

04 | Comments and Responses – Coal Mine



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Comments and Responses – Coal Mine

4.1 Public Respondents

4.1.1 Robyn Adams

4.1.1.1 Description of Project

Comment – CM1

It is disappointing that throughout the entire EIS, there is not mention of the water that will be brought in to be increased to build local and regional industry. Water availability has been a limiting factor in development in the region.

Response – CM1

Through the development of the Project the Proponent is delivering major utility infrastructure into the Galilee Basin. It is a State and Commonwealth Government decision as to whether this infrastructure is to be further developed in the region.

4.1.1.2 Climate

Comment – CM2

Using Clermont data for climate is wrong. Alpha data would be better. The difference between Clermont and the mine site, 130 km, as you go west, cross the Belyando and climb the Great Diving Range is significant. The rainfall, humidity, temperatures, wind and any interferences or calculations based on this Clermont data is therefore very inaccurate.

Response – CM2

When using observational datasets to describe the climate at a specific location, the closest representative data are usually preferred as it is likely to best reflect local climatic conditions. When identifying suitable data to describe the Alpha Coal Mine, data from the Alpha Post office was considered. However, data from this site could not be adopted as the site only collects daily rainfall. Local climate is characterised by additional parameters such as wind speed, wind direction, surface pressure and temperature.

Data from the Emerald Airport site was considered as the most proximate and representative BOM dataset available containing enough parameters to be suitable for inclusion in the Meteorological Model (discussed in SEIS Volume 2, Appendix P, Appendix A). However, it is recognised in EIS Volume 2, Section 3.1, Introduction that Clermont is not wholly representative of the climate of Alpha and so it has been supplemented with numerically simulated meteorological parameters (including wind speed and direction) to provide a better representation of local meteorology. The simulation was undertaken using the CSIRO TAPM model which is used to source the Global Analysis and Prediction (GASP) or the Limited Area Prediction System (LAPS) gridded dataset archives of the BOM on a local or synoptic scale. TAPM maps these data down over the local topography and land use to give a simulated description of the meteorology.

Further details of the application of the TAPM model to simulate local meteorological parameters can be found in SEIS Volume 2, Appendix P, Appendix A.

Site specific climate data is being collected, two rain gauges have been installed on site during 2009. These rainfall data and variation are considered when assessing groundwater recharge in the study area.

Comment – CM3

When the mine is stripping away the timber, experiments at biochar (burying the timber underground and slowly burning with oxygen) would be a great value add. This biochar then in the stripped topsoil will make for much more fertile soils, an issue as stated in the EIS.

Response – CM3

Recent industry initiatives such as the use of biochar and other similar technologies will be considered. Rehabilitation initiatives will be incorporated into the "continuous loop of improvement" with respect to future environmental management performance of the site.

4.1.1.3 Terrestrial Ecology**Comment – CM4**

Further evidence of poor understanding of the bioregion is that only 94 birds were found. A current active bird list in similar country in the southern Desert Uplands has 166 birds listed. This reflects again how the DU is different. Many of the animal species simply cannot be found over a three day survey, and unfound does not mean they do not exist. Again, the refugia nature of the area means that the animals move around within that landscape, making holding of remnant vegetation critical.

Response – CM4

EIS Volume 5, Appendix E1 and Volume 2, Section 9.1.4.1.1 (Terrestrial Fauna, methodology) note that fauna surveys were conducted on eight occasions during the wet and dry seasons to account for seasonal variation in species diversities and abundances. Environmental variations due to recognised dry and wet seasons may include differences in water availability, changes in habitat values and changes in floristic composition. Seasonal studies ensure that migratory and transient fauna responsive to particular environmental conditions are captured, when seasonally or intermittently inhabiting the Project site.

The survey timing and methodology used are considered appropriate for detection of avian species over a range of seasons and conditions. The impact assessment process takes into account all avian species irrespective of whether their presence is detected or otherwise.

EIS Volume 5, Appendix E1, Section 5.3.2 Detection Methods states "dedicated search for diurnal birds was conducted visually and aurally on mornings and afternoons of the survey in the immediate vicinity of each fauna transect. In addition, opportunistic diurnal searches were also conducted on foot in areas considered likely to have high avian diversity (e.g. vegetated creek lines, dams), or to contain cryptic or threatened bird species".

Comment – CM5

The March 2008 to June 2010 surveying period needs to be extended into next 2011 to ensure the ecological changes from this ongoing wet season are documented before the mining starts. The important natural rebuilding ecological functions and assets, with many 'new' things 'turning up' after the soaking rain and its increased ground cover and moisture.

Response – CM5

EIS Volume 5, Appendix E1 notes that fauna surveys were conducted during the wet and dry seasons, to account for seasonal variation in species diversities and abundances. Environmental variations due to recognised dry and wet seasons may include differences in water availability, changes in habitat values and changes in floristic composition. Seasonal studies ensure that migratory and transient

fauna responsive to particular environmental conditions are captured, when seasonally or intermittently inhabiting the Project site.

Comment – CM6

Annual observation and post rain event is not enough for the weeds. There needs to be a much more frequent weed monitoring and treatment regime to ensure weeds are controlled.

Response – CM6

The management of weeds is addressed in the EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*. This section states that the management of weeds will be co-ordinated with programs led by local government, community and/or landowners. This may result in other forms and/or timing of weed monitoring events. This will be included in the Weed Management Plan.

Weed management strategies to be implemented include (but are not restricted to):

- The present location of weeds will be highlighted and a comprehensive weed spraying program be implemented, prior to the commencement of works. (this will also provide a baseline information for where weeds are likely to occur and density);
- To promote the awareness of weed management issues, weed management will be included in the site induction (this will result in ongoing weed observations being reported to the environment office on site); and
- Prepare a site-specific Weed Management Plan (WMP). The WMP will describe how the weeds are to be managed in accordance with the *Land Protection (Pest and Stock Route Management) Act 2002* (LP Act) and/or local government requirements for weeds not declared under state legislation. Consideration of other factors such as landholder inputs, unusually wet months or increased traffic will be undertaken when writing the WMP.

4.1.1.4 Aquatic Ecology

Comment – CM7

There was no mention of the significant fencing that will be required around all water areas. Otherwise macropods will go in and drink it and die slow deaths, and disperse the ingested chemical widely.

Response – CM7

The vast majority of the water that will be stored on-site will be generated from either groundwater from pit dewatering or from runoff from disturbed areas. The main potential pollutant in these water bodies will be salinity. The quality of the water in these storage dams is not expected to cause harm to wildlife that would potentially ingest or come in contact with it. It is considered unlikely that the water would be ingested by fauna due to the elevated salinity. The dams that have the highest potential to contain contaminants are located in the industrial area and at the tailings storage facility (TSF). The dams in and around the industrial areas will be well lit and trafficked. It is considered that these conditions would discourage the majority of fauna from frequenting these areas. The fine coal reject (tailings) will be sent to a purpose-built tailings storage facility in a slurry form. Water reuse (required in the process) will remove standing water from the TSF. Given the arid climate of the region, the tailings surface is expected to dry out relatively quickly and form a dense compact solid material, which will facilitate a cover placement and rehabilitation at the end of mine life. This area will be fenced to exclude wildlife.

At mine closure, voids will be rendered safe in terms of access by humans, livestock and wildlife. The condition of the site will be considered at the time of closure to ensure that the void is left in a safe manner:

- A barrier at a safe distance from the perimeter of the void to prevent human access will be constructed. The highwall areas will be secured by the construction of a trench and a 2 m safety berm, as well as a 2.1 m security fence along the entire length of the remaining high wall. This is to provide an engineered barrier between the pit and the surrounding area. The trench and berm is to be constructed in such a way that it will physically stop most vehicles.

The pseudo steady water level in the final void (SEIS Volume 2 Appendix N, Section 2) is predicted to be too deep for access and will contain high salinity water, thus it will not be ingested by fauna.

Water quality at the end of mine life is covered in the EIS Volume 2, Section 25 *Decommissioning and rehabilitation*. Dam and surface water features will be assessed at the time of closure. All sedimentation dams which assist in the water flow from the final rehabilitated surface will be retained following mine closure. The other dams will be removed and the original drainage paths re-established wherever possible.

The ex- and potentially in-pit TSF and will be capped and landscaped so that the surface will sustain vegetation but allow excess stormwater to be free draining. The tailings will be capped with a layer of compacted clay or similar low permeable material over which a layer of coarse material will be placed. Topsoil will then be used to resurface the area which will then be revegetated. This process will prevent ponding and limit infiltration of surface water and thus reduce the risk of on-going seepage from the TSF (SEIS Volume 2, Appendix T).

The following aspects are considered with respect to assessing final void water quality and the need for restricting access (EIS Volume 2, Section 25.2.3.2 p 25-21):

- Stratification of water column (pseudo static pit water level);
- Concentration of dissolved salts resulting from runoff, direct rainfall, groundwater ingress, and evaporation (net water loss due to high evaporation will result in increasing salinity with time);
- Control of surface flow into the void;
- Determination of recharge rates through the backfill /spoil;
- Groundwater inflows; and
- Rainfall and evaporation

All of the above have the potential to impact on the water quality of the final void and its potential end use. Depending on the agreed final void use, an ongoing water monitoring program will be instigated to confirm the modelled outcomes (SEIS Volume 2, Appendix N, Section 4).

4.1.1.5 Groundwater

Comment – CM8

How much bore water will be taken?

Response – CM8

The impact of mine dewatering on individual bores has been assessed using predictive groundwater modelling (SEIS Volume 2 Appendix N). Model predictions indicate that groundwater abstraction, both in and out of the mine pit, required for depressurisation and dewatering, will reduce hydrostatic pressures within the confined aquifers.

The dewatering volumes of groundwater required during mining, predicted based model times steps, are indicated in Table 4-1.

Table 4-1. Groundwater dewatering volume estimates

Year	0-1	1-2	2-3	3-5	5-10	10-15	15-20	20-30
Dewater D-E sands (L/s)	60	45	45	40	20	20	15	15
Dewater overlying units (L/s)	105	60	60	55	15	15	15	15
Totals	165	105	105	95	35	35	30	30

Comment – CM9

Lowering pumps or getting bigger ones does not often fix reduced bore flow rates, and who will pay for the increased service costs short and long term from having to pull these deeper bores and/or bigger pumps.

Response – CM9

Section P.3.4.6.2 of the Environmental Management Plan (EIS Volume 5, Appendix P) indicates the strategies to be put in place for groundwater level impacts, which include:

- Lowering pumps within an existing borehole, or supplying pumps with a greater head capacity if required (this can include changing pump types to produce the same yields at higher heads); and
- Drilling new bores to a greater depth, e.g. to intersect the sub-E sands or lower aquifers, which are not a target of dewatering by the operation and therefore will not be impacted to the degree predicted for the D-E sandstone and overlying sediments.

The impact of depressurising the underlying D-E sandstone is envisaged to include a decrease in head (groundwater levels within the bore). For submersible pumps, although the aquifer is not dewatered, the pump has to pump against a higher head (deeper groundwater level) and this results in a decreased yield at surface. In these instances it will require either larger pumps or changing pump types as yields from positive displacement (Mono) type pumps are not affected by changes in head.

The EM Plan has been revised (SEIS Volume 2 Appendix V, Section 3.4.4.2) to include additional performance criteria and control strategies, with regards to mitigating groundwater impacts.

A make-good commitment has been included by the Proponent to replace diminished groundwater sourced water supplies. This commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user.

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS Volume 2 Appendix V, Section 3.4.4.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;

- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

Based on the submission the make-good commitment is to also include provision for additional operation and maintenance costs, which may be incurred due to:

- Larger pumps;
- Deeper depths (removal and maintenance of deeper / larger pumping equipment);
- Additional water related infrastructure;
- Power costs; and
- Spare parts.

Comment – CM10

Who will pay for the new bores to be drilled? And what if there is no water down further, what then?

Response – CM10

A make-good commitment has been included by the Proponent to replace diminished groundwater sourced water supplies. This commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user.

The Proponent will be responsible for the source and supply of water to the impacted groundwater users. The make-good commitment will ensure that replacement water will be made available.

Comment – CM11

It is a concern that the water is to be supplied by a third party. If this arrangement doesn't work, does it mean that Hancock (the Proponent) will be allowed to draw down further on the groundwater?

Response – CM11

Water is being supplied by a reputable third party (SunWater) and there is no expectation that this arrangement will not work. The Proponent will have to comply with all water license conditions imposed with regards to mine dewatering, including allowed abstraction volumes.

Comment – CM12

What of Aquifer contamination? Not just locally, but regionally and for the whole GAB. For the surrounding grazing enterprises, this risk is paramount (more so than farming land that has other irrigation supplies).

Response – CM12

Open pit coal mining will result in a drawdown of the regional groundwater table towards the open pit. The water level in the final void at the end of mining will be lower than the pre-mining groundwater levels (SEIS Volume 2, Appendix N) as a result of high evaporation over a large area compared to the groundwater ingress, runoff over the disturbed area into the final void, and direct rainfall into the final void. All this means that groundwater flow will always be towards the mining excavations once mining starts. This conceptualisation is included in Figure 12-10 (EIS Volume 2, Section 12).

Any potential poor quality seepage from mine operations and infrastructure that enters the groundwater will reach the open pit. Thus any potential seepage from long term contaminant sources, such as the backfilled / rehabilitated mine voids or waste rock dumps, will report to the final void (SEIS Volume 2, Appendix N, Section 2). This alteration in groundwater flow will ensure that any contaminated groundwater will not migrate off site or enter the overlying Great Artesian Basin (GAB) to the west. Details regarding the potential impacts of shallow mining on the GAB are included in SEIS Volume 2, Appendix N).

Comment – CM13

How long, especially after the decommissioning in 30 years, will Hancock pay for these alternate water sources?

Response – CM13

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (SEIS Volume 2, Appendix V, Section 3.4.4.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The make-good commitment agreement, to be compiled by legal experts, must contain a clause regarding on going subsidies even after closure or if the mine is sold. Financial provisions are to be made to ensure future costs are covered.

Comment – CM14

If a new bore goes in another location where this is groundwater to be found, who will pay for all the moving of cattle watering infrastructure - pipes, pumps, troughs, tanks etc.

Response – CM14

The make-good commitment (SEIS Volume 2, Appendix V, Section 3.4.7.2), to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (EIS Volume 5, Appendix P);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if HPPL is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The make-good strategies to be put in place for groundwater level impacts were considered to include:

- Lowering pumps within an existing borehole, or supplying pumps with a greater head capacity if required; and
- Drilling new bores to a greater depth, e.g. to intersect the sub-E sands or lower aquifers, which are not a target of dewatering by the operation and therefore will not be impacted to the degree predicted for the D-E sandstone and overlying sediments.

This approach will be considered, depending on the location of the bore and the affected groundwater resource / aquifer, initially as this will negate the need to move or install additional water infrastructure.

Should a water source or supply be located away from the affected bore it is considered that an agreement will be reached with the affected groundwater users with regards to any movement of water infrastructure or the installation of water transport infrastructure to the affected bore.

The additional costs of water infrastructure, movement of water infrastructure, operation and maintenance, and ancillary infrastructure (fencing, pressure tanks, etc.) will be borne by the Proponent.

