2. Description of the Project

2.1 Key Elements of the Project

New Acland Coal Pty Ltd (NAC) currently operates the New Acland Coal Mine, a 2.5 million tonnes (saleable coal) per annum (Mtpa) open cut coal mine on Mining Lease (ML) 50170 within Mineral Development Licence (MDL) 244, under the approval of Environmental Authority (EA) No. MIM800129603 (non-standard mining activities).

The New Acland Coal Mine Stage 2 Expansion Project ('Project') involves the expansion of the mine producing thermal coal for the export and domestic markets. An increase in production from 2.5 Mtpa (from approximately 4 Mtpa ROM Coal) up to 4 Mtpa (from approximately 7.4 Mtpa ROM Coal) product coal is planned. A production rate of 4 Mtpa would give a mine life of coal production until approximately 2021.

The key elements of the Project are:

- expansion of the existing mining activities by the addition of the South and Centre Pits resource areas within Mining Lease Application (MLA) 50216 to the existing North Pit on ML 50170.
- total production up to 4 Mtpa product coal;
- tailings disposal within the existing Tailings Storage Facility (TSF) on ML 50170 to be extended to the southeast, and also possibly within cells in the back filled mine pits;
- coarse rejects will be disposed of in the backfilled mine pits as operations progress;
- an 'out-of-pit' waste dump associated with the South Pit; and
- a mine surface water management system involving various water management structures;
- upgrade of the existing heavy vehicle workshop and mine administration buildings;
- addition to the existing coal handling and preparation plant (CHPP) of a new module; and
- progressive upgrade the Jondaryan-Muldu Road to handle the expected increase in haulage and vehicle traffic to the Jondaryan rail siding.

The main elements of the Project are shown in **Figure 2-1**. The coal mining, preparation and transport process is shown in **Figure 2-2**.

2.2 Project Need

Queensland's mining industry contribute approximately 10.2% of Gross State Product or $9.4 billion per year to the State economy. Mining and minerals processing activities directly and indirectly generate 86 000 full-time equivalent jobs or 7.2% of total employment in the State. Coal is required to continue to meet the expanding demands of the electric-power industry in Australia and overseas.

The Project will supply high quality, low sulphur coal that will produce lower greenhouse emissions than many alternative coal sources and hence improve environmental outcomes. As individual coal resources become depleted, it is necessary to develop other mines or expand existing operations to maintain production and meet customer requirements.

This also enables efficient and economic use of infrastructure such as railway lines and coal terminals. The coal produced from the expansion would also replace decreased output from New Hope Coal Australia (NHCA)'s New Oakleigh and Jeebropilly Mines located in the West Moreton region of southeast Queensland.

An investment of approximately $60 million will be required to bring the Project to full production. The Project will contribute $200 million per annum to Gross State Product and support employment for up to approximately 180 people (direct and indirect, full time and part time).

NHCA is the sole supplier of coal to the Swanbank Power Station, near Ipswich. Currently, approximately 90% of this coal is supplied by NHCA's New Acland Coal Mine. It is envisaged that this supply rate from New Acland Coal Mine will grow to 100% in the future as NHCA's West Moreton Operations exhaust their coal reserves.

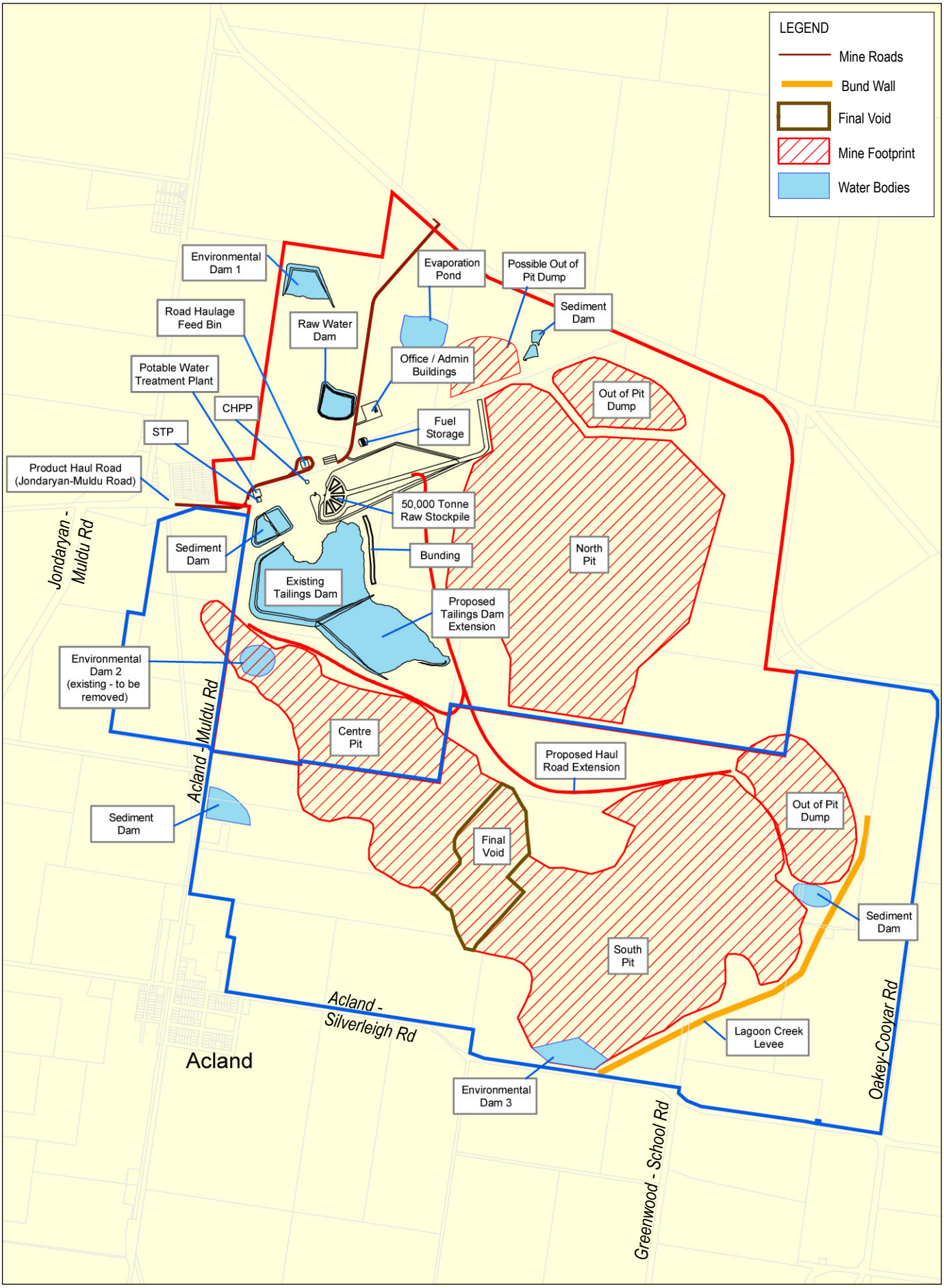

Figure 2-1

New Acland Project Layout

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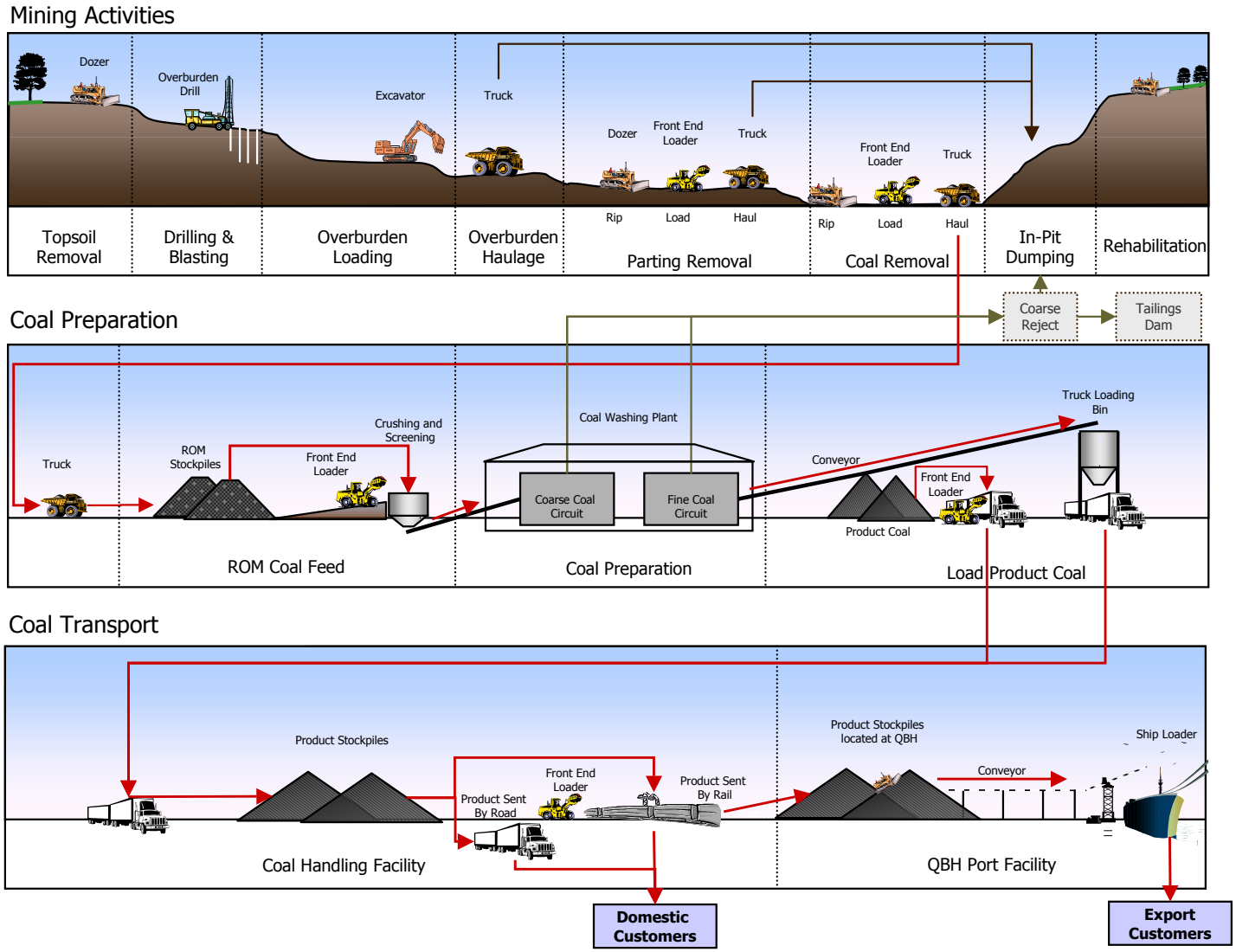

Figure 2-2

New Acland Coal Mining, Preparation and Transport Process

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The Project will allow:

- NAC to maintain and improve its market share and profitability;
- the Government to increase its revenue from royalties, freight charges, taxes and other charges;
- generation of employment and income for workers and support contractors; and
- an increase in demand for secondary support industries and service suppliers.

