and agricultural production at the cessation of mining in the Acland district. The APC as a larger farming business in the Acland district will also possess the advantage of 'economies of scale' through the amalgamation of smaller farm blocks that were no longer economically viable on an individual basis and were potentially being managed in a detrimental manner as a result of income pressures to meet the daily cost of living. This trend in the growth of farm size to increase profitability is consistent with current trends in recent within the agricultural sector (Hooper et al. 2002) and will become a significant factor for the agricultural sector with the continued push to improve Australia's agricultural production into the future and as small family-owned and managed farms continue to struggle within the current economic circumstances (e.g. poor commodity prices and increasing farm costs).