Comment – CM15

'Hydrology studies - specialised drilling to further evaluate groundwater capacity and effect of operations on supply'. These must be done thoroughly and independently as soon as possible, to ascertain current standing levels and water flow rates (before extensive mining drawdown) from surrounding bores.

Response – CM15

In order to ensure all existing groundwater use and users are identified within the Alpha Coal Project (Mine) study area, a bore survey has been conducted (results included in SEIS Volume 2 Appendix N).

The bore survey aimed at recording all available groundwater data on the following properties: Hobartville, Wendouree, Forrester, Surbiton, Surbiton South, Burtle, Tresillian, Mentmore, Monklands, Kia Ora, Spring Creek, and Glen Innes. Groundwater levels, yields, usage, and samples were collected during the bore survey. These baseline data will be used for comparison purposes when assessing possible impacts on mining on the groundwater resources.

A stand alone bore survey report (SEIS Volume 2, Appendix N) has been compiled and included in the SEIS document, which is a public document.

Comment – CM16

Another serious omission is the lack of any statement regarding the effect of the vibration on old bore infrastructure. The blasting in open-cut mines have in the past caused old bore piping and lining to break up and collapse, rendering them useless.

Response – CM16

A bore survey is being conducted to identify groundwater use and record the pre-mining status of the groundwater supply bores.

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (EIS Volume 5, Appendix P);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;

- Power costs; and
- Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The comment to be included in the make good commitment agreements is underlined above.

Comment – CM17

The 'post-mining conceptual model water table' diagram shows the water table blue line bending down to the bottom of the open cut mine. I believe this is far from reality, with a much wider lower water table being the result of the thirty years of mining and the deep groove in the ground.

Response – CM17

The groundwater, post mining, can only drawdown to the base of the final void at the Project, as this is the lowest point. The final void modelling (SEIS Volume 2, Appendix N) allowed for the prediction of post mining groundwater flow patterns, which will form once the water level in the final void is at a pseudo steady state. This modelling takes into consideration the cumulative impacts of the proposed longwall mining operations on the adjacent Mine Lease Application (MLA 70426).

4.1.1.6 Greenhouse Gas Emissions and Climate Change

Comment – CM18

Why is there no mention of that integrated approach where, by working with regional industries, carbon offsets, energy conservation and emission minimization strategies can give Hancock that good bottom line for the world?

Response – CM18

A greenhouse gas section of the revised EM Plan (SEIS Volume 2, Appendix V, Section 3.3.4 and commitments in Section 3.3.9) has been prepared detailing the measures the Proponent will implement to manage their greenhouse gas emissions on the Alpha Coal Project. These are measures that are within the Proponent's control.

4.1.1.7 Transport

Comment – CM19

The traffic and transport assessment undertaken as part of the EIS determined that the impact of the mine upon the performance of both the major road links and their intersections that will be used to service the mine are insignificant and do not require specific mitigation.' This is simply not true. Right now, in getting out the test coal, Hancock has bogged heavy vehicles and made the dirt road impassable through not understanding the limitations of these red sandy dirt roads.

Response – CM19

This reference within the Traffic Impact Assessment (TIA) relates to two types of assessment – firstly, an assessment on the level of performance on the operation of intersections and road links based on the increase in traffic volumes, and secondly an assessment of the impact that these vehicles may have on pavement condition. The TIA has identified that there are no significant issues in relation to the increase in the number of vehicles generated by the Project on the performance of intersection

and midblocks. However, the updated TIA does acknowledge that unsealed roads will be unsuitable when being used by commercial vehicles and over-dimensional vehicles. A second site inspection was undertaken during a wet weather period and this has resulted in recommendations for road upgrades to all-weather standards for sections of Degulla Road and Clermont-Alpha Road based on the proposed routes for Project vehicles. The pavement assessment in Section 5 of the updated TIA (SEIS Volume 2, Appendix U) now indicates certain road upgrades based on the proposed vehicles routes. Section 8.1.4 of the TIA document also outlined a draft road-use management plan (RUMP) structure, which will include management and mitigation measures to ensure vehicles only utilise the recommended proposed routes.

Comment – CM20

Increased traffic volumes arising from construction and operations activity will have some direct impacts upon the design life and ongoing maintenance of roads in the immediate vicinity of the mine including Alpha to Clermont Road, Hobartville Road and Degulla Road. Consultations with Barcaldine Regional Council and with the Department of Transport and Main Roads will be conducted to resolve matters related to road upgrades and maintenance programs.’ Clearly, these need to be done in a timely manner, not after the damage has been done but rather before. Also, there is no mention of the traffic (both workers and service vehicles) that will come from the west and south, and issue the Longreach Regional Council and the Blackall-Tambo Regional Council respectively will have to deal with, with increased need for road upgrades and maintenance.

Response – CM20

The Proponent agrees that road upgrades and maintenance programs need to be confirmed prior to the construction phase of the Project. The pavement assessment of the report has been reviewed following consultation with Barcaldine Regional Council (BRC) and Department of Transport and Main Roads (DTMR) and recommendations for road upgrades can be found in Section 5 of the updated TIA (SEIS Volume 2, Appendix U).

Personnel permitted to use a DIDO option will only be located in close proximity to the site (i.e. Alpha) and long-distance driving is not permitted on a daily basis for locations further than this (i.e. Tambo, Blackall) due to the fatigue management policy. Furthermore, the number of personnel proposed to be located to the south and west of the site will be minimal and many will be using the BIBO service from Barcaldine. As such, the impact of increased vehicles in these areas is considered to be insignificant if negligible.

4.1.1.8 Cultural Heritage (Indigenous and Non-Indigenous)

Comment – CM21

The sites generally have a moderate significance rating. Mitigation measures will be implemented to confirm the results of site investigations, record the details of the sites to archival standard, and relocation of artefacts to an appropriate location’. As there is no appropriate locations close, what is Hancock going to do? These assets and items should not be removed so far away that they lose their cultural relevance and benefit.

Response – CM21

There are currently no plans to relocate artefacts. Should this be required, options which follow best practice heritage obligations and current legislation will be provided, including community consultation. Avoidance of impact to any site of cultural heritage significance will be prioritised wherever possible.

Storage of artefacts of state significance is generally managed in conjunction with the Queensland Museum.

4.1.1.9 Decommissioning and Rehabilitation

Comment – CM22

Site rehabilitation will also include decommissioning and closure of infrastructure, plant and structures, buildings, haul roads, dams and other redundant water management infrastructure'. - No mention of the water issue for graziers and their homesteads.

Response – CM22

All sedimentation and water supply dams will be de-silted and retained following mine closure. They will potentially form an integral component of the post-mining landscape to support stock and domestic (homesteads) needs. The retention of these water structures in the long term will be dependant on the size of the dam and the quality of the water as well as the willingness of future owners of the land to continue to licence and manage these structures. Mine closure plans will be developed over time and will be dependent on water resource monitoring results and long term trends and predictions.

Comment – CM23

Much of the details of the rehabilitation do not take into account the specifics of the Desert Uplands Bioregion, and all those factors that have made it a nationally declared Biodiversity Hotspot. In fact, this was not mentioned at all in the EIS. Throughout the EIS there is an implication of its lesser value due to it simply be grazing land and not the more productive farming land that those writing the EIS are obviously more familiar with. It is this very difference, over an area the size of Tasmania, the 8 million ha of the Desert Uplands Bioregion, that makes the DU such an ecological treasure, and why being 70% intact uncleared native open woodland, it is important to conserve. Its refugia status is unquestioned, allowing for plants and animals to retreat to in climatic extremes and dramatic changes (such as the predicted climate change) from both the western plains, and the eastern highlands and coasts. This is currently being further enhanced by the Great Eastern ranges Conservation Initiative to which the Desert Uplands Bioregion will form an important inland linkage. To say 'The character of the landscape within and surrounding the Project area is reflected over wider areas at both local and regional levels and is not considered to have significant local, regional, state, national or international value.' and 'No environmentally sensitive areas or important habitat were identified;' therefore holds no validity.

Response – CM23

The Proponent notes the ecological status and importance of the Desert Uplands Bioregion and will address the significance of the bioregion in ongoing EM Plans and approvals phases. For instance, further information relating to the impact and rehabilitation of bioregions impacted by the Project, should highlight the importance of the Desert Uplands bioregion in regards to its intrinsic biodiversity and the need for precise rehabilitation methods.

Comment – CM24

The resultant low fertility and highly variable climate of this inter-range plateau has evolved unique ecologies, flora and fauna. Many of the plant species cannot be grown from seed or propagated because they are simply ordinary looking trees, bushes and grasses that no-one has spent the time or money on finding out how to grow them, and there would be economic return as they do not grow well

in an ordinary watered pretty garden. Stockpiling the soil in the heat and dry will kill most of the soil biota, which needs animal impact (macropods eating it) to keep 'alive' (again this is not cleared farming land); and any plants that are growing will be killed by fertilizers (so well are they adapted to the low fertility soils). The lack of appreciation for the Desert Uplands ecological functioning reflects in the unsuitable rehabilitation concepts within the EIS. There is no mention of many of the grass species, or the use of grazing pressure as an integral environmental role (be it macropods or livestock).

Response – CM24

Topsoil stripping and stockpiling are standard procedures for coal mine rehabilitation programs. Stockpiling is undertaken in a managed way to preserve as much of the existing soil biota as possible. Topsoil stockpiles are kept at a maximum height of 3 metres to minimise side slope angles to reduce erosion, reduce compaction, and maintain the soil's biological health throughout the stockpile. Stockpiles are usually seeded with grass species native to the region if being maintained for a longer than one growing season. Reducing the height of the stockpiles and planting them with native grass species maintains soil structure and soil biota populations.

Given the relatively sandy nature of the soils mapped within the region of the Project, the use of fertilizers during the rehabilitation process will be limited to encouraging successful establishment to reduce topsoil losses via erosion. These initiatives reduce land degradation of post-mining landforms.

Comment – CM25

A key methodology for rehabilitation for the Hancock mine that has not been detailed is the integrated use of well designed refugia 'corridors'. This holistic approach to the current and future ecological assets both within and immediately surrounding the mine will address many risks and issues detailed in the EIS.

Response – CM25

Bushland areas will be interconnected via wildlife corridors to adjoining bushland areas as per the details requested in submission CM186.

Comment – CM26

Old dead trees cannot be stored to then be much later used to 'dress' rehabilitated sites. The regional termites are very efficient (known as the Jericho munchers) and there is little left of the timber after a short while lying out in the landscape.

Response – CM26

Comment noted - where practicable, old dead trees will be used.

Comment – CM27

The divergence of Lagoon Creek and the big hole left in the ground at the end of thirty years of mining are big issues that have not been well addressed or articulated in this EIS.

Response – CM27

A Final Void Management Plan (FVMP) will be developed and refined over the life of mine. There is a commitment included in the EM Plan (SEIS Volume 2 Appendix V) to have the FVMP finalised within 5

years of the completion of mining. Additional mine water management, including assessments of surface water and groundwater resources, considerations are included in Volume 2 of the SEIS.

4.1.2 Paul and Janeice Anderson

4.1.2.1 Groundwater

Comment – CM28

It is stated that the project will supply alternate water supply agreements with landholders who will be potentially affected by mine dewatering. We are upstream of the aquifer and are concerned our water supply and quality will also be affected with no alternative water supplied.

Response – CM28

Mine dewatering will impact on certain aquifers during the Project. In order to assess the impacts of mine dewatering a bore census has been complete (to identify groundwater use and users and obtain pre-mining data including yield, quality, and water levels) and predictive groundwater modelling has been instigated.

A stand alone bore survey report has been included in SEIS Volume 2 Appendix N, indicating all groundwater data recorded.

Predictive groundwater modelling (SEIS Volume 2, Appendix N) has been undertaken to assess the possible impact of mine dewatering and depressurisation. The resultant predicted drawdown cones and recorded bores have been included on Figure 4-2 (Submission Response CM74). This indicates the neighbouring bores, which could potentially be impacted by dewatering over time (SEIS Volume 2, Appendix N).

The Proponent has a make-good commitment. This commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user.

4.1.2.2 Air Quality

Comment – CM29

It is stated that existing homesteads in the surrounding vicinity of the mine may be compensated for air quality, but what compensation arrangements are considered for landholders predominantly downwind of the dust? We don't believe an adequate study has been done for the impact of air quality on landholders further away.

Response – CM29

The air quality assessment has been undertaken to address the impacts in accordance with the legislated air quality guidelines. These guidelines are derived to protect human health and amenity. There is no requirement to assess impacts beyond the limit of these guideline values. Without these guidelines there would be no defined limit to where modelling, compensation, etc should extend.

4.1.2.3 Transport

Comment – CM30

What happens if we are not satisfied with road conditions even after consultations between the mine, the council and DTMR?

Response – CM30

As agreed with the government agencies the Proponent will undertake the required road up grades. Beyond this the management of public roads is the jurisdiction of government agencies.

The Proponent has made a commitment to keep a grievance register, which will include details of responses to grievances. This grievance register will be a key assessment of the mine's environmental performance.

4.1.3 Reid Bauman

4.1.3.1 Groundwater

Comment – CM31

If the modelling suggests there could be a drop of up to 5 metres at distances up to 20km, I have concerns about six of our bores. These bores don't have a very high water level or supply and any variation will render them unusable. Three of these bores are very old working bores and do not have a very high water level (approx 1.5 m), any differences could mean no supply. These bores are an essential supply for cattle and allow us to distribute grazing pressure more evenly over the property to maintain better ground cover and prevent cattle from walking long distances to water.

Response – CM31

In order to ensure all existing groundwater use and users were identified within the Alpha Coal Project (Mine) study area, a bore survey was conducted within and adjacent to the MLAs. An independent consulting company was appointed to undertake the bore survey and a stand alone report presenting the survey information has been included in SEIS Volume 2 Appendix N .

The bore survey aimed at recording all available groundwater data on the following properties: Hobartville, Wendouree, Forrester, Surbiton, Surbiton South, Burtle, Tresillian, Mentmore, **Monklands**, Kia Ora, Spring Creek, and Glen Innes. Groundwater levels, yields, usage, and samples were collected during the bore survey. These baseline data will be used for comparison purposes when assessing possible impacts on mining on the groundwater resources.

The bore survey report includes information from Monklands.

Should groundwater modelling and monitoring indicate impacts of mine dewatering have resulted in the decline in groundwater levels within neighbouring groundwater supply bores then HPPL will enter into a make good water supply agreement.

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS Volume 2, Appendix V);
- Details regarding the groundwater monitoring network and dewatering scheme(s);

- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

A summary of the groundwater data compiled during the bore survey for **Monklands** is tabled below:

A summary of the groundwater data compiled during the bore survey for Monklands is provided in Table 4-2 below. The response to Submission CM74 provides additional information, including a figure illustrating the predicted groundwater drawdown around the mine, which also includes the bore survey results to date.