2.3 The Coal Mine

2.3.1 Coal Resources and Coal Reserves

The Project involves the on-going development of the existing North Pit on ML 50170 and the commissioning of two additional resource areas – South and Centre Pits. The three pits will be developed sequentially to supply up to 4 Mtpa of saleable product coal per year until 2021 to both the export and domestic markets. Fifty-five percent of the saleable product coal is exported, while the remainder supplies local domestic markets.

The Project area has been the subject of extensive drilling programs by New Hope Coal Australia and previously Shell Coal Australia Ltd.

The total mining reserves for the three pits calculated on a working section basis for the three pits is shown in **Table 2-1**.

Table 2-1 Project Product Coal Reserves – Stage 2 Expansion (North, South and Centre Pits)

Parameter	Value
Tonnage	64 million product tonnes
Ash Content	Variable – 9-23%
Specific Energy	25-30 GJ/t
Sulphur Content	0.5%
Total Coal Moisture	8%
Waste Volume	240 million bcm (bank cubic metres)
Total Mining Area	Approximately 430 ha
Strip Ratio (waste bcm to product tonnes)	6 to 1

Three major coal seam sequences have been identified within the Walloon Coal Measures at Acland. These are, in descending stratigraphic order:

- Waipanna;
- Acland-Sabine; and
- Balgowan.

The principal coal seam sequence is the Acland-Sabine Sequence, which typically comprises 20 to 30 m of alternating coal and waste rock (interburdens), of which approximately half consists of coal.

The Waipanna Sequence is located 20 to 40 m stratigraphically above the Acland-Sabine Sequence and the Balgowan Sequence is located some 30 m stratigraphically below the Acland-Sabine Sequence. **Figure 2-3** provides a generalised composite stratigraphic section of the areas to be mined.

Six coal seam groups are recognised in the Acland-Sabine Sequence. In descending stratigraphic order the seam groups are A, B, C, D, E and F. The seam groups are 1 to 3 m thick and are separated by laterally persistent interburdens.

The four main deposits defined within the Acland-Sabine Sequence are the Glen Roslyn, Manningvale, Sabine and Willeroo. The coal seams are continuous at depth, however mining limits based on strip ratio mean that the deposits are separated by physical barriers such as faulting, surface basalt flows and coal quality constraints.

The Acland-Sabine Interval is characterised by coal seam and interburden continuity. Continuity of coal seams, intra seam partings and seam interburden is a feature of the Walloon Measures and can be demonstrated in the highwalls of other open cut mines currently operating in the Walloon Coal Measures such as Jeebropilly, Wilkie Creek and the existing New Acland Coal Mine.

The average total insitu coal thickness of the Acland-Sabine sequence (A-F seams) is approximately 13 m with the average thickness of individual seams being 0.25 m.

The variability of overburden thickness between the seam groups decreases up the sequence, as does the grain size of the sediments, which indicates upwards quiescence. The A-F seam groups are separated by interburden material generally < 1 m thick. The C-F seam groups can be separated by up to 20 m of sandstone.

The raw coal ash of the seams is variable. Raw coal ash is a function of the inherent coal seam ash and the thickness of the non-coal bands within the seams.

The coal mine resource is shown in **Figure 2-3**.

2.3.2 Resource Utilisation

The Project will not impact on other coal, gas and mineral resources in the region surrounding New Acland Coal Mine. The closest known coal resources exist within MDL 244 and may be developed by NHCA in the future depending on economic and other issues. The progression of the Project will not impinge on the future development of these coal resources.

Current knowledge suggests that there are no significant resources of coal seam methane that will be lost by the development of the Project. No coal seam methane is known to occur in the Acland area at the depths at which NAC currently open cut mines and no significant geological features associated with coal seam methane occurrences exist within the Project area. Economic and production factors will ensure that the Project will be developed to minimise coal resource wastage and sterilisation.

2.3.3 Mining Tenures

NAC has applied for MLA 50216 within MDL 244, adjoining the southern and western boundaries of the existing ML 50170. **Figure 2-1** shows ML 50170, MLA 50216, and the current and proposed open cut pit layout.

2.3.4 Mining and Rehabilitation

2.3.4.1 Mining Sequence

The North Pit operations currently produce coal at a rate of 2.5 Mtpa. The mining method is a truck and shovel operation with an excavator mining the overburden and partings, and two loaders mining the thin partings and the coal. The coal is transported to the Run-of-Mine (ROM) Pad for processing, with the waste rock material dumped back in-pit to progressively fill the void behind the operating pit.

Current operations will continue in the North Pit until approximately 2015. It is proposed to commence mining in the South Pit during early 2007, with the Centre Pit commencing in 2015.

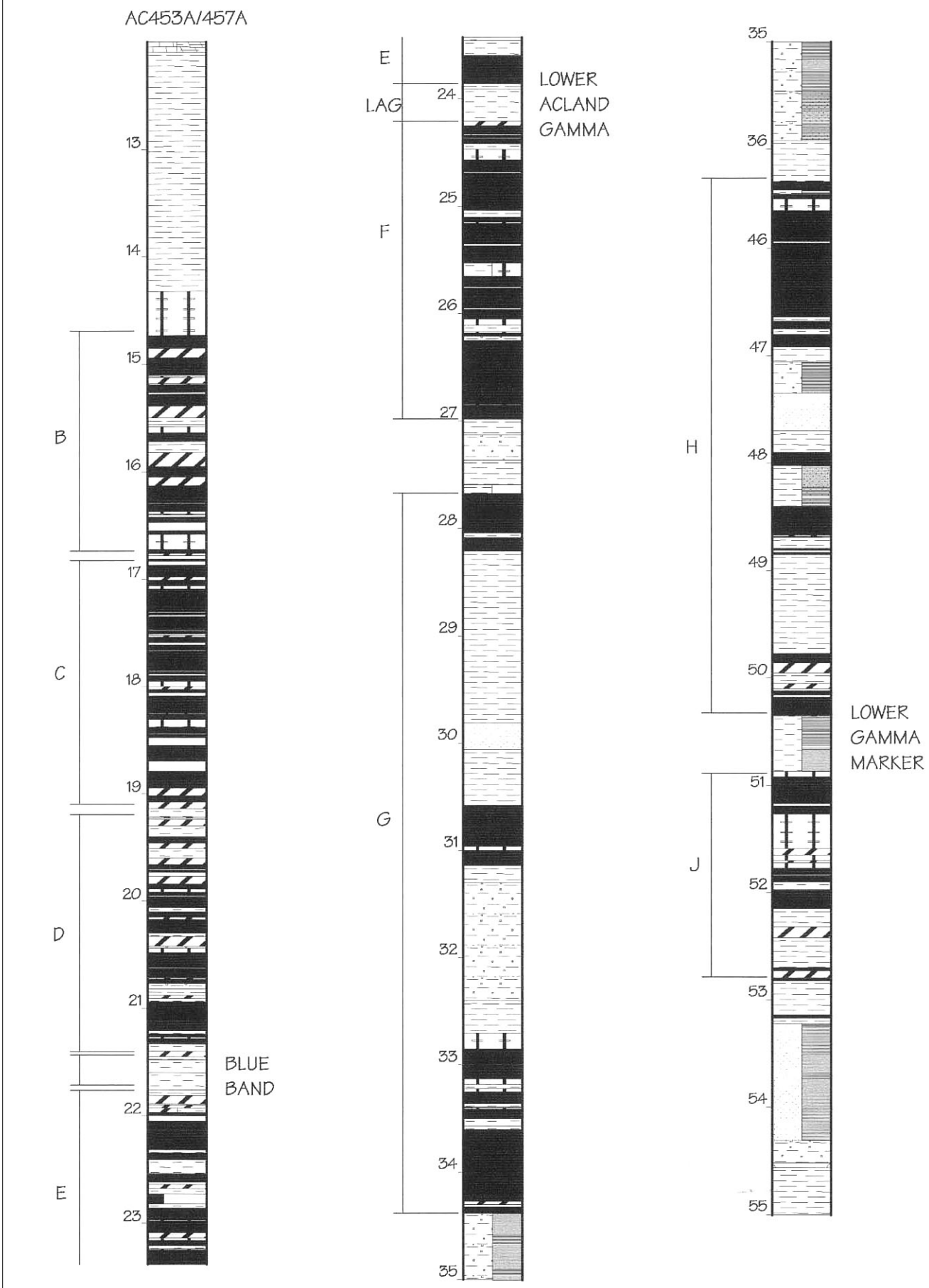

Figure 2-3

Acland - Sabine Sequence Stratigraphy

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A strip mining process based on a block extraction system is currently employed at the North Pit to allow the blending of different quality coals to meet product specification. It is proposed that the same method of development will be applied to the South and Centre Pits. The mining sequence is shown in **Figure 2-4**. An example of pit cross sections is shown in **Figure 2-5**.

To provide adequate coal access and to provide opportunities for coal blending, an average of six consecutive blocks will operate at any one time. Block size will be typically 150 by 150 metres. This would facilitate the blending of different quality coals to meet product specification.

A conventional open cut truck and shovel mining operation is to be continued. The mining fleet used will be expanded to facilitate the proposed increase in production. Equipment to be used will include excavators, front-end loaders, scrapers, dozers, graders and rear dump trucks. Ancillary equipment used will include light vehicles, service trucks and water trucks.

Two production units will be involved in mining the North Pit and South Pit simultaneously. A 2 Mtpa product coal production level will be sustained in the North Pit with a 2 Mtpa product coal production rate being achieved from the mining of the South Pit. The South Pit will initially require an out of pit spoil dump with an estimated dumping volume of 11.5 Mbcm. As mining progresses in the South Pit, the ex-pit dumping volume will be minimised by reverting to dumping in-pit, once enough floor area is available.

Mining will progress in both the North Pit and the South Pit at the 4 Mtpa combined product coal production rate until all reserves have been mined in the North Pit at 2015. The Central Pit will be developed with the material being used to backfill the final void of the North Pit.

Mining will progress in the Centre and South Pits for the remaining mine life. These two pits will eventually join together at the completion of operations. A final void of approximately 50 ha will be located at the site where these two pits meet. For this reason there will be a minimal length of exposed highwall, with the majority of the final void perimeter being backfill. The void will be partially backfilled on the outer edges with the pit floor being exposed in the centre of the void. The pit floor within the final void will range from 40 to 60 m in depth from the natural topographic surface.

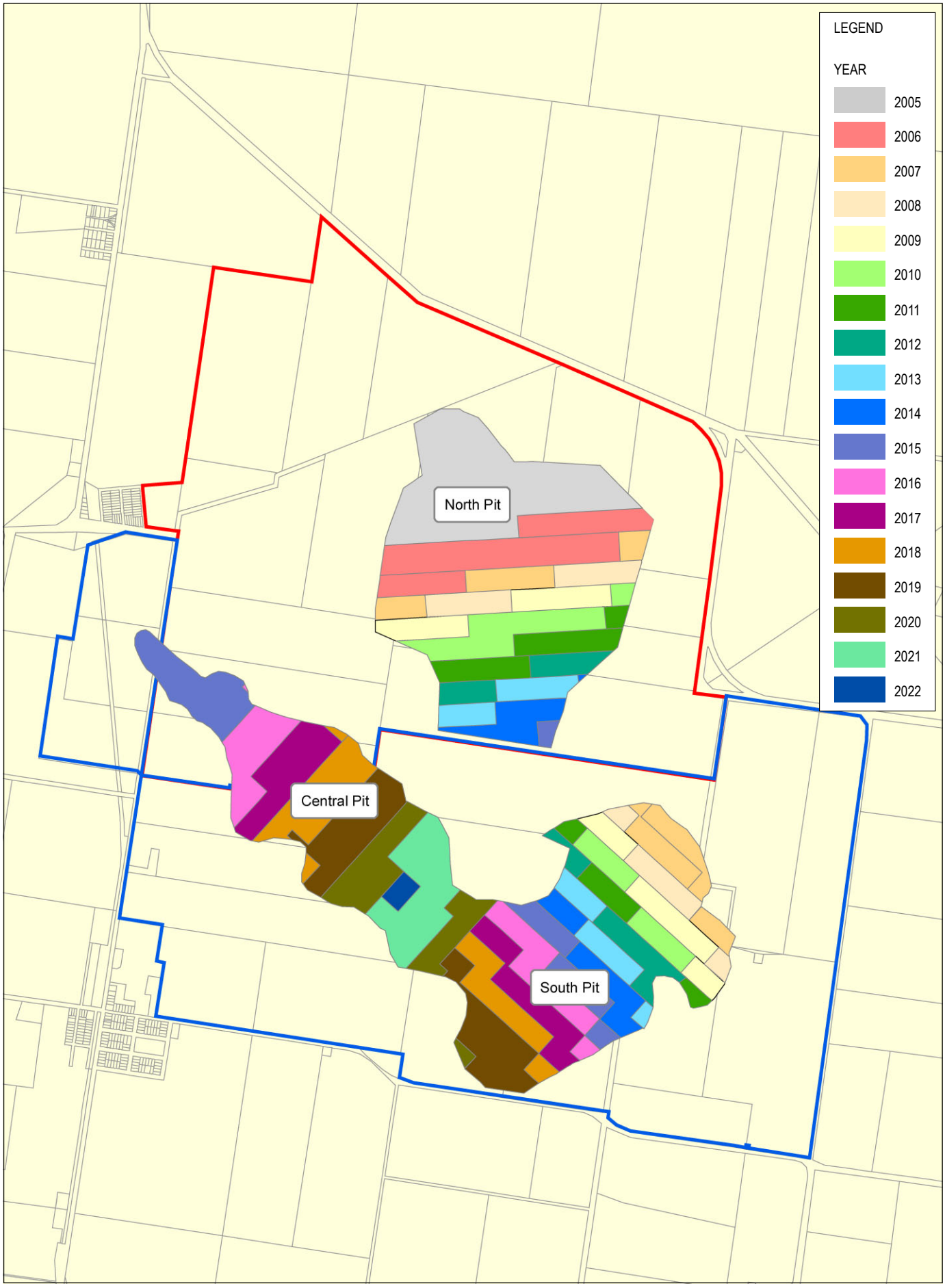
The projected pit lives are subject to changes based on alterations to planned mining rates and the continued refinement of the economic mining models for each pit as mining progresses.

The overall stripping ratio of waste (bcm) to coal (product tonnes) of the current life of mine plan is 6 to 1. *In-situ* overburden densities (t/bcm) vary with material type.

If required, an additional out-of-pit dump may be constructed in the North Pit area to the east of the Raw Water Dam. The proposed dump area was originally designed for Stage 1 of the Project. Construction of this additional out-of-pit dump will only result if significant changes to the current mine plan/schedule are required.

The proposed mine development sequence is illustrated in **Figure 2-6** to **Figure 2-9**:

- **Figure 2-6**, which depicts the site at 2007, where mining in the South Pit has commenced and the associated out of pit dump has been developed;
- **Figure 2-7**, which depicts production at 2015 including mining in the Centre Pit;
- **Figure 2-8**, which depicts the site at 2020; and
- **Figure 2-9**, which shows the final rehabilitated landform.



NEW HOPE COAL AUSTRALIA

N

0 250 500 1000

metres 1:35,000

LEGEND

Existing Mine Lease ML 50170

Proposed Mine Lease MLA 50216

Property Boundaries

Figure 2-4

New Acland Mine Sequence

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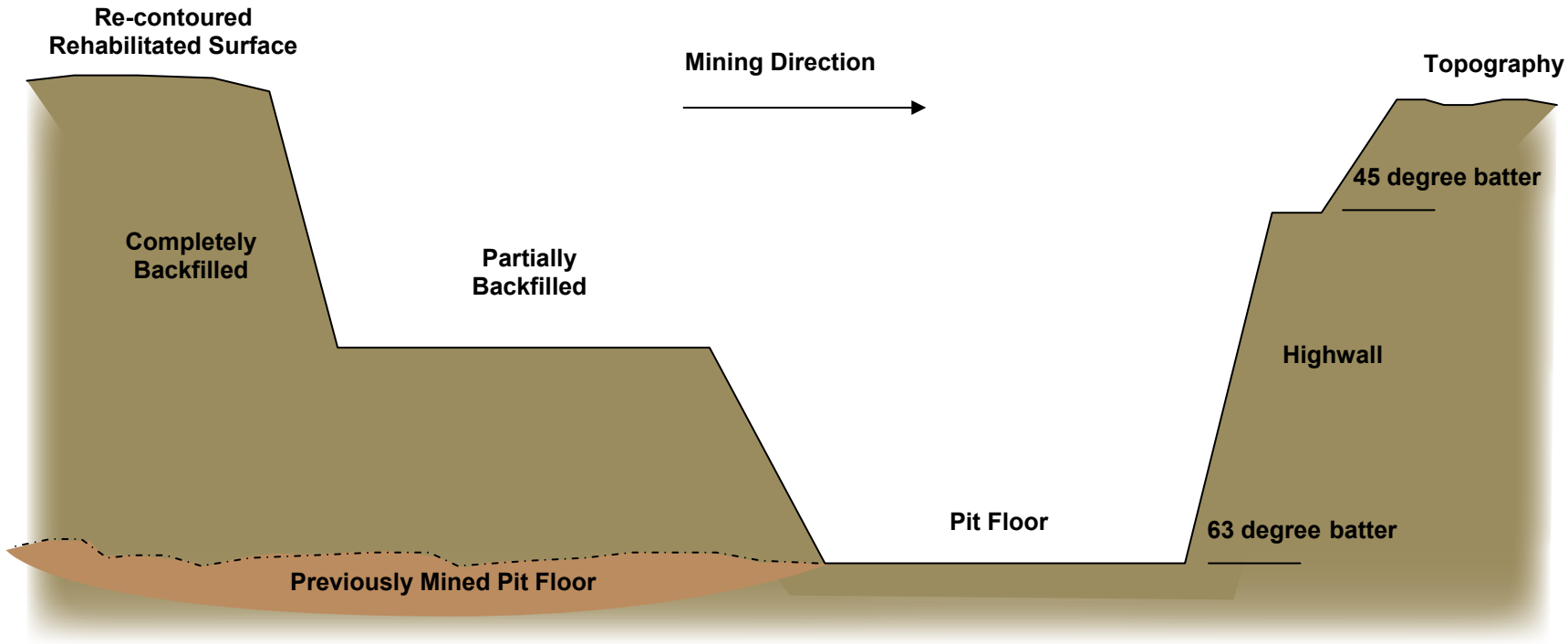