Table 4-2. Monklands bore survey groundwater data

Parameter	Bore name					
	Shanghai	Cumberland	Deadhorse	New bore	Old bore	Red tank
Easting	0446876	0444564	0448319	0448384	0444572	0449570
Northing	7399916	7400072	7407789	7407593	7405708	7415473
Depth (m)	65	30	62	20	30	34
Equipment	Submersible	Wind pump	Submersible	Wind pump	Wind pump	Wind pump
Yield (L/s)	~ 1	~ 0.5	1.26			~ 0.3
Static water level (m BGL)	33.1					16.26
Dynamic water level (m BGL)		26.8		8.81	12.34	
Volume extracted (m³/week)	151.2		63.5			
Use	Stock	Stock	Stock	Stock	Stock	Stock

Note: Blanks = no data

4.1.4 Doug Carruthers

4.1.4.1 Landscape Character

Comment – CM32

States some areas of remnant vegetation are evident where grazing has been limited or restricted. Remnant mid height woodland dominated by Boxwood and Ironbark. I feel these statements are very misleading. The truth is that 70% plus of land area of proposed mining lease is remnant vegetation (approximately 70000 ac) most of which will require clearing for mining operations to commence. Interestingly 2000 plus ac consist of Old Gidgee Scrub (listed as of concern).

Response – CM32

The entire mining lease is covered by approximately 70% of remnant vegetation, with the remaining 30% comprising of non remnant grassland. The proposed project footprint is approximately 20,680 ha (51,000 ac) within the 64,000 ha (158,700 ac) lease. The non remnant grasslands cover just under 50% (8,900 ha) of the land within the proposed footprint. Some minor clearing within the poplar box open woodland (RE 10.3.27a), fringing riparian woodland (RE 10.3.14) and gidgee open woodland (RE 10.3.4), which are all listed as of concern under the DERM Biodiversity Status is proposed to occur. Assuming mitigation measures are in place when clearing commences, this degree of clearing will not have significant impact on the regional integrity of each community. Appropriate management strategies are provided in the SEIS report and project terrestrial flora and fauna appendix report.

Environmental values within the Project site focus on areas of remnant vegetation. Areas of riverine habitat provide refugia for fauna species. Vegetation communities with high floristic diversity and a higher degree of structural complexity have been noted. These include the riverine habitats, ironbark woodlands, teatree heath and low open woodlands of *Corymbia similis*. Additional areas noted as having high environmental values are areas which are relatively devoid of cattle grazing and communities which are not fragmented and provide fauna corridors.

Grazing does have a large influence within this Project. Areas which are not influenced by grazing (whether this is due to inaccessible terrain or fencing off to protect stock from poison heartleaf) differ in floristic diversity and are generally more pristine. Areas which are limited to grazing are noted. Areas accessed by stock are subject to higher nutrient loading in watercourses, native forbs and grasses have been outcompeted by non-native grasses in particular buffel grass and soils erode and scald due to increased soil salinity and hard hooved animal trampling. Vegetation communities such as the gidgee scrub and fringing riparian woodland are listed as of concern due to impacts of cattle grazing.

4.1.4.2 Terrestrial Ecology

Comment – CM33

Hancock Pty Ltd has been conducting exploration activity over the past 30 years within the Galilee Basin. Unfortunately during this period the Proponent has failed to ensure effective weed management on both occasions, resulting in foreign weed infestation. As landowners we first experienced Hancock mismanagement of weed control in the early 1970's with the introduction of Lantana Camara (class 3 declared plant) and Parthenium Hysterphorus (class 2 declared plant).

Response – CM33

The Proponent is committed to weed management on site and in areas impacted by mining operations. The management of weeds for the mine site is covered in the EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*. The following strategies will be implemented to reduce the risk of weeds being spread through mining activities:

- Monitoring in the form of annual observations by site personnel for weeds of management concern will be undertaken. These will also be conducted following significant rain events, particularly in disturbed areas, roadsides, riparian zones and washdown facilities once safe access can be provided;
- Wash down facilities will be constructed at access points for vehicles arriving and departing from the Project site. These facilities will be bunded and located away from drainage lines to minimise the risk of weed spread;
- All vehicles entering the Project site and leaving properties known to contain declared weeds will be thoroughly washed down before entering clean areas;

- Radiators, grills and vehicle interiors will be cleaned for accumulated seed and plant material;
- All materials will be certified as weed-free prior to acceptance on-site;
- Soil and fill material from weed-affected areas will not be transported to clean sites.
- If weeds of management concern are identified, they will be eradicated from the site in accordance with local best management practice from the Burdekin Dry Tropics Regional Pest Management Strategy and/or the DEEDI Pest Fact Sheets;
- Monitoring and evaluation of treated areas to assess the success of declared weed eradication will be undertaken;
- To promote the awareness of weed management issues, weed management will be included in the site induction; and
- Prepare a site-specific Weed Management Plan (WMP) that will describe how the weeds are to be managed in accordance with the LP Act for Declared weeds and / or local government requirements for weeds not declared under state legislation.

Comment – CM34

At the request of landowners a wash down facility was installed at the Alpha Coal camp to clean vehicles before entering weed free grazing pastures within the exploration perimeter. However, disappointingly numerous breeches have been identified.

Response – CM34

The Proponent is committed to weed management on site and in areas impacted by mining operations. The management of weeds for the mine site is covered in the EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*. The details of this commitment are described in response CM33. These measures, during continued exploration, construction, and operation will be effectively enforced as part of the Alpha Mine Project.

4.1.4.3 Groundwater

Comment – CM35

The EIS states it is highly likely that uptake for the underground water aquifer in this area is from the Colinlea sandstone. On the eastern side of "Wendouree" much of which will be covered with infrastructure of, which most concern, is the tailings storage facility. Leaching of heavy metal and contaminants in groundwater aquifer is a possibility.

Response – CM35

The geochemical characteristics of the tailings is not acid generating (A. Robertson, RGS Environmental Pty Ltd, pers. comm. 15.02.2011), thus the likelihood of heavy metal migration is limited. Additional information regarding the mine waste is included in the technical report compiled by SRK Consulting regarding the geochemical characterisation of the Alpha Coal Project (Mine) (SRK, 2010).

The design of the proposed TSF is detailed in EIS Volume 5, Appendix J2. Section 4.2 discusses the seepage control measures to be implemented, including a clay liner (sourced from the weathered Tertiary material to the west of Lagoon Creek) and an under drainage system.

Additional hydrogeological studies have been conducted within and adjacent to the proposed TSF footprint to the east of Lagoon Creek. The drilling and recorded groundwater data indicates limited

recharge and groundwater resources within this area. The results of the drilling and bore construction are included in SEIS Volume 2 Appendix N.

Comment – CM36

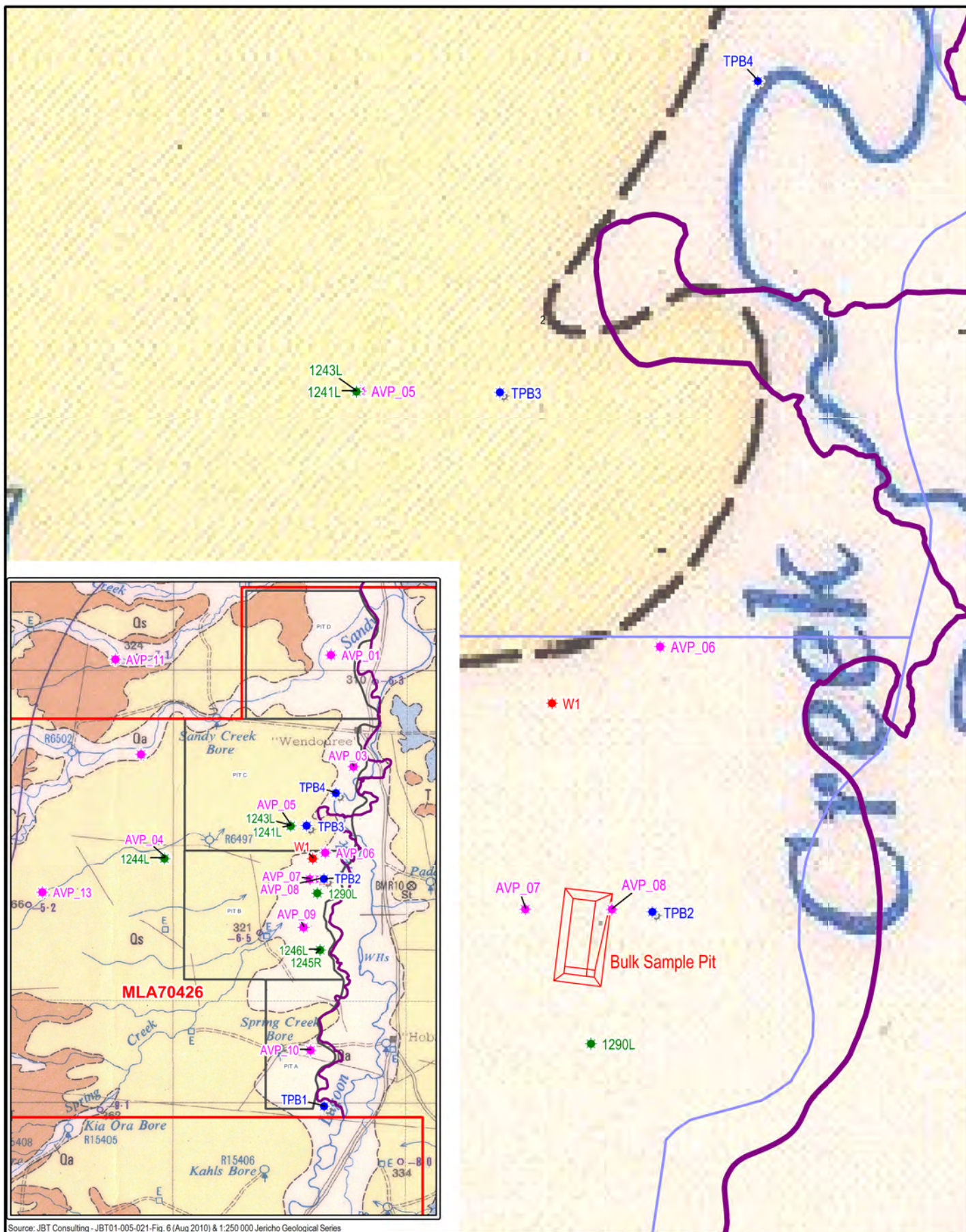
Further investigation including full groundwater modelling should be undertaken before the EIS is approved. To the best of my knowledge, no pump drawdown testing has been conducted by the Proponent. The study for PREDICTIONS not FACTS in the EIS by the Proponent have undertaken is relying on a short pump test completed 29 years ago by the previous owners of the exploration lease. In the predictions our bore water (which we rely on exclusively on for domestic water and much of our stock water) would be in the area of 100 metres of drawdown and as such we would be left with no water.

Response – CM36

Site specific aquifer data was obtained during the dewatering, both in-pit and out-of-pit, of the Alpha bulk sample test pit. These data regarding bore yields, bore level change over time, and recovery allowed for the evaluation of large scale groundwater extraction (38 ML over 3.5 months) on the local groundwater resources. These data, presented in SEIS Volume 2 Appendix N, are utilised in constructing and calibrating the predictive groundwater model.

An additional pump test was conducted during February 2011. Bore 1290L was tested to determine aquifer hydraulic parameters within the test pit area (as indicated in Figure 4-1 below).

A constant rate test was run on Thursday 17 Feb. For this test the bore was pumped at 0.4 L/s, and the bore was sucked dry after 2 ¾ hours (pump intake was at 69 m below ground level, and the drawdown in the pumped bore was 60.9 m). After this time the drawdown in adjacent monitoring bore AMB-01, 30 m distant, was 1.25 m. This means that in this area, the D-E sandstone has a very low transmissivity, and that the cone of depression was very steep. Sufficient data was obtained to analyse and estimate aquifer parameters. The hydraulic conductivity (K) comes out at approximately 0.18 m/day, or 2.1×10^{-6} m/sec. A summary of pumping tests undertaken at site is shown in Table 4-3 and the K range from other pumping tests is shown in Table 4-4 below. In summary though, the K value obtained from the recent test was lower than anything else from the D-E sandstone, but similar to values for the C-D sandstone in the test pit area (e.g. values obtained from testing of W1, refer to Tables 4-3 and 4-4).



Source: JBT Consulting - JBT01-005-021-Fig. 6 (Aug 2010) & 1:250 000 Jericho Geological Series

- WP Monitoring Bore
- AGC Test Pumping Bore (1983)
- Longworth & McKenzie Test Pumping Bore (1984)
- Pumping Test Site (Current Investigation)
- Mining Lease Application (MLA70426) Boundary
- Pit Outline
- D Seam Subcrop

Source: See Copyright Details below and for full disclosure Please Refer to the SEIS Volume 2, Appendix B

0 250m 500m
Scale 1:25 000 (A4)



HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Supplementary Environmental Impact Statement

**ALPHA COAL PROJECT (MINE)
LOCATION OF
PUMPING TEST SITES**

Job Number | 4262 6680
Revision | A
Date | 09-04-2011

Figure: 4-1

Datum: GDA94, MGA Zone55
File No: 42626680-g-1014.wor

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This map is based on or contains data provided by GHD and URS 2011, which makes no representation or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any expenses, losses, damages and/or costs (including indirect or consequential damages) which are or may be incurred by any party as a result of data being inaccurate, incomplete or unsuitable in any way for any reason.

Table 4-3. Summary of groundwater pumping tests

Bore		Te(s)		Comments
Testing undertaken by AGC 1983				
TPB-1	100 hr	D-E Sands	10	37 m of drawdown in pumping bore. Water level drawn down to base of top screens.
TPB-2	24 hr	D-E Sands	3.6	At a pumping rate of 10 L/s the water level dropped to the pump intake. Testing continued at 3.6 L/s. Drawdown during test was 55 m in the pumping bore.
TPB-3	100 hr	C-D Sands	10	19 m of drawdown in pumped bore. Water level almost down to top of aquifer.
TPB-4	100 hr	D-E Sands	6	44 m of drawdown in pumped bore. Water level drawn down within the aquifer.
Testing undertaken by Longworth & McKenzie 1984				
W-1	2 days	C-D Sands	0.1	Bores W-1 and W-2 were constructed at the same location, but were screened within separate aquifers. W-1 was constructed within Aquifer 1 (C-D Aquifer of AGC reports), while W-2 was constructed within Aquifer 2 (E Aquifer of AGC Reports) 5.5 m of drawdown in pumped bore.
W-2	15.87 days	D-E Sands	1.03	34.27 m of drawdown in pumping bore.
Testing undertaken by JBT Consulting 2011				
1290L	2.45 hours	D-E Sands	0.4	Drawdown in the pumped bore was 60.9 m after 2 hours 45 minutes. In an observation bore (AMB-01) 30 m away (also constructed in D-E sands) the drawdown after 2 hours 45 minutes was 1.25 m.

Table 4-4 Aquifer hydraulic properties

Pumping Test Bore	Bore Monitored	Distance from Pumped Bore (m)	Unit	Transmissivity (T) (m ² /day)	Hydraulic Conductivity (K) (m/d)	Storage Coefficient (S)
AGC (1983)						
TPB1	TPB1	0	D-E Sandstone	41.6	1.73	-
				23.2	0.97	-
				29.1	1.21	-
TPB1	B597	10.05	D-E Sandstone	43.9	1.46	4.80E-05
				30.4	1.01	4.70E-04
				29.8	0.99	-
TPB1	B593	260	D-E Sandstone	42.7	1.78	3.60E-05
				28.4	1.18	4.65E-05
				28	1.17	-
TPB2	B591	572.5	D-E Sandstone	42	1.50	1.26E-04
				65.3	2.33	-
TPB2	TPB2	0	D-E Sandstone	2.8	0.18	-
				4.7	0.29	-
TPB2	B538	20.03	D-E Sandstone	5.3	0.33	6.60E-05
				4	0.25	-
TPB3	TPB3	0	C-D Sandstone	6.5	0.33	
TPB3	B506	21.35	C-D Sandstone	5.6	0.28	1.10E-03
				5.4	0.26	
TPB4	TPB4	0	D-E Sandstone	10.3	0.32	
				9.8	0.31	
TPB4	B627	32.9	D-E Sandstone	14.8	0.57	1.00E-05
				18.3	0.70	
TPB4	B191	370	D-E Sandstone	16.6	0.55	1.90E-05
				15.9	0.53	
Longworth & McKenzie (1984)						
W1	W1	0	C-D seams interburden	2.8	0.12	
W1	P1/1	30	C-D seams interburden	4.3	0.18	1.30E-03
W1	P3		C-D seams interburden	2.8	0.13	8.00E-03
W2	W2	0	D-E Sandstone	4.6	0.22	
W2	P1/2	30	D-E Sandstone	4.3	0.29	3.20E-05
W2	P2/2	50	D-E Sandstone	4.3	0.29	3.70E-05

In order to ensure all existing groundwater use and users was identified within the Alpha Coal Project (Mine) study area, a bore survey was conducted. An independent consulting company, has undertaken the bore survey and produced a stand alone report (SEIS Volume 2 Appendix N).

The bore survey aimed at recording all available groundwater data on the following properties: Hobartville, Wendouree, Forrester, Surbiton, Surbiton South, Burtle, Tresillian, Mentmore, Monklands, Kia Ora, Spring Creek, and Glen Innes. Groundwater levels, yields, usage, and samples was collected during the bore survey. These baseline data will be used for comparison purposes when assessing possible impacts on mining on the groundwater resources.

Predictive groundwater modelling (SEIS Volume 2, Appendix N) has been conducted (and model refinement is ongoing as additional information becomes available) to assess the possible impact of mine dewatering. The current predicted drawdown cones and recorded bores have been included on Figure 4-2 (Submission Response CM74). This indicates the neighbouring bores, which could potentially be impacted by dewatering over time.

A groundwater monitoring program has been instigated, and will be enhanced over time, to assess actual alteration to groundwater resources. These data will be used to update the numerical groundwater model every 3 years to ensure an accurate simulation of hydrogeology.

The Proponent has made a make-good commitment. The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (EIS, Volume 5, Appendix P);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if HPPL is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The make-good strategies to be put in place for groundwater level impacts, were considered to include:

- Lowering pumps within an existing borehole, or supplying pumps with a greater head capacity if required; and
- Drilling new bores to a greater depth, e.g. to intersect the sub-E sands or lower aquifers, which are not a target of dewatering by the operation and therefore will not be impacted to the degree predicted for the D-E sandstone and overlying sediments.

This approach will be considered, depending on the location of the bore and the affected groundwater resource / aquifer, initially as this will negate the need to move or install additional water infrastructure.

Should a water source or supply be located away from the affected bore it is considered that an agreement will be reached with the affected groundwater users with regards to any movement of water infrastructure or the installation of water transport infrastructure to the affected bore.

The additional costs of water infrastructure, movement of water infrastructure, operation and maintenance, and ancillary infrastructure (fencing, pressure tanks, etc.) will be borne by the Proponent.

4.1.5 Allana and Rhondda Coyne

4.1.5.1 Terrestrial Ecology

Comment – CM37

We also have concerns relating to access and road usage on and near our property. Should this occur we would be affected by noise, disturbance, and the possible infestation of noxious weeds especially Parthenium. Can Hancock Coal assure us that they have in place some strategy to avoid this happening?

Response – CM37

Noise and disturbance due to increased road usage is covered in the EIS Volume 2, Section 15.5 *Assessment of Potential Noise Impacts*. It includes the following measures:

- The Department of Transport and Main Roads (DTMR) Road Traffic Noise Management Code of Practice (CoP) criteria (DTMR, 2007) have been adopted for the purposes of this assessment. The CoP aims to protect sensitive noise receptors (including nearby tenants) in the vicinity of new road projects, road upgrades and existing roads with no roadworks (EIS Volume 2, Section 15.4.6).

The management of weeds is covered in EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*. The following measures are included:

- All vehicles entering the Project site and leaving properties known to contain declared weeds will be thoroughly washed down before entering clean areas;
- The present location of weeds will be highlighted and a comprehensive weed spraying program be implemented prior to the commencement of works. Declared weed species (including Parthenium) will be treated as per the relevant DEEDI Pest fact sheet for each particular species; and
- Monitoring in the form of annual observations by site personnel for weeds of management concern will be undertaken. These will also be conducted following significant rain events, particularly in disturbed areas, roadsides, riparian zones and washdown facilities once safe access can be provided.

4.1.5.2 Groundwater

Comment – CM38

We wish to express our concern, regarding the Alpha Coal Project, and how it will impact on our water table and related aquifers. We are of the understanding that Hancock Coal have not completed any tests on water tables around the area. Are you able to guarantee us, the landholders in the area, that no aquifer contamination will occur if Hancock Coal proceed with this mining operation?

Response – CM38

With reference to the response to the Submission CM38, a bore survey has been complete and has compiled baseline groundwater use and user data, prior to any mining activities. These data are presented in SEIS Volume 2 Appendix N.

Open pit coal mining will result in a drawdown of the regional groundwater table towards the open pit. The water level in the final void at the end of mining will be lower than the pre-mining groundwater levels (Predictive groundwater modelling SEIS Volume 2 Appendix N) as a result of high evaporation over a large area compared to the groundwater ingress, runoff over the disturbed area into the final void, and direct rainfall into the final void.

This means that groundwater flow will always be towards the mining excavations once mining starts. This conceptualisation is included in Figure 12-10 (EIS Volume 2, Section 12).

Any potential poor quality seepage from mine operations and infrastructure that enters the groundwater will reach the open pit. Thus any potential seepage from long term contaminant sources, such as the backfilled / rehabilitated mine voids or waste rock dumps, will report to the final void.

4.1.5.3 Transport

Comment – CM39

We also have concerns relating to access and road usage on and near our property. Should this occur we would be effected by noise, disturbance, and the possible infestation of noxious weeds especially Parthenium. Can Hancock Coal assure us that they have in place some strategy to avoid this happening?

Response – CM39

This item will be addressed in the Road-Use Management Plan (RUMP) - see section 8.1.4 of the TIA document (SEIS Volume 2, Appendix U) that outlines a draft of the RUMP document. Other studies will also identify management and mitigation measures for noise, disturbance and weeds.

4.1.6 Sonya Duus

4.1.6.1 Executive Summary

Comment – CM40

Light pollution from the mine appears not to have been considered.

Response – CM40

Night time lighting impacts and mitigation measures have been considered in EIS Volume 2, Section 7.16.4.

4.1.6.2 Groundwater

Comment – CM41

The potential for significant deterioration of groundwater quantity and quality as a consequence of the cumulative impacts of the proposed developments could dramatically impact on the region's main source of livelihood (cattle grazing, largely dependent on the use of bore water), and must be carefully investigated before any approvals in the Galilee Basin are given. It also appears that ground-water dependent vegetation has not been considered among the potential impacts from de-watering associated with coal mining.

Response – CM41

A review of the Nature Conservation studies, conducted for the EIS Volume 2, Section 9 and EIS Volume 5, Appendix E, indicates that there are no groundwater dependent ecosystems within the nature conservation study area.

An evaluation of groundwater occurrence, availability to possible GDEs and vegetation communities has been compiled. Possible impacts of mine dewatering on these groundwater resources have been undertaken and are included in SEIS Volume 2 Appendix N.

4.1.6.3 Greenhouse Gas Emissions

Comment – CM42

There is a stunning absence of any mention of the significance of their project in terms of the total amount of greenhouse gas emissions associated with the end use of the coal. In Volume 1, section 0.3 it is stated that the EIS 'addresses the entire life of the project', and elsewhere that '(t)he objective of the EIS process is to ensure that all impacts, direct and indirect, particularly environmental, social and economic impacts are fully examined and addressed' (Volume 2, p1-19). These are blatantly false claims, given the lack of discussion of the end use of the commodity central to their project.

Response – CM42

Under the *National Energy and Greenhouse Reporting Act 2007* (NGER) technical guidelines (Department of Climate Change and Energy Efficiency [DCCEE], 2009), boundaries have been established to assist in determining emissions attributable to a project. In terms of emissions boundaries, three scopes have been identified:

- Scope 1 (also referred to as direct) emissions are greenhouse gas emissions which occur as a direct result of activities at a facility. They are emissions over which the entity has a high level of control.
- Scope 2 (also referred to as energy indirect) emissions cover greenhouse gas emissions from the generation of purchased electricity, steam, heating or cooling consumed by a facility. Scope 2 emissions are indirect emissions that entities can easily measure and significantly influence through energy efficiency measures.
- Scope 3 covers all indirect emissions that are not included in scope 2. They are a consequence of the activities of the facility, but occur at sources or facilities not owned or controlled by the entity.

NGER legislation does not require the Alpha Coal Project to report its Scope 3 emissions for several reasons. In the legislation, the emissions generated by burning the coal to produce electricity (the Projects Scope 3 emissions) are assigned to the end user and become their scope 2 emissions. As such, the use of the coal within Australia will be captured by the national greenhouse gas accounting system. If the annual Scope 3 emissions as a result of the mine were to be calculated and reported against the national greenhouse accounting system, it would effectively be double counting because these emissions are already represented.

Since public display of the EIS, the Project Description has been modified, with an updated assessment of greenhouse gas emissions provided in SEIS Volume 2, Appendix Q. In 2008 Australia's net greenhouse gas emissions across all sectors totalled 576 Mt CO₂-e, with the mining sector emitting 71.3 Mt CO₂-e. At the peak of production, the Alpha Coal Project will contribute (Scope 1 and 2) 0.19% of Australia's total greenhouse gas emissions and 1.5% of Australia's mining sector. As an average across the life of the mine, it will contribute 0.13% per year of Australia's total greenhouse emissions, and 1.07% of the mining sector.

Comment – CM43

Based on formulas provided in the 2008 National Greenhouse Accounts Factors document, the carbon emissions resulting from energy production generated from the annual production of the Alpha Coal mine (30 Mt/year) would be 71,628,300 tonnes CO₂-ei. This is equivalent to around 12.5% Australia's national annual emissions (based on 2008 figure of 576 Mt). By only including the

emissions from the operation of the mine, the proponents have neglected to account for more than 95% of the total emissions that would result from their project.

Response – CM43

Under the National Energy and Greenhouse Reporting (NGER) legislation (Dept of Climate Change, 2009), boundaries have been established to assist in determining emissions attributable to a project. In terms of Emissions boundaries, three scopes have been identified:

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Department of Climate Change, 2009. National Greenhouse and Energy Reporting Streamlining Protocol. Online at:

<http://www.climatechange.gov.au/government/initiatives/~media/publications/greenhouse-report/nger-streamlining-protocol.ashx> (Accessed 1 March 2011).

Comment – CM44

Issues that must be addressed by Hancock coal is the fact that their project is first off the mark in the Galilee Basin, and especially with their proposed rail-line, that they serve the function of the 'thin edge of the wedge' in the 'opening up' of a coal basin. If the cumulative production of coal from the Galilee Basin turns out to be something in the order of 140 Mt (based on anticipated production of Alpha, Kevin's Corner, China First, South Alpha and the Carmichael mines), then the figures quoted above have to be revised upwards over four-fold. If the Alpha mine's contribution to climate change is not considered significant, then the cumulative quantity must surely be.

Response – CM44

As per the Terms of Reference, the greenhouse gas assessment examines the greenhouse gas emissions from the Project, while the climate change section is designed to examine the impacts of climate change on the Project. The greenhouse gas emissions have been assessed with updated estimates provided in SEIS Volume 2, Appendix Q. The cumulative impacts of greenhouse gas have been addressed in EIS Volume 4, Appendix G, Section G.5.7.

In terms of the cumulative impact assessment the Proponent has limited access to data from the majority of the above-mentioned projects and is not in a position to assess in the requested detail the cumulative impacts from all projects. This task would be best undertaken by government with input from all project proponents.

4.1.6.4 Social**Comment – CM45**

The flooding of the Nogoa River which runs through Emerald peaked higher in January this year (2011) than in the 2008 flood, which raises serious questions about the validity of notions such as 'one in 100 year' events in Australia, particularly in the context of infrastructure planning for mines that when inadequate can lead to polluted water ways. Also, the impact of future flooding in the town of Alpha where the population is anticipated to expand roughly 10-fold on account of the new mine developments has not been addressed.

Response – CM45

The 2011 flood events throughout many parts of Queensland did not represent the normal adopted flood scenario. Instead, many of the catchments were saturated by prolonged rain, causing the runoff coefficients to rise to close to or equal to 1. Consequently, even though the rainfall event that caused widespread inundation and flooding may not have been that significant, the net impact was considerable.

In order to adequately capture the runoff resulting from a storm event, all parameters that may influence the flood event in a creek are considered including topography, land-use, saturation, roughness of the catchment and watercourse, etc. Such parameters can be highly variable and therefore a sensitivity analysis is carried out to determine the upper range of a flood event and to inform the modeller and designers of the worst case scenarios. Typically this produces a 20% increase of the flow event.

Separate to the EIS related flood modelling carried out for the Alpha Project, the Proponent commissioned an independent study into the flood risk. This study focussed on the volatility of rain and runoff on the Project area and recommended adjustment of the flows adopted to approximately 20% above the flows derived from the standard available Department of Environment and Resource Management (DERM) flow gauging data.

The issue of flooding and impact on Alpha, where the population is anticipated to expand roughly 10-fold on account of the new mine developments, is a separate issue. Potential flooding in Alpha Township is directly influenced by its upstream catchment and the Alpha Creek's conveyance through the town. Adequate town planning and flood protection measures will reduce the town's risk to flooding and inundation.

Summarised, in recognition of the issues raised in this query, the design flood event has been inflated to include for uncertainties in the modelling and data used, thereby improving the reliability of the flood assessment and design parameters for the mine and associated works (SEIS Volume 2, Appendix K)

4.1.7 Stephen Kimber

4.1.7.1 Description of the Project

Comment – CM46

There seems to be no mention of recreational activities. Study results have just hit the headlines claiming high numbers of cases of violence drug and alcohol abuse closely linked to fly in and fly out operations due to boredom in a male dominated mining camp.

Response – CM46

The on-site accommodation village will have adequate recreational facilities for the workforce consistent with industry standards.