Figure 2-5

Working Cross Section through Pit

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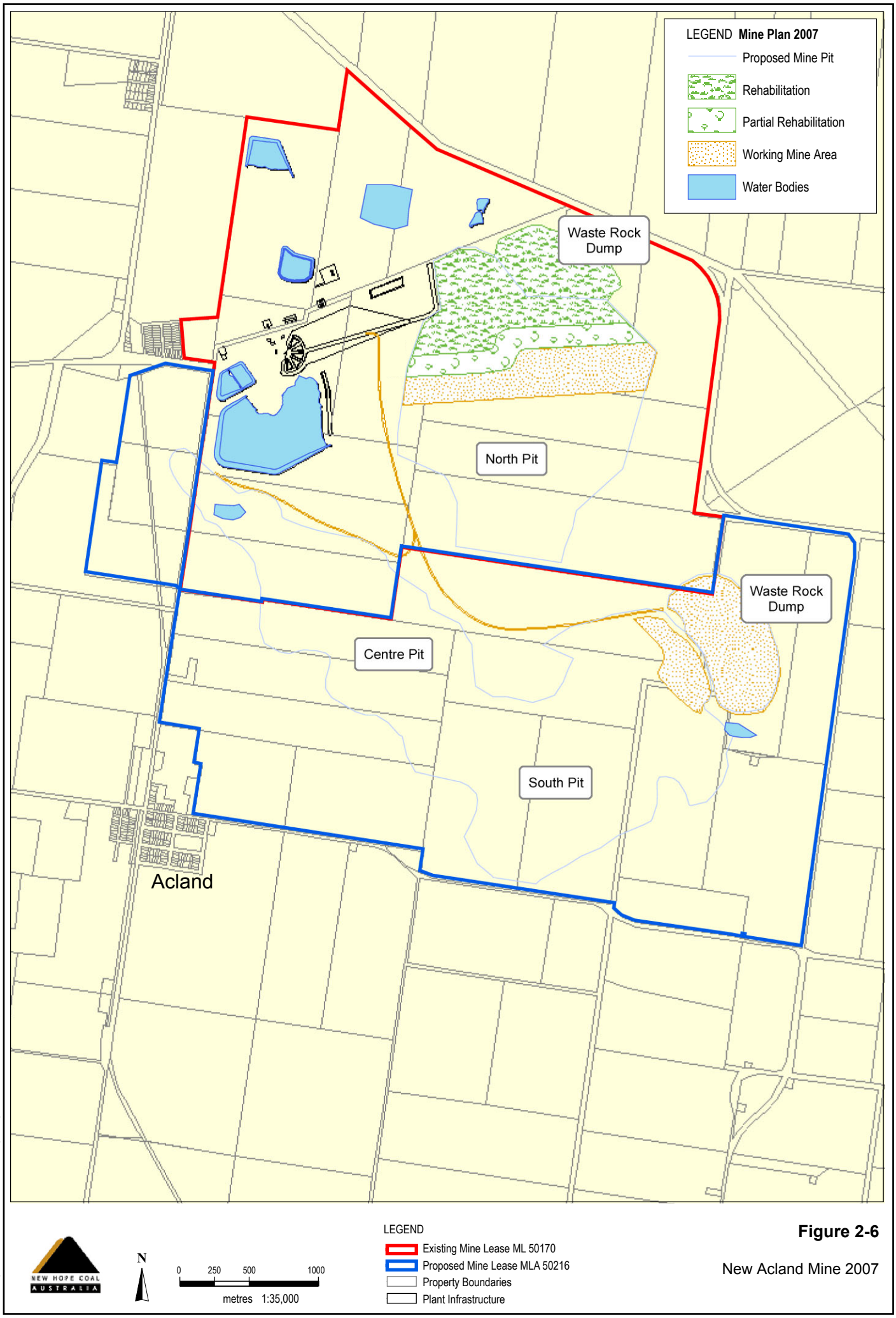

Figure 2-6

New Acland Mine 2007

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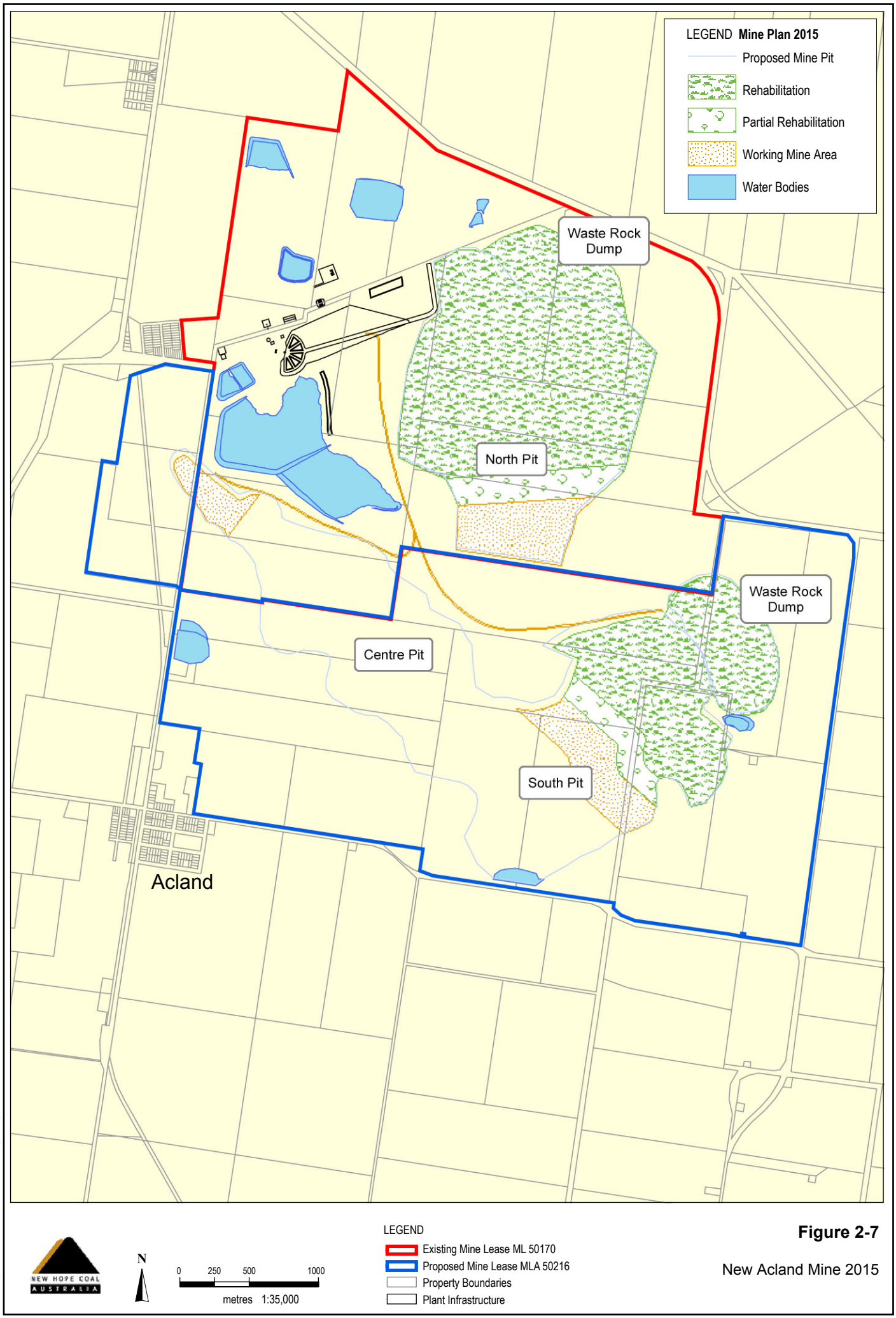

Figure 2-7

New Acland Mine 2015

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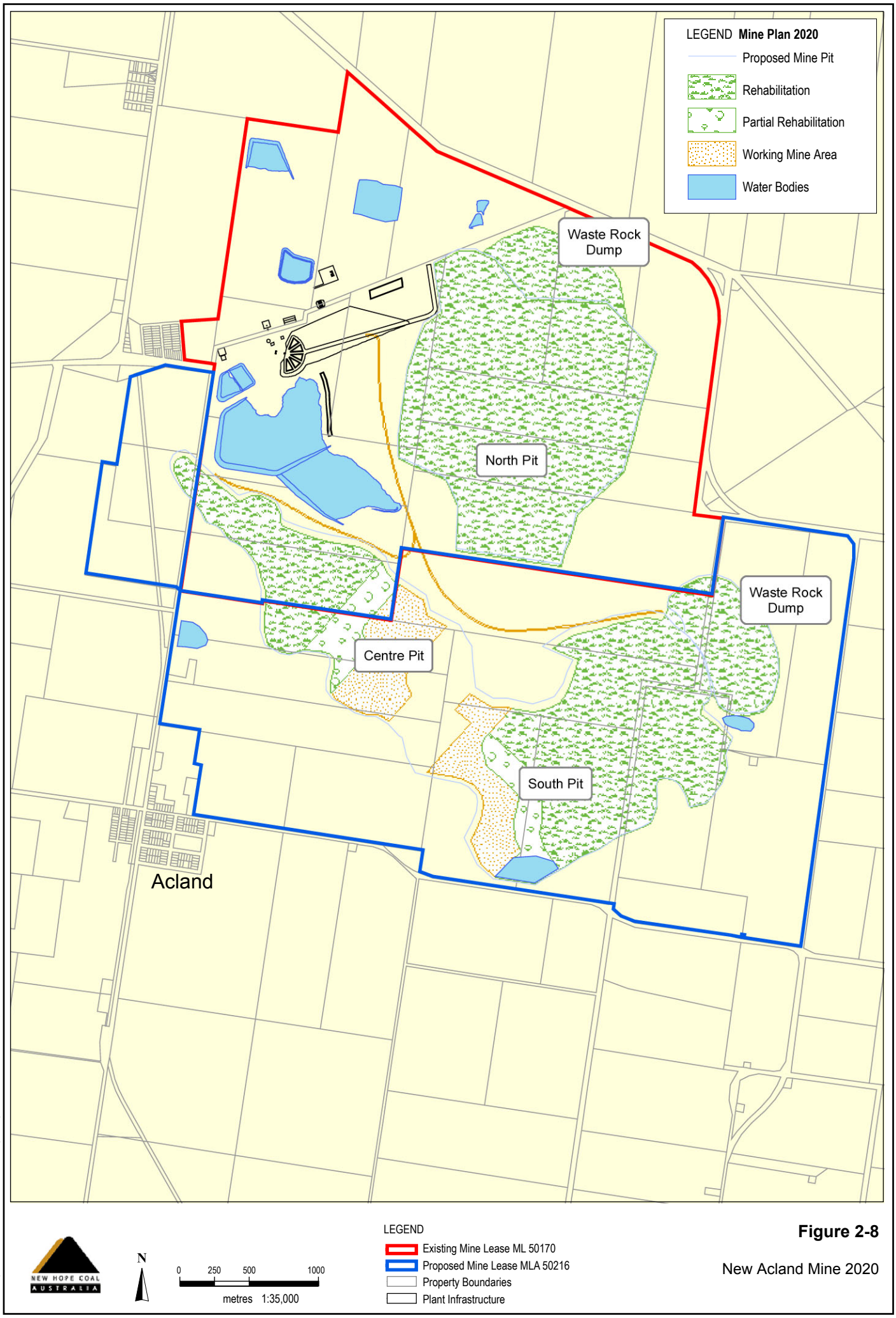

Figure 2-8

New Acland Mine 2020

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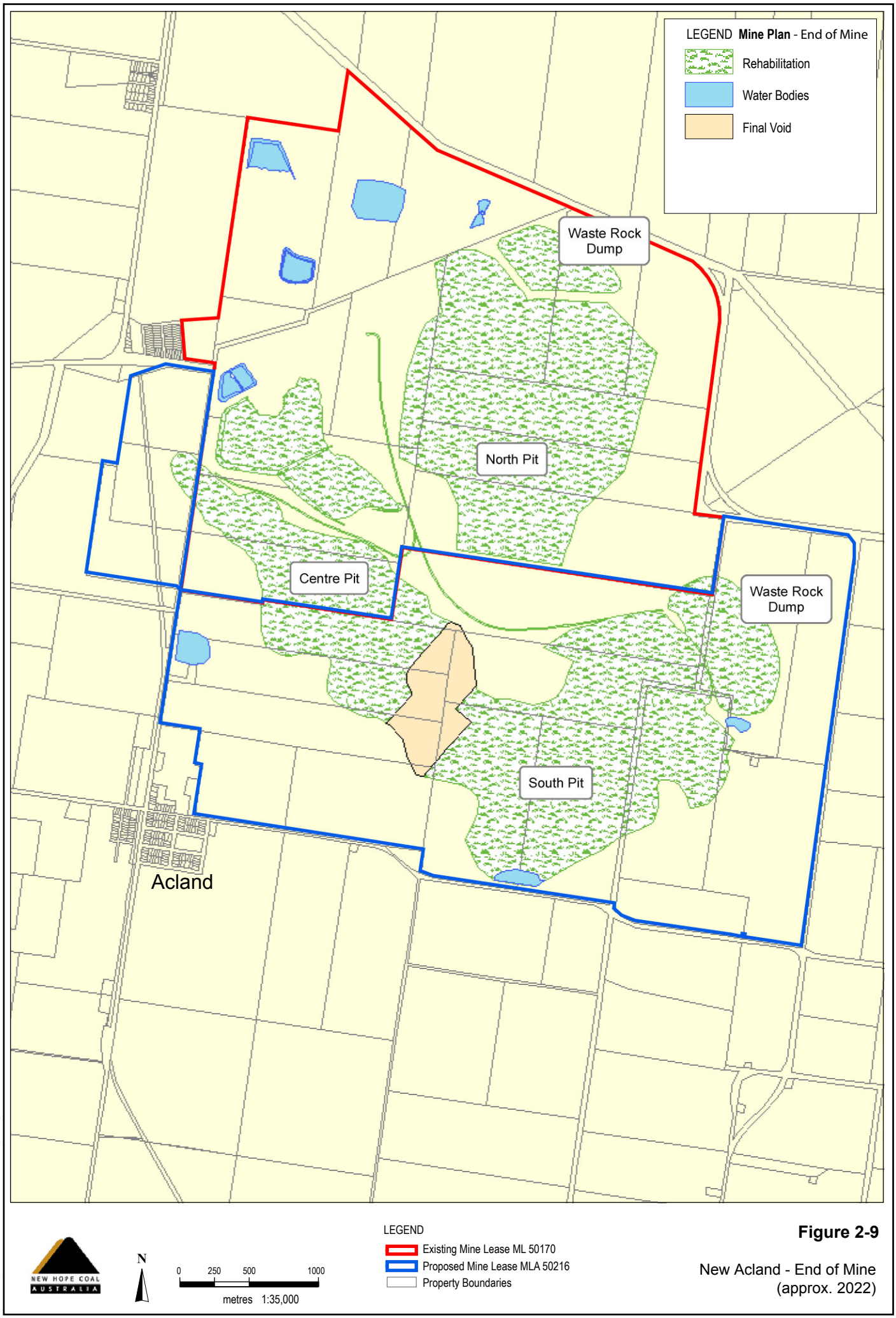

Figure 2-9

New Acland - End of Mine (approx. 2022)

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2.3.4.2 Mine Rehabilitation

Rehabilitation will be conducted progressively behind the active mine path as areas become operationally available. Currently, NAC has approval for grazing as the final land use, which involves the re-establishment of mainly exotic pasture grass species with scattered areas of local native tree species. Progressive and final rehabilitation requirements will be guided by the outcomes of the environmental impact assessment process. Alternative final land use options will be explored as part of the process, including commercial agricultural land use practices.

As discussed in **Section 2.3.4.1**, one final void of around 50 ha in area will remain at the completion of mining activities. A mine closure plan will be developed as a requirement of the future EA and will define completion criteria for final voids, discuss alternative uses for the void and address critical issues such as groundwater impacts, surface water management and safety.

The proposed post-mine land use for disturbed areas for the mine expansion will be grazing, using locally sourced pasture native tree, shrub and grass species. The criteria for achieving a self-sustaining vegetation community will be developed during the operation as part of the site-specific rehabilitation trials, monitoring and research programs.

The main features of the progressive rehabilitation process are:

- construction of a stable final landform consisting of the South Pit waste rock dump and the final void;
- progressive construction of the South Pit waste rock dump to final landform design, such that minimal reshaping is required at the end of mining. The waste dumps will be constructed by 10 m lifts on external dump faces, with a maximum working dump lift height of 30 m. Angle of repose slopes will be recontoured to a maximum angle of 17% (a 1 in 6 slope or 9.6 degrees) with drainage contours being constructed as required;
- use of suitable topsoil, which will either be stockpiled until suitable recontoured areas are available, or respread immediately across available recontoured areas;
- contour ripping as an erosion control measure immediately after topsoil placement;
- seeding with an appropriate seed mix (grass, shrub and tree species) into the ripped seedbed prior to the commencement of the wet season to maximise the benefits of subsequent rainfall;
- application of appropriate fertiliser for plant establishment if required; and
- the final void will be fenced and/or bunded to prevent access by people, wildlife and livestock.

The projected progression of mining activities and the conceptual final topography of the site will be further defined by the on-going planning process for the mine expansion. This information will further guide proposed rehabilitation activities.

The indicative program for the progressive rehabilitation of disturbed areas is described in **Section 3,** and illustrated in **Figure 2-6 to Figure 2-9**. NAC's proposed program of progressive rehabilitation includes:

- commencement of rehabilitation in approximately 2008 on the lower batters of the South pit out of pit dump;
- rehabilitation of the South Pit out of pit dump will be completed by 2010, with large areas having established vegetation, and newer areas contoured, topsoiled and seeded, and rehabilitation of the South Pit in pit dump would have commenced;
- by 2015, the majority of the South Pit will have been rehabilitated;
- rehabilitation of the Centre Pit will commence at around 2016;
- in the final year of production (2021), the majority of the Centre Pit will have been rehabilitated. The areas disturbed by the CHPP, mine infrastructure and TSF will still require rehabilitation. These areas will be rehabilitated and/or removed after mining ceases; and
- all buildings, plant and equipment not required by the proposed final land use will be removed, and if agreed, dams will be left for the background landowner.

The total area that will be disturbed by the Centre and South Pits alone is 425 ha with an additional 50 ha for the out of pit spoil dump. An average of 40 ha of land will be disturbed on an annual basis during the mining operations.

2.3.5 Blasting

Blasting will be used to loosen insitu overburden. Blasting will occur on a campaign basis approximately once per fortnight during daylight hours. Each blast will use up to 150 tonnes of explosive. Overburden will be blasted below a depth of 7 metres from the surface along with inter-burden greater than 4 metres in thickness. The average powder factor to be used is about 0.3 kg/bcm. ANFO (ammonium nitrate fuel oil) will be the main explosive used. However a water resistant emulsion product will be used in wet boreholes.

Blast holes of about 229 millimetres will be drilled using a conventional rotary drill. All coal and thin parting intervals (<4 m) will be ripped using dozers and picked up by front-end loaders.

Other blasting specifications include the following:

- The quantity of explosives used per blast is approximately 150 tonnes;
- The blast pattern area per blast is approximately 2.25 ha; and
- The frequency of blasts is once a fortnight, which is equivalent to once every four weeks per pit.

Currently, an external contractor conducts blasting at New Acland Coal Mine in discrete campaigns, and as a result, no explosives are currently stored on site at any time. This practice may change in the future with the possible development of a magazine for the storage of detonators and boosters.

2.3.6 Mine Equipment

The heavy mining equipment required for the Project such as shovels, dozers, excavators and haul trucks is shown in **Table 2-2**.

Additional heavy equipment will be transported to site by road in large components and assembled on site.

Table 2-2 Indicative Mine Equipment – New Acland Coal Mine Stage 2 Expansion

Mine Activity	Equipment at 4 Mtpa Production	
	Item	**Number**
Overburden and Parting	Hydraulic Excavator	2
	Rear Dump Truck	10
	Front End Loaders	2
Coal Extraction	Front End Loaders	2
	Rear Dump Trucks	10
Support Equipment	Dozers	10
	Water carts (including 1 spare)	3
	Drill Rigs	1
	ROM Loader	1
	Grader	2

2.3.7 Mine Facilities and Infrastructure

The current administration and workshop infrastructure area will be expanded as required to accommodate the proposed mine expansion. Sufficient area is available within the existing administration and workshop infrastructure area on ML 50170 to accommodate any necessary infrastructure upgrades.