4.1.7.2 Decommissioning and Rehabilitation

Comment – CM47

Topsoil will be spread at a minimum of 0.1 to 0.3 m on all rehabilitation areas. This very thin layer will be spread over dug up sandstone and rock from the pit. Given the impending global food shortage the land should be rehabilitated in better condition than before it was dug up so as to grow more produce (in this case beef) not less.

Response – CM47

Rehabilitating the land to a condition improving on its pre-disturbance level of productivity would be difficult given the finite nature of the site's topsoil resources. Re-distributing topsoil at a depth of 10-30 cm is standard practice for coal mine rehabilitation programs throughout Australia. Historically, these programs have proved successful in rehabilitating areas disturbed by mining.

To achieve rehabilitation via the respondent's suggested solution would require a minimum of 135,000,000 m³ of soil. The availability of soil resources within the Project area has been qualified and quantified. Some 44,611,900 m³ of topsoil are available for rehabilitation. To overcome this deficiency, 90,388,100 m³ of topsoil would need to be sourced from elsewhere. This would have serious implications in terms of environmental impacts in source areas in addition to social, traffic and safety issues associated with haulage. Spreading topsoil to depths of greater than 10-30 cm is considered an unviable option for rehabilitation of the site.

Top soil seeding and the addition of fertilisers will aid in establishing good growth within the rehabilitated areas, thus re-establishing landuse to pre-mining condition.

Comment – CM48

Weed management will occur across the site. This is good to hear but there is no mention of any management plan for areas downstream of the site. Because I live at the site I know that weeds have already been introduced onto the site and to their credit the company has got a management plan in place. I have warned neighbours to be vigilant as I have found introduced weeds in watercourses and gullies that lead into major creeks.

Response – CM48

A number of weed management strategies are highlighted in EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*. A Weed Management Plan will also be developed by the Proponent in order to minimise the potential for future weed infestations. Please note that the second dot point below allows for monitoring of weeds beyond the site boundary including downstream waterways (riparian zones) and roadsides.

- The present location of weeds will be highlighted and a comprehensive weed spraying program be implemented, prior to the commencement of works. Declared weed species will be treated per the relevant DEEDI fact sheet for each particular species;
- Monitoring in the form of annual observations by site personnel for weeds of management concern will be undertaken. These will also be conducted following significant rain events particularly in disturbed areas, roadsides, riparian zones and washdown facilities once safe access can be provided;
- Washdown facilities will be constructed at access points for vehicles arriving and departing from the Project site. These facilities will be bunded and located away from drainage lines to minimise the risk of weed spread;
- All vehicles entering the Project site and leaving properties known to contain declared weeds will be thoroughly washed down before entering clean areas.
- Radiators, grills and vehicle interiors will be cleaned for accumulated seed and plant material;
- If weeds of management concern are identified, they will be eradicated from the site in accordance with local best management practice from the Burdekin Dry Tropics Regional Pest Management Strategy and/or the DEEDI Pest Fact Sheets;
- Monitoring and evaluation of treated areas to assess the success of declared weed eradication will be undertaken;
- To promote the awareness of weed management issues, weed management will be included in the site induction; and
- A site-specific Weed Management Plan (WMP) will be developed. The WMP will describe how the weeds are to be managed in accordance with the LP Act and/or local government requirements for weeds not declared under state legislation.

4.1.8 Lex Lawrie

4.1.8.1 Waste

Comment – CM49

I feel that the Fitzroy River System is being compromised by mine water discharges. Any discharges should be treated and re-oxygenated. The same applies to any discharges from the Galilee Basin mines.

Response – CM49

The quality of any mine water discharges from the Alpha Coal Project will be strictly controlled under a legally binding Environmental Authority document prepared and regulated by the Queensland Government. This is standard practice for all coal mines in Queensland. The Environmental Management Plan (SEIS Volume 2 Appendix V, Section 3.4.8.5) associated with the EIS/SEIS describes surface and seepage water monitoring programs that will be used to ensure compliance with the conditions of the Environmental Authority for the Project.

Comment – CM50

Mining companies seem to have very few restrictions placed on them and any waters discharged from Galilee Basin mines will find their way to the reef by way of the Belyando and Burdekin Rivers. The Belyando River, when in flood, spreads out over a wide area and the possibility of widespread land pollution is indicated.

Response – CM50

The quality of any mine water discharges from the Alpha Coal Project will be strictly controlled under a legally binding Environmental Authority document prepared and regulated by the Queensland Government. This is standard practice for all coal mines in Queensland. The Environmental Management Plan associated with the EIS/SEIS describes surface and seepage water monitoring programs that will be used to ensure compliance with the conditions of the Environmental Authority for the project.

It should be noted that in addition to the strict release criteria that will be issued to the Project, when the receiving water systems are in flood as mentioned in the above comment the volume of water in the system will be hundreds of magnitudes larger than the volume discharged from the mine so reducing further any potential mine related impacts.

4.1.9 Ross McKeering

4.1.9.1 Terrestrial Ecology

Comment – CM51

Provisions must be made available to landholders affected by weeds and pests introduced by mining activity.

Response – CM51

The management of weeds is detailed in EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*. This section notes that the management of weeds will be co-ordinated with programs led by local government, community or landowners. The mine will employ an environmental officer that will be available to liaise with landholders over weed control.

This section also details requirements for the preparation of a site-specific Weed Management Plan (WMP). The WMP will describe how the weeds are to be managed in accordance with the LP Act and/or local government requirements for weeds not declared under state legislation. Any provisions for assistance in managing or eradicating weeds or pests on neighbouring properties deemed to be caused by mining activities will be subject to individual agreements between the Proponent and the landholder. These provisions may include:

- Access to weed control chemicals;
- Having their property included in pest fauna monitoring programs; and/or
- Financial assistance for weed and pest control.

4.1.9.2 Groundwater

Comment – CM52

Further investigation including a full groundwater modelling should be undertaken before the EIS is approved.

Response – CM52

Mine dewatering will impact on certain aquifers during the project. In order to assess the impacts of dewatering a bore census and groundwater modelling has been undertaken.

Predictive groundwater modelling has been commissioned (SEIS Volume 2, Appendix N) to assess the potential impacts of mine dewatering. Additional drilling has been conducted and transient groundwater data has been obtained from the Alpha bulk sample test pit (dewatering of the pit). These data, included in SEIS Volume 2 Appendix N, have been used to aid in refining the existing groundwater model.

Commitments compiled in the EM Plan (SEIS Volume 2, Appendix V, Section 3.4.8.5), include the instigation of an enhanced groundwater monitoring network and regular revision (every 3 years) of the groundwater model. This will allow for the refinement of the model based over time, which will facilitate more accurate long term impact evaluation and suitable closure planning.

Comment – CM53

Approval should be conditional on (1) a development permit (water licence) is required for groundwater impacts (2) ensure development permit if issued by DERM is given to owners of at risk bores (3) Hancock coal is required to enter into a make-good agreement with at-risk landholders.

Response – CM53

According to comments received from DERM the following points were raised regarding water licensing:

“A Water licence will be required to authorise the take of water by the proposed dewatering scheme. Permits will also be required for temporary take of groundwater for any construction purposes. Development permits will be required to authorise the construction of bores to take this water” (DERM, SEIS Volume 2 Appendix AJ).

Groundwater supplies, such as deeper bores, or bores constructed within different (non-affected) aquifers, to be developed to replace impacted groundwater use will be subject to existing legislation. The current requirements, as discussed in EIS Volume 5, Appendix G, Section 4.0 include:

- The Alpha Coal Project (Mine) is located within the Highlands declared subartesian area, thus under Schedule 11 of the *Water Regulation 2002* bores used for stock and domestic purposes do not require a permit; and
- Bores for mine dewatering require authority to take or interfere with water, and a development permit is required for bore drilling and construction.

The Proponent committed to a make good agreement, which is envisaged to include:

- Details regarding the baseline data compiled during the bore survey;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS Volume 2 Appendix V, Section 3.4.7.2);

- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if HPPL is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

Comment – CM54

Base line assessment and routine monitoring of potentially affected private bores at no expense to owner.

Response – CM54

Mine dewatering will impact on certain aquifers during the project. In order to assess the impacts of dewatering a bore census and groundwater modelling has been undertaken.

In order to ensure all existing groundwater use and users are identified within the Alpha Coal Project (Mine) study area, a bore survey was conducted (SEIS Volume 2 Appendix N).

Predictive groundwater modelling (SEIS Volume 2, Appendix N) has been commissioned to assess the possible impact of mine dewatering. Neighbouring bores (SEIS Volume 2, Appendix N), which could potentially be impacted by dewatering over time, have been identified.

The make-good commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user (SEIS, Volume 2, Appendix V, Section 3.4.7.2).

Comment – CM55

Development of a fair and workable "make good scheme" should be established with independent arbitrator.

Response – CM55

The Proponent is committed to a make good agreement, which is envisaged to include:

- Details regarding the baseline data compiled during the bore survey;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS, Volume 2 Appendix V, Section 3.4.7.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if HPPL is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;

- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

4.1.9.3 Air Quality

Comment – CM56

Provision for landholder compensation in areas affected by dust pollution of stock fodder.

Response – CM56

The provision of any compensation agreements for potential impacts from the mine will be confidentially negotiated between individual parties and the Proponent.

4.1.9.4 Transport

Comment – CM57

Shire roads used for the development of the Alpha Coal Project are unsealed and have been damaged and impassable at times.

Response – CM57

The site inspections undertaken during the TIA have identified the existing condition of the road network surrounding the site – and in particular Degulla Road and Hobartville Road which are BRC road assets. The pavement assessment has been reviewed following further consultation with BRC and DTMR and road upgrades have been recommended. These upgrades, in particular, recommend that Degulla Road be sealed to an all-weather standard between Clermont-Alpha Road and the site access. Further detail can be found in Section 5 of the updated TIA (SEIS Volume 2, Appendix U).

4.1.10 MHG, JJ & BG O'Dell

4.1.10.1 Terrestrial Ecology

Comment – CM58

Weeds and weed control? Partially Parthenium, coming onto our property, and when they are introduced what level or responsibility will be taken to controlling them.

Response – CM58

The management of weeds is covered in the EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species* and states that the management of weeds will be co-ordinated with programs led by local government, community or landowners. The mine will employ an environmental officer that will be available to liaise with landholders over weed control.

The EIS also outlines several weed control measures including:

- The present location of weeds will be highlighted and a comprehensive weed spraying program be implemented prior to the commencement of works. Declared weed species (including Parthenium) will be treated per the relevant DEEDI fact sheet for each particular species;
- Washdown facilities will be constructed at access points for vehicles arriving and departing from the Project site. These facilities will be bunded and located away from drainage lines to minimise the risk of weed spread;
- All vehicles entering the Project site and leaving properties known to contain declared weeds will be thoroughly washed down before entering clean areas.
- Radiators, grills and vehicle interiors will be cleaned for accumulated seed and plant material;
- Soil and fill material from weed-affected areas will not be transported to clean sites.
- If weeds of management concern are identified, they will be eradicated from the site in accordance with local best management practice from the Burdekin Dry Tropics Regional Pest Management Strategy and/or the DEEDI Pest Fact Sheets; and
- Preparation of a site-specific Weed Management Plan (WMP). The WMP will describe how the weeds are to be managed in accordance with the LP Act and / or local government requirements for weeds not declared under state legislation.

Any provisions for assistance in managing or eradicating weeds or pests on neighbouring properties deemed to be caused by mining activities will be subject to individual agreements between the Proponent and the landholder. These provisions may include:

- Access to weed control chemicals;
- Having their property included in pest fauna monitoring; and/or
- Financial assistance for weed and pest control.

4.1.10.2 Groundwater

Comment – CM59

How will it affect our aquifers and water table? The water at Milngavie is supplied by our very deep bores.

Response – CM59

Milngavie is located south of Hobartville and west of Spring Creek. The station is located on Rewan Formation and Clematis Sandstone of the Great Artesian Basin (GAB). The units to be affected through mine dewatering will be the Permian age Bandanna Formation and Colinlea Sandstone of the Galilee Basin.

Mine dewatering, based on the low permeable nature of the Rewan Formation aquitard, will have no impact on the GAB aquifers, as discussed in Section 12.6 Volume 2 (see Figure 12-3). Additional information, regarding potential impacts on the GAB units, has been included in SEIS Volume 2 Appendix N.

SEIS Volume 2, Appendix N presents the initial results of predictive groundwater modelling commissioned to assess impacts of mining on groundwater resources. Current modelling indicates limited drawdown to the south and west and no impact on GAB aquifers.

Figure 4-2 (Submission Response CM74) indicates the predicted cone of depression based on the mining of both MLA 70425 and MAL70426. The drawdown cone extends along strike and is limited by the low permeability of the Rewan Formation to the west and the Joe Joe Formation to the east.

Drawdown at the end of 30 years is not predicted to extent > 10 km from the mine boundary, and is not envisaged to impact on the bores located within Milngavie.

Comment – CM60

I would like to be assured this water will not be affected or contaminated in any way and if so Hancock Coal, or future owners- will supply a good water supply to cover our needs in running our enterprise, at no cost to us.

Response – CM60

The potential impacts, with regards to water level decline and potential deterioration of groundwater quality, of mining activities is discussed in EIS Volume 2, Section 12. There is, therefore, the potential for impacts to the current (pre-mining) groundwater resources.

Groundwater monitoring and modelling predictions will allow for the identification of impacted groundwater use. Where impacts are identified The Proponent has committed to ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user (SEIS Volume 2, Appendix V, 3.4.7.2).

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during a bore survey;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (SEIS Volume 2, Appendix V, Section 3.4.7.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if HPPL is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The EM Plan (SEIS Volume 2, Appendix V, Section 3.4.7.2) provides details of the strategies to be put in place for bore performance impacts, which include:

- Lowering pumps within an existing borehole, or supplying pumps with a greater head capacity if required; and
- Drilling new bores to a greater depth, e.g. to intersect the sub-E sands or lower aquifers, which are not a target of dewatering by the operation and therefore will not be impacted to the degree predicted for the D-E sandstone and overlying sediments.

Based on the envisaged strategies the make-good commitment is to also include provision for additional operation and maintenance costs, which may be incurred due to:

- Larger pumps;
- Deeper depths;
- Additional water related infrastructure;

- Power costs; and
- Spare parts.

4.1.10.3 Air Quality

Comment – CM61

We are approximately 8 kms in a westerly direction from the proposed pit, will the wind blowing in our direction the dust be a big problem with our breathing problems (asthma) and affecting the grass?

Response – CM61

Recent changes to the Project Description have resulted in a significant reduction in estimated dust that will be generated from the site. These revised estimates of dust generation have been incorporated into an updated atmospheric dispersion model which has been used to predict concentrations of particulates in ambient air and the rate of deposition of dust to the land surface in the immediate area adjacent to the mining lease boundary.

These updated predicted concentrations and rates of deposition have then been compared to the Queensland DERM standards (SEIS Volume 2, Appendix P, Table 2-3) set for the protection of human health and the prevention of nuisance from deposition of dust to the land surface. The comparison reveals that at the sensitive receptor at location 8 which lies approximately 5 km to the south-west of the site:

- Exceedances are predicted of the EPP Air PM₁₀ 24-hour average, PM_{2.5} 24-hour average and the PM_{2.5} annual average objectives;
- Compliance is predicted with the EPP (Air) TSP annual average objective and the Queensland DERM rate of dust deposition guideline.