Upgrade of the CHPP, road network and vehicle fleet will be carried out to allow development and operation of the South and Centre Pits and the proposed expansion in production from 2.5 to 4 Mtpa

product coal. Where possible, the buildings and equipment for the mine site will be sourced predominantly from within Queensland.

Components of the upgraded CHPP, feeders, and crushers will be manufactured off-site. There will be no upgrades required for the sewerage treatment plant (STP) and the potable water treatment plant (PWTP).

Fuel and oil will be stored on site in self-bunded containers, with a capacity of approximately 400 000 L. Mining equipment will be serviced and maintained at the existing on-site heavy vehicle workshop. The Mine's infrastructure will be upgraded as required.

2.3.7.1 Site Access and Haul Roads

Existing access tracks will be used for all mining operations. Existing haul and internal service roads will be maintained and upgraded as required to accommodate the expansion in operations. The Jondaryan-Muldu Road, maintained by the Rosalie Shire Council, runs north east from the Warrego Highway at Jondaryan to Muldu and passes to the west of both Acland and the New Acland Coal Mine site. The road was upgraded in 2002 before the mine commenced.

The road will require progressive upgrading due to the proposed increase in coal haulage traffic. NAC will continue to investigate other methods of transporting coal from the mine site to the Jondaryan rail siding and coal loading facility.

The Acland-Muldu road may require closure to accommodate mining in the Centre Pit depending on the economic circumstances at that time.

Mine haul roads will follow existing design criteria and will be at least 30 m wide and two-way with a design speed of 60 km/hr. The maximum grade of the haul roads will be 10% with a maximum cross fall of 3%. Safety berms will be constructed in areas where required. Mine haul road design is subject to the requirements of the *Coal Mining Safety and Health Act 1999*.

2.3.7.2 Sewage Treatment

The existing package STP will be used during the construction and operational phases. The STP currently has a capacity for 130 equivalent persons (EP) and will not require upgrading to cater for the increased workforce.

Effluent from the STP drains to an on-site sediment dam. The reuse or disposal of treated sewage effluent will continue to follow the interim 'Guideline for Reuse or Disposal of Reclaimed Wastewater' (DNRM, 1996), to protect the health and wellbeing of people on and off the Project area.

2.3.7.3 Potable Water Treatment Plant

The current PWTP on site was originally designed oversized in terms of the current workforce demand at 16/26 KL (average/maximum daily volume). As a result, this infrastructure is capable of handling the demand of the increased workforce.

2.3.7.4 Power Supply

Power supply will continue to be sourced from the electricity grid using one 33 KV power line and one 11KV power line. Power supply investigations will examine external supply specifically looking at the issues of alternative supply arrangements, reliability of supply and the required changes to the internal distribution network.

2.4 Coal Handling and Processing

2.4.1 Coal Processing Chain

Raw coal will be transported by rear dump trucks on unsealed mine haul roads to a central coal handling area ROM pad for direct or eventual feed into the upgraded CHPP on ML 50170. An additional CHPP module will be constructed adjacent to the existing CHPP. The coal handling and processing system is shown schematically in **Figure 2-10**.

The CHPP infrastructure comprises a ROM pad, CHPP, clean coal stockpile, truck loading facility, weighbridge, workshop and office. These facilities will be upgraded as required to handle the proposed increase in production.

Tailings (fine waste stream) from the CHPP will be disposed of within the existing or extended Tailings Storage Facility (tailings dam) on ML 50170 and possibly within cells in the backfilled mine pits as areas become available.

The in-pit disposal of tailings in cells in the North Pit may require the construction of an additional out-of-pit dump to the east of the Raw Water Dam. The proposed dump area has been flagged in the past as a possible area for out-of-pit dumping (i.e. for Stage 1 of the Project). NAC will attempt to reduce the Project's disturbance footprint by exploring other possible alternatives for disposal of the surplus spoil material generated either by the in-pit disposal of tailings or other changes to the mine schedule (e.g. by extending the existing North Pit dump). The use of in-pit disposal of tailings may negate the need to construct the extension on NAC's Tailings Storage Facility, which is considered a superior environmental and economic outcome for the Project.

If necessary, NAC also possesses approval for expansion of the current tailings storage facility. NAC is investigating other alternative tailings disposal methods to reduce the necessity to expand the existing tailings storage facility (e.g. tailings/paste thickeners).

Coarse rejects (coarse waste stream) from the CHPP are currently disposed within the former mined areas. This current disposal method for coarse rejects will not be affected by the proposed increase in production.

2.4.2 Product Coal

The washed/product coal is loaded directly from the CHPP's product bin to coal haulage trucks for immediate transport or stockpiled on the CHPP's product coal pad for future transport. This coal is then either transported by road direct to customers or to the NAC railway siding near Jondaryan for rail transport to the Port of Brisbane.

2.4.3 Dust Suppression

Dust suppression will be provided at dump hoppers and transfer points. Dust suppression will be applied through actuation of solenoid control valves connected to a fogging spray bar. Mine haul road dust suppression will be carried out as required by water trucks. The amount of water required for dust suppression will be approximately 500 ML/annum.

2.4.4 Coal Processing Waste Circuit

The approximate annual throughput and solids/water mass balance for the CHPP is shown in **Table 2-3**.

Table 2-3 Coal Handling and Preparation Plant – Throughput and Mass Balance

CHPP Component	Approximate Annual Throughput
ROM Feed Coal	7.4 Mt
Washed Product Coal	4.0 Mt
Coal Wash Waste (coarse and fine rejects and tailings)	3.4 Mt
Raw Water Supply	1200 ML

Approximately 3.4 million tonnes/annum of 'fine and coarse' reject material will be removed during the washing process. The fine tailings will be pumped as a slurry for disposal in the TSF, whilst coarse reject material will be buried within the backfilled mine pits (**Figure 2-1**).

2.4.4.1 Coarse Rejects Handling

Coarse rejects will be conveyed from both CHPPs to a reject bin. The coarse rejects will then be hauled to the backfilled mine pits. Investigations are also being conducted into direct disposal of dewatered tailings fines with the coarse rejects.

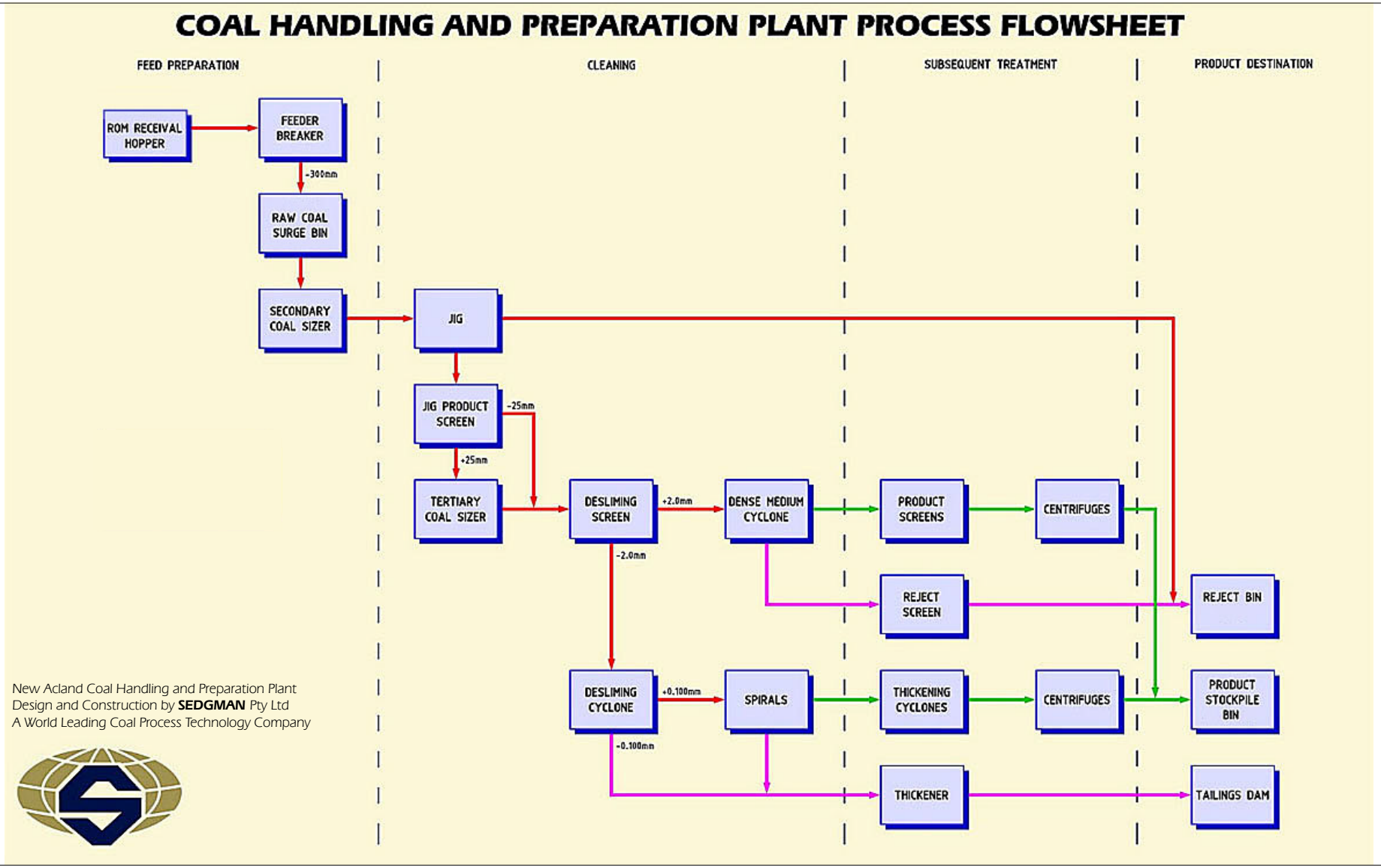

Figure 2-10

Coal Handling and Preparation Plant Process Flowsheet

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2.4.4.2 Tailings Storage Facility

The tailings material has an average bulk density of approximately 1.35 t/m^3 (@ approximately 15% moisture). Based on the current production schedule, the estimated TSF waste production over life of mine is approximately 9 Mt. This equates to a total required storage for the TSF of approximately 7 Mm^3. The TSF footprint will eventually cover around 65 ha.

A slurry of coal tailings and water will be pumped from the CHPP to the TSF. The slurry will be disposed to a series of disposal cells. Water from the TSF will be decanted from the cells and then be pumped back to the CHPP. The material remaining in the disposal cells is stable after a relatively short period of time.

The TSF is located to the south of the CHPP and will be sized if required to contain the wastes generated over the life of the operation.

Future rehabilitation of the TSF will be subject to the applicable conditions of NAC's EA for the Project. It is envisaged that rehabilitation of the TSF will take place as soon as operationally possible. In summary, rehabilitation activities for the TSF will include:

- capping of the tailings area with at least one metre of inert spoil;
- contouring of the covering spoil into the surrounding topography (i.e. to improve drainage and visual amenity and meet slope stability requirements);
- establishment of any necessary drainage structures (e.g. contour banks, water ways etc.);
- topsoiling and seeding with appropriate native and exotic pasture species; and
- monitoring of the rehabilitation to demonstrate success (i.e. in terms of erosion stability, groundcover and sustainability).

2.5 Coal Transport

The majority of the washed coal for export and local domestic markets will be transported 16km by road trucks to the southwest along the Jondaryan-Muldu Road to NAC's existing rail siding and coal loading facility, east of Jondaryan. A smaller percentage of the washed coal is transported exclusively by road to local domestic markets (e.g. Swanbank Power Station) and north to the Tarong Energy Power Station. **Table 2-4** outlines the increases in tonnage for road and rail transport that are expected from the proposed expansion in production.

Table 2-4 Project Road and Rail Tonnage Increases – Mine Expansion

Mine Production (Mtpa product coal)	Transport Type	Transport Destination	Volume Transported (Mtpa)
2.5 (Current)	Road	CS Energy (Swanbank)	0.45
		Tarong Energy	0.10
	Rail	Port of Brisbane	1.45
		CS Energy (Swanbank)	0.50
4.0 (Proposed)	Road	CS Energy (Swanbank)	0.45
		Tarong Energy	0.10
	Rail	Port of Brisbane	2.95
		CS Energy (Swanbank)	0.50

The Jondaryan-Muldu Road will receive an increase in truck movements as a result of the planned increase in production. NAC commissioned the Rosalie Shire Council to upgrade the Jondaryan-Muldu Road prior to the commencement of production by the existing operations at New Acland Coal Mine. NAC have recently entered into an agreement with the Rosalie Shire Council for the on-going maintenance of the Jondaryan-Muldu Road. Further progressive upgrades to the Jondaryan-Muldu Road are planned to accommodate the increased haulage rate brought about by the proposed mine expansion.

NAC has an 'toll-based' agreement with the Department of Main Roads in relation to coal haulage from New Acland Coal Mine to Swanbank Power Station and from New Acland Coal Mine to Tarong Energy Power Station. This road haulage tonnage is not expected to increase, and will be covered by NAC's existing agreement with the Department of Main Roads.

The Jondaryan rail siding and coal loading facility was upgraded during 2004 and will handle the proposed increase in production. NAC and Queensland Rail are currently in advanced negotiations in relation to coal transport by rail. The proposed increase in production is based on the maximum tonnage under negotiation with Queensland Rail for the transport of coal by rail. The current total stockpile capacity is approximately 360 000 tonnes of product coal - 12 individual stockpiles, each with 30 000 tonnes of capacity. Train loading is conducted by two front end wheel loaders.

New Hope Corporation Ltd contractual arrangements with Queensland Bulk Handling at the Port of Brisbane are sufficient to handle the additional tonnage of export coal generated by the expansion of New Acland Coal Mine, as this output will gradually replace coal produced at other NHCA mines.

2.6 Water Management

2.6.1 System Overview

The overall site water balance indicates that the site has a deficit of bore water for the proposed production rate. However, the water balance would be in surplus if the Wetalla water was used. Detailed discussions of water management are presented in **Section 4**. A number of storages will be required. A schematic of the water management system is shown in **Figure 2-1**. Each element serves a specific purpose within the overall Site Water Management System. The key elements of the water management system for the Project are:

- the separation of run-off from undisturbed and disturbed areas;
- the construction of a levee along Lagoon Creek to protect the South Pit from flood flows;
- a number of existing groundwater bores for water supply purposes;
- a Raw Water Dam for the supply of water to the CHPP;
- an Evaporation Dam for surplus supply water;
- a TSF for the storage of tailings and recycling of water to the CHPP; and
- a series of Sediment and Environmental Dams for the control of clean and dirty runoff.

Water recycling will continue to be an important water management practice at the mine. For example, water will continue to be returned from the TSF and re-incorporated into the CHPP's water supply circuit. NAC will continue to investigate methods for improving the reliability and security of water supply at the mine.

2.6.2 Separation of Runoff

The majority of the existing mining area, and proposed expansion area, is drained by Lagoon Creek.

The site water management system will ensure rainfall runoff from all disturbed areas (e.g. mine pit, haul road, waste rock dumps, industrial/processing areas, etc.) is captured and adequately treated before discharge off site. Current water recycling practices and appropriate sizing of water management structures will ensure that off site discharges are limited only to periods of heavy inundation.

Runoff from undisturbed areas of the mining lease will be diverted via clean water diversion drains and bunds away from disturbed areas.

2.6.3 Coal Process and Industrial Area

As discussed in **Section 2.4.1** and **2.4.4**, the TSF contains fine rejects from the coal CHPP. The TSF will store water for recycle in the CHPP. This water will be used preferentially to meet CHPP demand.

Stormwater runoff from the industrial area will continue to be directed to Environmental Dam 2 via a series of sediment dams. Environmental Dam 2 has a capacity of approximately 232 ML. Treated sewage effluent is pumped to a sediment dam, which may be used for haul road watering.

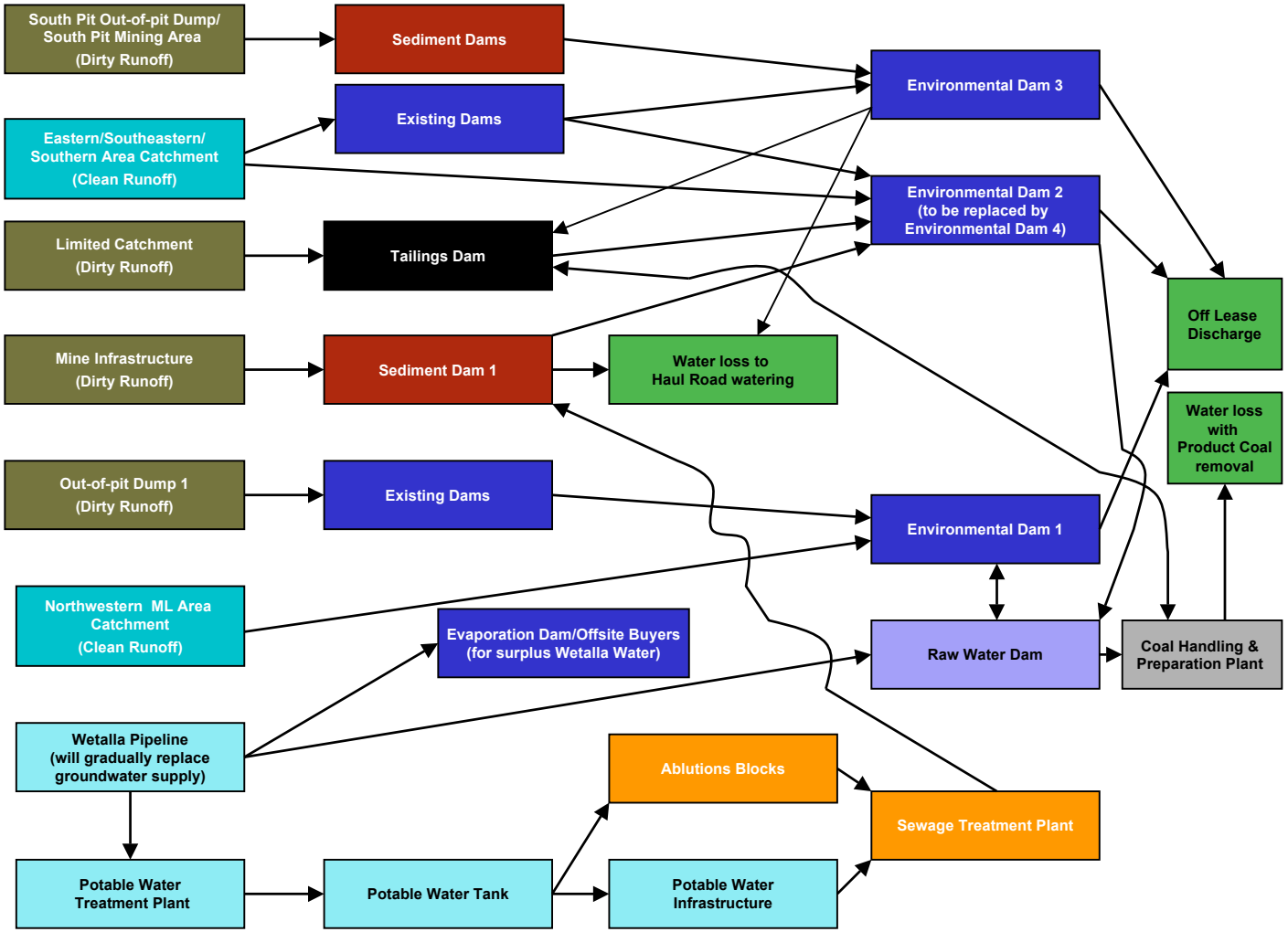

Figure 2-11

New Acland Water Management Schematic

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2.6.4 Sediment Control

There will be a number of existing and proposed sediment dams that will be used to settle out suspended solids in runoff from disturbed areas including waste rock dumps. Sediment dams may overflow to Environmental Dams before eventual discharge off site.

2.6.5 Mine Water Management

Mine water consists of rainfall runoff to the pit floor and seepage into the active pit. This water will be pumped to the Environmental Dams for recycling.