Contour plots reveal that it is likely that the pollutant concentrations predicted at a location 8 km to the west of the site (on the assumption that this location is 8 km to the west of the mining lease boundary) will exceed the Project Goals. An operational monitoring program (SEIS, Volume 2, Appendix P, Section 7) will be used to assess the accuracy of these predictions by monitoring real time ambient concentrations and rates of dust deposition. This will occur at sensitive locations which have been identified, with the nearest being Receptor 8 which lies 5 km to the south-west of the mining lease. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedances at off-site locations.

4.1.10.4 Transport

Comment – CM62

Access and road usage? Can you assure us our roads be kept up to standard with all the extra traffic?

Response – CM62

The Proponent will be developing the RUMP which will outline access and road usage management and mitigation measures – refer to Section 8.1.4 of the TIA document (SEIS Volume 2, Appendix U) that outlines a draft structure of the document.

The TIA outlines the road upgrades and maintenance programs required to ensure that roads used by Project vehicles will not significantly impact on pavement condition. Furthermore, the particulars of road upgrades and maintenance programs will be developed through close consultation with BRC and DTMR and will be stipulated within the RUMP document prior to the construction phase.

4.1.11 Joanne Salmond

4.1.11.1 Groundwater

Comment – CM63

Further investigation including full groundwater modelling should be undertaken before the EIS is approved. With a predicted radius of impact of 20 km it is clear that a large number of private bores are within the ambit of drawdown influence from proposed pits and dewatering operations. Hancock Coal has not mentioned or committed to any make-good undertaking for damaged bores.

Response – CM63

A bore survey was conducted to identify groundwater use and record the pre-mining status of the groundwater supply bores. The bore survey results are included in SEIS Volume 2 Appendix N.

The make-good commitment (SEIS Volume 2 Appendix V, Section 3.4.7.2), to be mutually agreeable to the Proponent and the affected groundwater user is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (EIS Volume 5 Appendix P);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The comment, with regards to damaged bores, to be included in the make good commitment agreements is underlined above.

4.1.11.2 Air Quality

Comment – CM64

Under circumstances where the project isn't able to control excessive dust pollution created by open cut coal extraction (micron levels exceed 50 micron), fodder available to stock may become unpalatable. This will impact on the land holders in the area ability to sustain their animals' health.

Response – CM64

The scope of the Alpha EIS air quality assessment was to compare the predicted impact of particulate and dust emissions against the Project Goals. The Project Goals are the objectives of the Queensland DERM's Environmental Protection (Air) Policy 2008. These objectives are designed for protection of the health and well being of humans, therefore, this assessment cannot be used to determine the impact of air pollutants on pasture grasses, animal health, and meat quality.

Predictive atmospheric dispersion modelling of dust deposition, which refers to the dust that drops out of the air and 'deposits' on the surface, showed no exceedances of Queensland DERM's objective of 140 mg/m²/day. However, as these are predictions the monitoring program will cover dust deposition to the land surface at sensitive human receptors to provide an indication as to whether the deposition of dust can be considered as a nuisance or is excessive.

An operational monitoring program will be used to assess the accuracy of these predictions by monitoring real time particulate concentrations and rates of dust deposition to the land surface. If exceedances of the Project Goals are recorded, then the appropriate reporting procedures to DERM will be followed. Further operational and or engineering controls will be considered to reduce deposition at off-site locations if the data shows that the dust deposition is attributable to the mine and not the natural environment. The monitoring network is described in SEIS, Volume 2, Appendix P, Section 7.

The Proponent is committed to the consultation process and is happy to pursue a dialogue regarding access to the monitoring datasets for landholders as part of the community consultation program. If additional studies indicate that the deposited concentrations of dust are likely to impact upon pastures, animal health and or meat quality, the Proponent will engage with landholders to discuss further mitigation and potential compensation measures.

Comment – CM65

Monitoring site locations and information gathered from these sites should be available to the land holders giving them added insight into actual micron levels on their property. This will help those affected to manage their stock according to availability of uncontaminated fodder.

Response – CM65

The concerns of the community regarding the impacts of dust have been noted and measures taken to both reduce the dust generated, and control the dust dispersion once generated. Changes have also been made to the ambient air monitoring program. These are detailed in SEIS Volume 2, Appendix P, Section 7.

Results from the dispersion modelling suggest that emissions of dust will result in elevated levels of particulate matter that exceed the EPP (Air) objectives for the relevant average ground-level concentrations at receptors. These standards refer to the particulate matter suspended in the air. Dispersion modelling for dust deposition, which refers to the dust that drops out of the air and 'deposits' on the surface are not predicted to exceed the Queensland DERM's objective of 140 mg/m²/day at these sensitive receptors. As these are predictions, monitoring data will be used to assess their accuracy and elements of the monitoring program will be continuous and real time.

The Proponent is committed to the consultation process and will continue to participate in dialogue regarding access to the monitoring datasets for landholders as part of the community consultation program.

4.1.11.3 Transport

Comment – CM66

Because of mining activity, current access roads into and adjoining the mining lease application have become impassable impacting on land holder in the area ability to access livestock markets, health services and provisions. Shire roads used for the development of the Alpha Coal project are unsealed and have been damaged to the point where they have become impassable at times. On several occasions because of heavy vehicles operating in wet conditions land holders have been unable to transport livestock in or out of the area.

Response – CM66

The updated TIA acknowledges that unsealed roads will be unsuitable when being used by commercial vehicles and over-dimensional vehicles. A second site inspection was undertaken during a wet weather period and this has resulted in recommendations for road upgrades to all-weather conditions for sections of Degulla Road and Clermont-Alpha Road based on the proposed routes for Project vehicles. The pavement assessment in Section 5 of the updated TIA (SEIS Volume 2, Appendix U) now indicates certain road upgrades based on the proposed vehicles routes. Section 8.1.4 of the TIA document also outlines a draft RUMP structure which will include management and mitigation measures to ensure vehicles only utilise the recommended proposed routes and not impact on general traffic.

4.1.11.4 Social

Comment – CM67

Where stock numbers have to be reduced because of contaminated fodder land holders should be fairly compensated for their loss.

Response – CM67

This is part of landholder negotiations which are confidential and therefore not included in the EIS. There is no indication fodder will be contaminated by the Project but EM Plans will address protocols for spill containment and management. The Proponent has ongoing consultations with potentially affected landholders in the study area.

4.1.12 Kelvin Sypher

4.1.12.1 Landscape Character

Comment – CM68

Again 24 hours a day, 7 days a week operation will turn our quiet dark surrounds into a hive of activity. The continuous lighting will again affect our lifestyle and the lifestyle habits of our stock. The continuous light will also attract more insects which will have a flow on affect with increased predators, leading to more feral pest problems which will again start to impact our business operations. With the homestead being in such close proximity it could also affect the lifestyle of the occupants.

Response – CM68

The Landscape Character assessment identified 9 homesteads within the vicinity of the Project, the closest at 2.5 km and furthest at 17 km from the Project boundary. Kia Ora homestead is 5 km from the Project boundary and approximately 16 km from the nearest permanent light source.

The Landscape Character assessment determined that the majority of rural homesteads surrounding the Project would have restricted or no views toward the Project due to distance and tree cover and that direct views toward night time light sources would be unlikely to occur.

Sky glow is likely to be limited in visibility due to the very low density population surrounding the site together with the influence of screening woodland vegetation within and beyond the Project area.

Due to the distances and mitigation considerations described above and in the Landscape Character assessment of the EIS the impacts mentioned in the submission are considered possible but unlikely to occur.

4.1.12.2 Terrestrial Ecology

Comment – CM69

I am writing to express concern about the Alpha Coal project impact with regard to weed and foreign plant infestation within the local district. I am very interested to hear and see evidence of how they propose to keep the district clean of pasture destroying weeds particularly but not exclusively parthenium.

Response – CM69

While the Alpha Project is anticipated to be the first project in the district it is not likely to be the last and as such the request for the Proponent to “keep the district clean of pasture destroying weeds” will not be the sole responsibility of the Proponent. Additionally the region is subject to traffic related to primary industry and tourist and local commuting which could also have an effect on weed transport.

The Proponent is however committed to the effective management of weeds and pests on the Project site and the management of weeds is covered in the EIS Volume 2, Section 9.1.3.4.2 *Management Strategies for Non-native Flora Species*.

The management of weeds will be co-ordinated with programs led by local government, community or landowners. Weed management strategies to be implemented include:

- The present location of weeds will be highlighted and a comprehensive weed management program will be implemented prior to the commencement of works. Declared weed species (including Parthenium) will be treated as per guidelines within the relevant Queensland Department of Employment, Economic Development and Innovation (DEEDI) fact sheet for each particular species;
- Monitoring for weeds of management concern will be undertaken in the form of annual observations by site personnel. Monitoring will also be conducted following significant rain events, particularly in disturbed areas, roadsides, riparian zones and washdown facilities once safe access can be provided;
- Washdown facilities will be constructed at access points for vehicles arriving and departing from the Project site. These facilities will be bunded and located away from drainage lines to minimise the risk of weed spread;
- All vehicles entering the Project site and leaving properties known to contain declared weeds will be thoroughly washed down before entering clean areas.
- Radiators, grills and vehicle interiors will be cleaned for accumulated seed and plant material;
- All materials will be certified as weed-free prior to acceptance on-site;
- Soil and fill material from weed-affected areas will not be transported to clean sites.
- If weeds of management concern are identified, they will be managed in accordance with local best management practice from the Burdekin Dry Tropics Regional Pest Management Strategy and/or the DEEDI Pest Fact Sheets;

- Monitoring and evaluation of treated areas shall be undertaken to assess the success of declared weed eradication;
- Weed management will be included in the site induction to promote the awareness of weed management issues; and
- Preparation of a site-specific Weed Management Plan (WMP). The WMP will describe how the weeds are to be managed in accordance with the LP Act and/or local government requirements for weeds not declared under state legislation.

Comment – CM70

Will there be funding to help with control measures?

Response – CM70

The Proponent will be responsible for the weed and pest management on the Project site.

Any provisions for assistance in managing or eradicating weeds or pests on neighbouring properties deemed to be caused by mining activities will be subject to individual agreements between the Proponent and the landholder. These provisions may include:

- Access to weed control chemicals;
- Having their property included in pest fauna monitoring; and/or
- Financial assistance for weed and pest control and eradication?.

Comment – CM71

Will there be funding for affected downstream water course recipients?

Response – CM71

Any provisions for assistance in managing or eradicating weeds or pests on neighbouring properties deemed to be caused by mining activities will be subject to individual agreements between the Proponent and the landholder. These provisions may include:

- Access to weed control chemicals;
- Having their property included in pest fauna monitoring; and/or
- Financial assistance for weed and pest control.

4.1.12.3 Surface water

Comment – CM72

I am writing to express concern generated by the Alpha Coal projects proposal to divert or changing the flow of a natural watercourse. Numerous diversions have been discussed that potentially could affect our operations and access in the local area.

Response – CM72

There are three proposed diversions including 9 km of Lagoon Creek, 26 km of various unnamed creeks and Sandy Creek and 10 km of Spring Creek. Each of these diversions will be designed in accordance with the requirements of the Queensland Department of Environment and Resource Management (DERM), Central West Water Management and Use Regional Guideline for Watercourse

Diversions. This will ensure the minimum disturbance of surface water flow measured at down stream receptors.

Each of the diversions will include a low flow channel, high flow channel and flood levy as part of its design. The Lagoon Creek flood levy will be designed to contain an event with a return period of 3,000 years. This is considered conservative based on the 30 year LOM. All diversion and levee works will be constructed within the mining lease boundary.

Whilst there is expected to be some change to flow conditions within the mining lease, that will be allowed for in the design of the diversions, there is expected to be an indistinguishable impact on flows outside the boundary of the mining lease area. As such it is considered extremely unlikely that there will be any discernable impact on operations or access in the local area. Revised geomorphological and flooding reports are presented in SEIS Volume 2, Appendix J and Appendix K, respectively.

4.1.12.4 Groundwater

Comment – CM73

I am writing to express concern about the Alpha Coal project impact on the local aquifers and water table. I am the closest neighbour on the southern side of the proposed project where Hancock coal, to my knowledge, has done no recent studies on water tables or aquifers.

Response – CM73

URS have conducted a search of all registered bores within a 20 km radius of the Alpha Coal Project (Mine). The search allowed for the identification of 61 bores (EIS Volume 2, Section 12, Figure 12-6).

Eleven (11) bores were recorded, on Forrester and Wendouree, by the Proponent during discussions with neighbouring landholders.

In order to ensure all existing groundwater use and users are identified within the Alpha Coal Project (Mine) study area, a bore survey was conducted. An independent consulting company, 4T Consultants Pty Ltd, have been appointed by URS to undertake the bore survey. The bore survey aimed at recording all available groundwater data on the following properties: Hobartville, Wendouree, Forrester, Surbiton, Surbiton South, Burtle, Tresillian, Mentmore, Monklands, Kia Ora, Spring Creek, and Glen Innes. Groundwater levels, yields, usage, and samples were collected during the bore survey. These baseline data will be used for comparison purposes when assessing possible impacts on mining on the groundwater resources.

A stand alone bore survey report has been compiled for inclusion in the SEIS Volume 2, Appendix N. A summary of the bore survey data plus information from the DERM database is provided in Table 4-5 below.

Table 4-5. Preliminary bore survey and DERM database data

FARM	BORE NAME	DEPTH (M)	EQUIPMENT	WATER LEVEL	YIELD (L/S)	USAGE
Hobartville	RN 51064	85	Submersible	24.59 (p)	1.26	95 m ³ /week for stock
	RN 69730	70	PD	13.23 (p)	1.26	160 m ³ /week for stock
	RN 90182	122	Submersible	22.46 (p)	1.52	230 m ³ /week for stock
	RN 69732	61	PD		1.26	160 m ³ /week for stock
	RN 90180	122	PD		1.26	254 m ³ /week for stock
	RN 90181		Submersible	16.64 (p)		Domestic
	RN 69731	61	Submersible		1.14–6.31	
Wendouree	RN 33053	75	Submersible	16.5/32 (p)	1.26	110 m ³ /week for stock
	RN 33054	159				
	RN 33055	228				
	RN 33056	104				
	RN 33057	122				
	RN 69458					
Forrester	No. 1	86	Submersible	16 / 25.72 (p)	6.31	1 600 m ³ /week for stock & domestic
	RN 9294	103				
	RN 51690	31	Submersible		6.31	1 600 m ³ /week for stock
	RN 9292	93		20	1.52	No longer used
	RN 9293	40	Submersible	20.1 (p)	1.26	20 m ³ /week for stock
	RN 9290	66	None			
	Lookout	96	Submersible	43.7 (p)	1.01	76 m ³ /week for stock
Surbiton	Old 12 Mile Junction	79.2		20.42		
	New 12 Mile Prairie	82.5	Submersible	50.84 (p)	0.19	115 m ³ /week for stock
			Wind pump			Blocked
	Triangle	87.2	PD		1.26 – 3.16	800 m ³ /week for stock & domestic
Surbiton South	RN 51100					
	RN 44450	92				
	RN 44451	73				
	RN 44452	46				
	RN 44453	74				
	RN44455	31				
Burtle	House bore		Submersible	17.91	0.88	45 m ³ /week for stock & domestic
Tresillian	House bore	300	Submersible	35.24 (p)	1.26	800 m ³ /week for stock & domestic
Mentmore	House bore	60	Submersible	24.72	0.51	Domestic and stock supply
	Power line bore	80	Broken			Stock water supply
	Hancock Test		None			Sealed
Monklands	Shanghai	65	Submersible	33.1	0.63 – 1.26	191 m ³ /week for stock
	Cumberland	30	Wind pump	26.8 (p)	< 0.63	Stock supply
	Deadhorse	62	Submersible		1.26	64 m ³ /week for stock
	New bore	20	Wind pump	8.81 (p)		Stock supply
	Old bore	30	Wind pump	12.34 (p)		Stock supply
	Red tank	34	Wind pump	16.26	< 0.38	Stock supply
Kia Ora	RN 14512	43				
	RN 15405	43				
	RN 15406	69				
	RN 51682	92				
	RN 12030076	29				
	RN 12030077	9				
Spring Creek	Namco		Submersible			Stock water supply
	Old Namco		Wind pump			
	Old yard		None	7.045		Not used

FARM	BORE NAME	DEPTH (M)	EQUIPMENT	WATER LEVEL	YIELD (L/S)	USAGE
Gadwell	Old bore		None	58.83		Not used
	RN 36822	60	Wind pump			28 m ³ /week for stock & domestic
	RN 36823	60	Wind pump	34.75		28 m ³ /week for stock
	RN 89348	60	PD	10.51		28 m ³ /week for stock
	2 nd House bore		None	4.8		
Cavendish	Back Bore 2		PD			28 m ³ /week for stock
	House bore		Submersible		1.26	650 m ³ /week for stock & domestic
	30-09c			33.84		
	Old bottom bore			48.22		
	Bottom bore	125	Submersible		1.39	420 m ³ /week for stock

PD – Positive displacement pump (mono) Blanks – no data RN – DERM registration number Water level (p) – dynamic water level

Comment – CM74

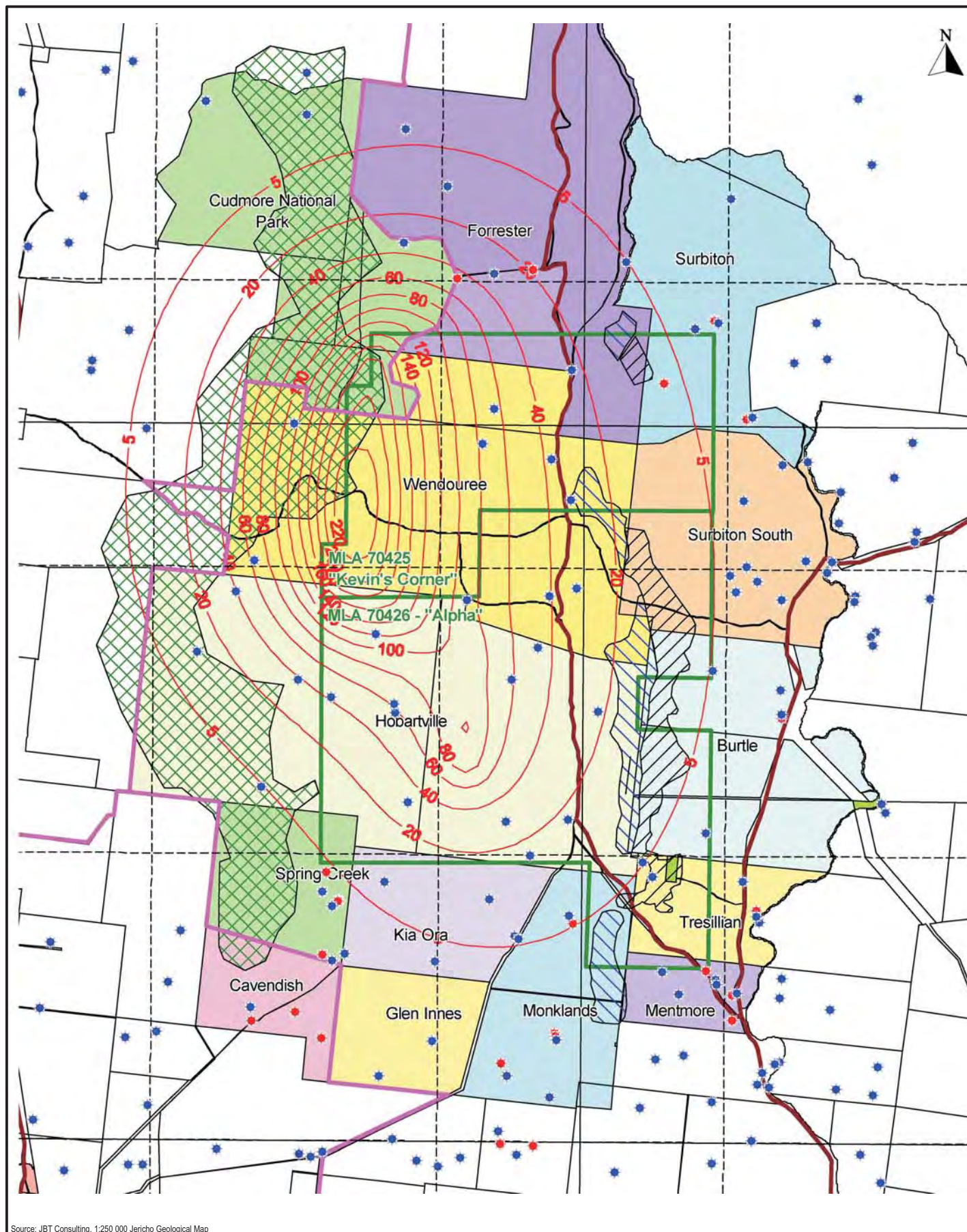
I would like some surety that the pit dewatering will not will not affect the water table.

Response – CM74

EIS Volume 2 Section 12 details the envisaged impacts of mine dewatering on the local groundwater table. Preliminary dewatering impacts are included in EIS Volume 2 Section 12.9.5, which indicate that a reduction of groundwater levels, within the Colinlea Sandstone aquifers, of 5 m or more may occur up to 10 km from the open pit (Figure 4-2). This would occur when the confined sand aquifers are depressurised to allow “dry” stable mining conditions.

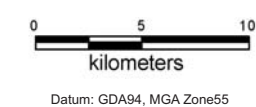
Interim predictive groundwater modelling (SEIS, Volume 2 Appendix N) has been used to reassess the possible impact of mine dewatering. The resultant predicted drawdown cones and recorded bores have been included on Figure 4-2. This indicates the neighbouring bores, which could potentially be impacted by dewatering over time.

A make-good commitment has been included by the Proponent to replace diminished groundwater sourced water supplies. This commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user (SEIS Volume 2 Appendix V, Section 3.4.7.2).



Source: JBT Consulting, 1:250 000 Jericho Geological Map

Source: See Copyright Details below and for full disclosure Please Refer to the SEIS Volume 2, Appendix B



HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Supplementary Environmental Impact Statement

ALPHA COAL PROJECT (MINE) PREDICTED GROUNDWATER DRAWDOWN AND RECOGNISED NEIGHBOURING BORES

Job Number 4262 6680
Revision A
Date 09-04-2011

Figure: 4-2

File No: 42626680-g-1015.cdr

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Comment – CM75

In addition, if the pit dewatering does ultimately affect the water table then I would like some surety that Hancock Coal or the new owners (if it is sold) can supply at no cost or loss to our operations a good quality reliable water resource to required locations.

Response – CM75

A make-good commitment has been included by the Proponent to replace diminished groundwater sourced water supplies (SEIS Volume 2, Appendix V, Section 3.4.7.2). This commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user.

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during a bore survey;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS Volume 2, Appendix V, Section 3.4.7.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if HPPL is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The EM Plan (SEIS Volume 2, Appendix V, Section 3.4.7.2) provides details of the strategies to be put in place for bore performance impacts, which include:

- Lowering pumps within an existing borehole, or supplying pumps with a greater head capacity if required; and
- Drilling new bores to a greater depth, e.g. to intersect the sub-E sands or lower aquifers, which are not a target of dewatering by the operation and therefore will not be impacted to the degree predicted for the D-E sandstone and overlying sediments.

Based on the envisaged strategies the make-good commitment is to also include provision for additional operation and maintenance costs, which may be incurred due to:

- Larger pumps;
- Deeper depths;
- Additional water related infrastructure;
- Power costs; and
- Spare parts.

Comment – CM76

The question needs to be asked as to whether their proposed operations will have detrimental affects on the recharge areas for the local aquifers, or if indeed this is the recharge area for a more remote aquifer which may suffer even though it isn't in close proximity to the project.

Response – CM76

Analysis of site geology and available groundwater data allowed for the conceptualisation of two potential recharge mechanisms at site, as summarised below:

Recharge Mechanism 1 – Direct Recharge to Outcrop Areas

The available geology maps indicate that the Colinlea Sandstone outcrops to the east of Lagoon Creek within MLA 70426 and between the ridge area and Lagoon Creek. It was initially conceptualised that the Colinlea Sandstone, as mapped on a regional scale, acted as a recharge intake bed (much the same as recognised in the Sandstone units of the GAB), thus possible recharge mechanism was via direct recharge to aquifer units in areas where they outcrop or subcrop (once sufficient rainfall has occurred to facilitate infiltration).

Drilling and bore construction within the proposed TSF footprint, on and adjacent to the regionally mapped Colinlea Sandstone indicates that the recharge to this area is limited by:

- No Colinlea Sandstone outcrop;
- Deep Colinlea Sandstone subcrop with thick clay-rich cover;
- Thick unsaturated zone (even after prolonged high rainfall events 2010/2011);
- Flat groundwater level data within the confined aquifers, which over last two years does not fluctuate in response to wet and dry seasons; and
- Competent surface units as recognised in shallow geotechnical studies.

The TSF footprint area data is presented in SEIS Volume 2 Appendix N.

Recharge Mechanism 2 – Diffuse recharge from the Great Dividing Range

The Great Dividing Range is located some 10 to 15 km to the west of MLA 70426. The second recharge mechanism that has been considered is that recharge occurs in topographically elevated areas and flows down gradient (i.e. as a subdued reflection of topography) toward surface water drainage features in lower-lying areas. Existing potentiometric surface (groundwater contour) data indicate groundwater flow is toward Lagoon Creek, and that the depth to groundwater gets shallower to the north.

Conceptualised Recharge Mechanisms

The following observations support the second type of recharge mechanism:

- Groundwater flow direction in the western part of the MLA is from south-south-west to north-north-east, i.e. from a recharge area in the west to a discharge area at Lagoon Creek;
- Groundwater samples from bores within the Project MLA plot within the relatively mature or stagnant portion of a Piper (tri-linear) hydrochemistry plot, which tends to support the observation that recharge is occurring at distance from site; and
- Groundwater springs occur to the north of MLA 40726, but to the west of Lagoon Creek, indicating groundwater flow from topographically elevated areas in west toward Lagoon Creek.

As this diffuse recharge occurs over a large area it is more dominant than direct recharge from the area of Colinlea Sandstone outcrop and subcrop. No mine activities are planned for this area.

4.1.12.5 Air Quality

Comment – CM77

Apart from the obvious increased dust levels resulting from increased traffic and activity, also of concern is the increase of higher level dust from blasting operations which can travel large distances on the wind. These dust/gas clouds often contain hazardous contaminants which can be poisonous to all life forms where the dust eventually settles. In addition, this dust will cause increased wear and underperformance of equipment such as solar bore panels for stock water. It will affect the palatability of pastures is the foundation of our grazing business. Dust will also have a major impact on our lifestyle, work load and health at the homestead. Increased dust levels will require additional cleaning and may also cause increases in hay fever, asthma and other respiratory problems in members of our family and friends. Our rain water catchments will also be contaminated from increases in particulate matter settling on the catchment sources.

Response – CM77

The contribution of drilling and blasting to the overall emissions inventory is in the order of 2 to 3%, and is not considered a major contributor to the overall dust emissions of the mine. Due to the distance of the mine area (blasts) from sensitive receptors (unlike in some NSW mining situations) it is considered unlikely that hazardous contaminants will be carried sufficient distance in the plume and that the plume will contain elevated levels of hazardous contaminants based on the type of material used for blasting. Predictive atmospheric dispersion modelling has shown that under worst case conditions, emissions of dust are likely to result in concentrations of particulate matter that exceed the daily EPP (Air) objectives at most sensitive receptors. However, for dust deposition, which refers to the dust that drops out of the air and 'deposits' on the surface, rates not predicted to exceed the Queensland DERM's objective of 140 mg/m²/day at these receptors.

The concerns of the community regarding the impacts of dust have been noted and measures taken to both reduce the dust generated, and control the dust dispersion once generated will be implemented. It should also be noted that an operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to monitor real time particulate concentrations. If these prove that the dispersion model predictions are correct, then the appropriate reporting procedures to DERM will be followed and further operational and or engineering controls will be implemented to prevent exceedances at off-site locations.

The Proponent is committed to the consultation process and will continue to participate in dialogue regarding access to the monitoring datasets for landholders as part of the community consultation program.

Comment – CM78

Increased machinery use and intensity will have a negative impact on air quality which is not visible to the eye. Increases in exhaust emissions could reduce the air quality thus affecting the current ecosystem which may suffer over the long term. Any reduction from air quality from whatever cause will affect the growth of any life form that requires quality air to survive and thrive. This would include our cattle as well as the pastures they eat. I would hope that stringent controls are in place for this and regular monitoring enforces best management practices.

Response – CM78

The area over which the anticipated vehicles and plant are expected to operate is such that exhaust emissions from the mine are highly unlikely to pose a risk, based on modelling, to either human health or ecology outside the boundary of the mining lease. The Proponent is committed to regular

maintenance of plant and equipment according to manufacturer recommendations and the operation of plant and equipment in an appropriate manner.

An operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to monitor real time particulate concentrations and deposition of dust to the land surface at sensitive receptor locations. If these prove the EPP (Air) and Queensland DERM guidelines for air pollutants are exceeded, then the appropriate reporting procedures to DERM will be followed and further operational and or engineering controls will be considered to prevent exceedances at off-site locations. Please refer to Response CM64 above for more details regarding these issues.

4.1.12.6 Noise and Vibration

Comment – CM79

Kia Ora homestead being situated in such close proximity and at a higher elevation will be directly affected by noise travelling from the mine site. I would think that operations will be 24 hours a day, 7 days a week so some barriers, controls or noise suppression will have to be considered so we can continue to live in our current home and operate our business as has previously happened. Our livestock will experience much more disturbance than prior to the mining operations and this agitation will cause increases in stress levels with more time running around thus reducing weight gain and may affect calving rates. Being a very unpopulated area will cause the noise to travel large distances and I expect will affect our lifestyle habits, possibly affecting our ability to sleep, which will affect our health, stress levels and complete lifestyle.