Water from the out of pit dumps will be transferred to a network of sediment dams that will be transferred to Environmental Dams. This water is used to meet processing and dust suppression demands when available.

The current Environmental Dams have a combined capacity of 358 ML. It is proposed to construct additional environmental dams of suitable capacity as part of the water management strategy for the Project.

2.6.6 Water Supply

Currently, NAC's main water source is groundwater from the Precipice and Hutton Sandstone aquifers of the Great Artesian Basin. A Basalt bore water allocation is also primarily used for a potable water supply.

The CHPP currently draws approximately 800 ML/annum of water from their groundwater bores. NAC possesses a total licensed allocation of 1170 ML/annum.

NAC is planning to reduce groundwater usage and drought proofing the mine by using treated effluent from Wetalla Sewage Treatment Plant (Toowoomba). The expanded operations (assuming 4 Mtpa) will require a CHPP water supply of approximately 1200 ML/annum. Other innovative methods of reducing water requirements are being explored such as tailings in-plant dewatering.

New Acland Coal Mine also recycles a significant portion of water from its TSF and will continue to refine this practice.

2.6.6.1 Process Water

Process water will be supplied to the CHPP via the Raw Water Dam, and from the TSF. Raw water will only be used if the return water from the TSF does not meet the plant requirements. Raw water demands of the CHPP will be 1200 ML/annum (250 m^3/hr average).

A separate pipeline from the Raw Water Dam supplies the water for fire, hosedown and dust suppression. This supply is kept at a constant pressure and is reticulated through the industrial area. There is a separate CHPP hosedown and firefighting distribution system. There is an adequate water supply for fire fighting requirements during the construction and operational phases.

2.6.6.2 Potable Water

Potable water is currently provided to the workshop and administration areas. A dedicated package PWTP currently treats the raw water, supplied from the groundwater bores. Current potable water demand is approximately 15 ML/annum. Potable water demands will not increase significantly with the Project.

Potable water is currently monitored regularly to test for water quality. It is used for human use, including drinking, hygiene and sanitation. Potable water will comply with the "Australian Drinking Water Guidelines" as published by the National Health and Medical Research Council and the Agriculture and Resource Management Council of Australia and New Zealand (1996).

2.7 Coal Transport

2.7.1 Train Movements

The product coal will be trucked by road a distance of approximately 16 kilometres to NAC's Jondaryan railway siding for train loading and rail transport to the Port of Brisbane.

The average number of train movements will increase from approximately 1 100 to 1 800 per annum.

2.8 Road Realignment / Closure

The Acland-Muldu road may be closed and realigned to accommodate mining in the Centre Pit. The proposed road closure may occur in 2015. If the proposed road closure occurs, the existing road network will be upgraded to facilitate the diversion of local traffic around the Centre Pit.

2.9 Construction

2.9.1 Schedule

Following the issue of environmental and mining approvals, construction of the South and Centre Pits would commence with the South Pit box-cut/out of pit dump and construction of the required water management structures.

The construction schedule for the Project is shown in **Table 2-5**. Construction will typically be undertaken during daylight hours and box-cut development will occur on a 5-6 day, 24 hour basis.

Table 2-5 Indicative Construction Schedule

Schedule	Activity
2005-2006	Environmental and Mining Approvals
2006-2007	Construct sediment dams. Start overburden removal at South Pit box-cut. Start construction of expanded mine infrastructure (e.g. upgraded CHPP, etc.).
2007 2014-2015	Start coal production at South Pit. Start overburden removal at Centre Pit box-cut.
2015	Start coal production at Centre Pit.

2.9.2 Material Volumes and Equipment

The indicative types and quantities of construction materials required for the Project are shown in **Table 2-6**. These materials will be mainly associated with infrastructure upgrades.

Table 2-6 Construction Phase Material Quantities

Construction Material	Estimated Quantity (tonnes)
Steel	700
Concrete	1120
Total	**1820**

Raw materials for concrete will be sourced from external suppliers.

Fuel used during the construction phase will be stored in bunded facilities within the construction laydown area. Construction equipment will be serviced and maintained at the site workshop.

Most of the equipment will be sourced from external contractors.

2.9.3 Transport of Plant and Equipment

Construction equipment will be transported by road to the site, on standard or over-dimensional loads. Large items of mining equipment that cannot be divided into smaller components, and the larger coal handling equipment requiring construction off-site, will be transported on State roads under permit and, where necessary, accompanied by safety escorts.

For the purposes of this impact assessment it is not possible to accurately determine the point of origin of these loads, as some items may not necessarily be purchased new. Deliveries during construction will be limited to items such as mining equipment, building supplies, fuel, concrete, steel and items for the augmentation of the CHPP, workshops, administration buildings and sundry plant.

Transport of personnel will be undertaken by private vehicles, nominally from the nearby towns of Toowoomba, Oakey and Jondaryan.

2.10 Fire Protection System

The existing fire protection system on the Project consists of:

- fire water and dust suppression pipeline servicing the CHPP and materials handling facilities from the raw water dam;
- fire water and dust suppression pipeline servicing the industrial and administration areas from the raw water dam;
- internal and external fire hydrants appropriately spaced around the buildings and CHPP according to relevant Standards, Statutory and Local Council requirements;
- portable fire extinguishers consisting of dry chemical powder, carbon dioxide and wet chemical types installed in designated areas of the site as per relevant Standards, Statutory and Local Council requirements;
- sub-fire indicator panels with automatic detection and alarm system for fault detection in the switchrooms;
- gas discharge FM200 in the CHPP motor control centre; and
- mobile mining equipment fitted with automatic fire suppression.

2.11 Workforce

2.11.1 Construction Phase

The construction phase will provide opportunities for local employment in construction, transport, and the supply of goods and services. Employment on the Project is expected to peak at approximately 180 jobs during the construction phase, which includes NAC's permanent operations staff.

The workforce skills required for construction will include heavy equipment operators, boilermakers, carpenters, scaffolders and electricians. The construction phase workforce will be predominantly contractors that are accommodated in private residences in the nearby towns and city of Oakey, Jondaryan and Toowoomba. There will be no on-site accommodation provided. Locally sourced workers are likely to reside at their existing place of residence.

2.11.2 Operational Phase

Currently, mine workers live in private accommodation in Toowoomba, Oakey and the surrounding district. This arrangement will continue for the expected expansion of the workforce from 120 to approximately 180 people. The priority use of local labour will continue for workforce recruitment. **Table 2-7** shows the indicative workforce numbers for the Project.

Table 2-7 New Acland Coal Mine – Approximate workforce requirements over time

Year	2005	2006	2007	2008	2009	2010	2011	2012+
Workforce Size	120	120	180	180	180	180	180	180

Production and maintenance staff are expected to operate on a 12 hour shift, 5-6 day week, 24 hours per day roster for mining and coal washing operations.

2.12 Decommissioning

The decommissioning and final rehabilitation of the Project is discussed in **Section 3 – Land Resources**.

On the completion of mining, infrastructure will be treated as follows:

- mine roads will remain for use by the subsequent land holder, if required;
- water dams will remain if required by the subsequent land holder and approved by regulators; otherwise, the dam walls will be rehabilitated;
- buildings, plant and equipment will be removed if no longer required by the landowner and the surface rehabilitated. This may include the CHPP, workshop, offices, storage tanks and coal handling facilities; and
- concrete pads will be covered with benign waste rock or removed, topsoiled and revegetated.

The mine site will be progressively rehabilitated to pasture with scattered areas of local native tree species. One final void will remain at the completion of mining activities.

NAC will seek to have approval for grazing as the final land use, as is the case with the existing mine on ML 50170.

2.13 Project Alternatives

2.13.1 No Project

Having no Project will not allow:

- NAC to maintain and improve its market share and profitability;
- the Government to increase its revenue from royalties, freight charges, taxes and other charges;
- generation of employment and income for workers and support contractors; and
- an increase in demand for secondary support industries and service suppliers.

2.13.2 Alternative Locations

The exploitation of other resources in the area is less attractive than the current proposal due to the need for additional infrastructure, generally lower resource quality and higher development and operational costs.

The proposed sequential development of the Glen Roslyn Deposit (North, Centre and South Pits) by the Project is the result of substantial geological investigations and mine planning by NAC. As a result, the Project provides the most economic mining option when compared to other delineated resource/reserve areas within MDL 244.

2.13.3 Mining Options

Coal mining generally involves one of two recognised techniques - open-cut or underground mining. Open cut is the only mining option for the Project as:

- the coal seams are relatively shallow and too thin for underground extraction;
- the deposit consists of 6 coal seam groups in the Acland-Sabine Sequence which are each approximately 2 metres thick;
- open cut method has significantly higher resource recovery for thin seam extraction; and
- it is the most cost effective option.

2.13.4 Mining Techniques

The two main methods for the removal of overburden above a coal deposit are by dragline or by truck and shovel. Each method has its own advantages and disadvantages.

Truck and shovel was chosen due to the:

- overburden's properties and depth;
- physical nature of the coal reserves (e.g. thin seam arrangement);
- pit layout and available operational space; and
- lower establishment and operational costs.

2.13.5 Coal Wash Plant

All ROM coal produced must be washed to meet market specifications for export and domestic customers. Otherwise, NAC will lose its ability to maintain and expand its export and domestic coal markets. If there was no CHPP to wash the coal, the product coal would be of a lower value and/or there would be reduced coal recovery.

Failure to wash the coal would allow the combustion of an inferior coal product, which would increase the potential for environmental impacts through the production of poorer emissions and increased combustion wastes.

These factors also support the case for expanding the CHPP to cater for the increased production of ROM coal. Expansion of the CHPP will allow efficient washing of the increased ROM coal output and ensure the Project remains economically viable.

2.13.6 Location of Dams

Current plans are for the location(s) of proposed dams are defined in **Figure 2-1**. More detailed studies are planned and the final locations will be confirmed in the Plan of Operations for each stage.

Dam locations are designed for the efficient capture and treatment of dirty runoff, the minimisation of the potential for discharge off site and to maximise water recovery for CHPP operations and dust suppression activities.

A plan of the site in **Figure 2-1** shows the proposed locations of each of the dams.