Response – CM79

The prediction of noise levels at the Kia Ora Homestead location has taken account of the dwelling's proximity to the mining noise sources and its elevation with respect to the proposed mine site. The predicted noise levels are within the legislative performance criteria limits. These limits are set with the intention of preserving amenity and are based on existing background noise levels. It should be noted that there is no requirement for noise to be rendered inaudible beyond the boundaries of the site, but only that the noise must be controlled to within acceptable limits with the intent of preserving noise amenity, in accordance with the recognised EPA noise guidelines. The assessment of noise impact has determined that the established noise limits will not be exceeded at the Kia Ora Homestead location without any specific physical noise mitigation measures. EPA Noise Measurement Manual provides a guideline that the noise should be measured within 20 m during the day and evening period, and 3.5 m during the night period, of dwellings. The assessment of noise effects predicted noise levels due to the proposed mining construction and operational phases to be substantially below sleep disturbance levels as recommended by the World Health Organisation (WHO).

Comment – CM80

Vibrations from blasting or mining sources could have a large impact on our house foundations, and any structures which have until now had a stable foundation. Vibration also causes air percussion which will affect numerous aspects of our business operations as well as possible damage. This will also have negative effects on our stock and their normal grazing routine.

Response – CM80

The assessment has found that vibration and overpressure effects due to the proposed mining activities, including blasting, would be within the performance criteria limits at the Kia Ora Homestead location. Given the setback distance of the Kia Ora Homestead from the proposed blasting areas, the

received vibration levels, as predicted, would not be expected to give rise to any structural damage to the property at this location or any community annoyance, including sleep disturbance.

4.2 Agency Respondents

4.2.1 Barcaldine Regional Council (Robert Bauer)

4.2.1.1 Introduction

Comment – CM81

What contingencies are in place if the world coal market changes or carbon regulation changes the desires export quantities? How does HPCL intend to ensure that the associated infrastructure is provided in the event that markets change.

Response – CM81

The infrastructure described in the EIS is required to enable the effective development of the Project. The supply of water and power infrastructure to the mine site enhances the ability of the government or third party providers to supply these utilities to the wider community. The Proponent has included the potential for some market changes into the Project viability analysis and it is not expected that they will impact on the Project to the sate that the Project will cease. If however this scenario was to develop, the Proponent is not responsible for any ongoing provision or maintenance of the associated infrastructure.

Comment – CM82

As there are potential multiple projects how does the Proponent intend to mitigate compound impacts from mining within close proximity?

Response – CM82

As Alpha Coal mine Project is the first Galilee Basin project to reach the EIS stage of the approvals process, there is very limited publically available data on the neighbouring proposed operations to make a meaningful cumulative impact assessment. As part of the Project EIS the control and mitigation strategies proposed are designed to provide the most appropriate protection to the environment and community in line with the legislative and regulatory agency requirements. These requirements will be stipulated in the site environmental authority conditions.

Comment – CM83

Management of tailings is planned for the first 5 years within the TSF. Management of tailings requires longer term consideration of the management and capacity.

Response – CM83

The EIS states that the proponent will expedite a shift to in-pit disposal of tailings after the first five years of operation, if this alternative proves viable through further hands-on experience, ongoing testing and engineering investigation. Work is currently underway to progress this proposal. With the main input being the experience soon to be gained from the bulk sample test pit operation. Further mine planning, testing on tailings rheology, and tailings geochemistry is also progressing to further access the viability of in-pit tailings disposal. The EIS submission contains sufficient capacity for storage of tailings at the TSF as a contingency beyond the first five years of operation for the life of

mine (30 years). Additional information on the TSF strategy and the in pit disposal work undertaken to date is presented in SEIS, Volume 2, Appendix T, Section 3.2.

Comment – CM84

Groundwater extraction for potable water occurs in the broader area and the need to ensure water security for the longer term including post mine closure means that 'alternative provision' of water is not a long term sustainable option for the residents, community and the region once mining activities have ceased.

Response – CM84

The make-good commitment (SEIS Volume 2, Appendix V, Section 3.4.7.2), to be mutually agreeable to the Proponent and the affected groundwater user is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS Volume 2 Appendix V, Section 3.4.7.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The make-good commitment agreement, to be compiled by legal experts, must contain a clause regarding on going subsidies even after closure or if the mine is sold. Financial provisions are to be made to ensure future costs associated with the replacement of impacted groundwater resources are covered.

Comment – CM85

'In pit disposal will occur in the mine void space' a tailings management system or plan is required to ensure that the tailings re-entering the mine void are not within current or former surface or groundwater tables and must contain a buffer distance to ensure that the remaining waters are not impacted during and after mine closure.

All tailings returned to the pit void must include details of volume, location (depth, GPS co-ordinates) and sampling details and results to be available to public record.

Response – CM85

The EIS states that the proponent will expedite a shift to in-pit disposal of tailings after the first five years of operation, if this alternative proves viable through further hands-on experience, ongoing testing and engineering investigation. Work is currently underway to progress this proposal, with the main input being the experience soon to be gained from the bulk sample test pit operation. Further mine planning, testing on tailings rheology and tailings geochemistry is also progressing to further assess the viability of in-pit tailings disposal.

The EIS submission contains sufficient capacity for storage of tailings at the TSF as a contingency beyond the first five years of operation.

As is standard practice in coal mines in Queensland, a Tailings Management Plan (TMP) similar to that already prepared for tailings storage at the proposed surface Tailings Storage Facility (TSF) for the first five years of operation, will be prepared for potential in-pit tailings storage. The TMP will address potential environmental issues and impacts, including those associated with surface or groundwater tables both during and after mine closure. The TMP will ensure details of tailings volume, location, geochemical characteristics and results of surface/groundwater quality monitoring programs will be reported as required by the legally binding Environmental Authority for the proposed coal mine.

Comment – CM86

The scope and objectives of the Project and reference to the project aims should acknowledge working relationships and beneficial local and state community outcomes.

Response – CM86

There is frequent reference to the ongoing relationship between the Project and council throughout the EIS. The SIA assesses both positive and negative potential impacts and flags ongoing relationships with key stakeholders, particularly council, as a key objective for impact management and mitigation.

Comment – CM87

Other users in the area include the Barcaldine Regional Council and outcomes of consultations and infrastructure upgrades need to be coordinated and agreed prior to commencement of mining construction and operation.

Response – CM87

The Proponent has engaged in ongoing consultation with Barcaldine Regional Council (BRC) and other stakeholders in the local and regional community. The Proponent is currently in consultation with the BRC about Project details and will continue to discuss all aspects of the Project. The Proponent held a meeting to formally discuss ongoing Project details with BRC on 4 April 2011.

Comment – CM88

The linkages and co-location of infrastructure with other mining and non-mining entities should be part of the EIS process to ensure true sustainability, minimisation of impacts and assessment of final geographic location of such infrastructure.

- *Kevin's corner, Hancock Galilee Pty Ltd (HGPL);*
- *Powerlink power transmission line; and*
- *Sunwater raw water line*

Response – CM88

The inclusion of the projects listed above are accounted for (to the extent possible) in the project wide cumulative impact assessment of the EIS (Volume 4, Appendix G). The restricted nature of the publicly available information limited the amount of assessment possible. The provision of power and water to central hub locations for both the Alpha and Kevin's Corner projects will result in an increase in economies of scale and minimisation of impacts.

Comment – CM89

As the major infrastructure improvements are noted as opportunities for the region further detail is requested as to how that will be delivered specifically to the region and not a dedicated private mine and port use only resource for each of the following:

- *Power;*
- *Rail; and*
- *Water.*

Response – CM89

The Alpha Coal Project is developing infrastructure for use at the Project site. The development of the project will result in the above mentioned infrastructure systems being expanded to the project lease boundary or beyond as described in the EIS. This development of infrastructure provides government and third parties the ability to utilise this new infrastructure (subject to available capacities) to expand and service new areas. The Proponent is not proposing at this point in time to expand the presented utility system beyond the project requirements.

Comment – CM90

Any potential future expansion to the west also needs to be considered as the measures such as redirection of creeks and levees etc are dependent on the revised EIS and if there is a potential for future development which is already known of then additional planning needs to be considered now as to what flexibility there is for integration.

Response – CM90

It is correct to say that there is recoverable coal resources to the west of the currently proposed mine plan. Any development of this area would be subject to a new approvals process. There is currently no submission to develop this area of the lease. If development of this area was to proceed it would have to take into account the Alpha Project and any other approved projects in the vicinity.

Comment – CM91

Barcaldine regional councils and the adjoining Isaac, Blackall-tambo etc, want to ensure that 'maximum input into the local economy and community is a part of the planning and approvals process and that benefits are delivered direct to these local areas including support for ancillary and supporting community services and infrastructure'.

Response – CM91

The SIMP negotiation process will involve consultations with all local and regional stakeholders and will develop benchmarks for key valued social components (such as population growth) as well as identifying mitigation, management and enhancement strategies as appropriate. The Proponent is committed to undertaking comprehensive consultation throughout the life of the Project and the Hancock Consultative Committee (HCC) will be established as a mechanism for coordinating this consultation. Through this process stakeholders will be provided with an opportunity to have input into the Project and an ongoing mechanism for monitoring the effectiveness of these strategies. The Proponent is committed to supporting community development in the region and anticipates establishing a community development fund for this purpose. The details of such a fund are being developed as it is outside the scope of the EIS.

Comment – CM92

In order for the rehabilitation and nutrient rich topsoil overburden to be effective once reinstated the maximum recovery is required and the inference is that a dragline may be used for this purpose?

This may increase the speed of operations; however it is not considered to provide sufficient recovery of the overburden and may need to be reconsidered

Further explanation for the change in method of extraction, potential impacts and suitability for reinstatement (e.g. potential for voids and variable rehabilitation outcomes with noted geological characteristics is required).

Response – CM92

Rehabilitation will be conducted in a conventional manner whereby topsoil will be stripped, stockpiled and re-spread using dozers, loaders, trucks, etc as a separate operation to spoil placement and shaping using draglines / dozers.

This method of rehabilitation at Australian coal mines has been conducted successfully in the past.

Comment – CM93

It is recommended that the Strategic objectives and actions from the GBESIS provided in the supporting documentation, recommended action Plan be included in the provisions and actions prior to final permits and approvals.

Response – CM93

This is a comment more directed to government, however the GBESIS will be considered in the formation of the appropriate management plans for the Project including the SIMP.

Comment – CM94

The full impacts of the longer term population increase need to be provided in the EIS and planning for adequate infrastructure provision and associated support services (e.g. accommodation, transport etc).

Response – CM94

The Project currently intends to house the entire workforce including contractors and transport personnel on site in the on-site accommodation village. There are several limiting factors and key transportation and accommodation strategy variables which significantly lessen the likelihood of people relocating to Alpha. These strategies are a result of the proximity of the Project to the community, current workforce availability and logistics realities, and current population movement trends experienced throughout Queensland. Due to these factors, it is not possible to know the exact level of population growth that will be felt in Alpha and other nearby communities as a result of the Project because there is no real incentive from the Project to relocate; however, in order to capture potential unforeseen population growth, the SIMP Stage 2 will examine benchmarks of population change and what mitigation may need to occur for those benchmarks. Along with these benchmarks will come actions and strategies to manage the impact of this population growth.

Based on the current Project Description mine personnel are likely to relocate to the area if this is their personal choice, which is not possible to quantify. There may be some contractors who will be unable to afford to transport themselves to site for each shift who may choose to move to the region; however, where they move to is not dictated by the Project given the on-site accommodation option. The SIMP will include identified benchmarks for population growth in Alpha and surrounding communities.

Comment – CM95

Planning provisions and considerations for new housing and infrastructure are required to suit the conditions of the Barcaldine Regional area.

Response – CM95

The proposed Project accommodation strategy is for on-site accommodation. This accommodation will be on the mining lease and will most likely be included under the mining Environmental Authority conditions. Infrastructure provided to the site will be with the exception of the rail provided by third parties to the appropriate standards. There are no current plans for housing of infrastructure development in Alpha Township. If this was to occur it would be undertaken under the *Sustainable Planning Act 2009* (SP Act) with BRC as the responsible agency.

Comment – CM96

BRC request that the Co-ordinator General conduct an audit of the combined equivalent persons and FTE of all mining to be undertaken within BRC and the surrounding area, including direct and indirect positions. It is understood that mining requires a large support workforce to deliver services either for the mine directly and/ or to support the itinerant workers. It is the revised figure that needs to be considered when planning for the population and BRC notes that over the course of 30 years it is probable that a percentage of the population will require accommodation outside of the proposed 'fly-in/out' or the temporary on-site accommodation. The collective number of proposed itinerant workforce and the infrastructure to meet these needs requires support for Barcaldine Regional Council from the state and its departments in particular, Queensland Health, Department of Infrastructure, Department

of Environment Resource and Mines, Department of Communities, Queensland Police, Queensland Treasury and Emergency Services among others.

The variability of the mining industry such as the loss of 1,000 jobs on one day in the nearby Isaac Region is a reminder that the industry is subject to global influences and that creating a mono-culture industry across the expanse without diversification is a risk to the population and its sustainability.

Response – CM96

The current Project Description accounts for the workforce being housed within the on-site accommodation village because the majority of the workforce will need to be sourced from outside the region (current local population is not of sufficient size to accommodate workforce requirements) and the proximity of the Project to the nearest community, Alpha. This is a reality Hancock has to consider in the development strategy for the Project. However, over time there is a potential for some workers to migrate to the area despite limiting community factors and Project policies as a matter of personal/family choice. The development of additional projects in the Galilee Basin, particularly ones closer to the community of Alpha, may work to increase the likelihood of such migration occurring. The current labour market favours workers choice. As a result, Hancock has not designed the Project to require workers to relocate to the Alpha area because this is a limiting factor to securing a workforce. Workers have multiple choices of other mines to seek employment at. Hancock will not discourage workers from relocating, and will consider incentive packages to assist in some circumstances.

Hancock agrees that the increase in potential workers to the area will require support for BRC from various agencies and service providers. Hancock has outlined in the SIA a plan to assist council in application for grants and other sources of funding for key social infrastructure.

Hancock will use the Stage 2 of the SIMP to develop benchmarks for population growth and include key stakeholders including those listed by council in the development of mitigation and management strategies for those benchmarks. Inclusion of combined equivalent persons and full-time equivalent (FTE) numbers from the Planning Information Forecasting Unit (PIFU) within the Office of Economic and Statistical Research (OESR) will assist all parties in understanding the implications of additional workers in the region. This could potentially be cross-referenced against Project policies to determine impacts as well as roles and responsibilities.

Comment – CM97

That coal needs to be removed as it would otherwise be unexploited does not provide justification for the mine to proceed. In the event that the project was not to proceed the coal would remain in-situ and would remain a potential future resource.

Barcaldine Regional Council see sustainability being for longer than the thirty years LOM and that intergenerational sustainability is essential for the long term viability of central Queensland and that all mining activities must restore the land on a sequential basis throughout the project and not at 'project or pit end'.

Response – CM97

The Proponent agrees in relation to the importance of sustainability and the appropriate management of the land and coal resources. As part of the EIS a rehabilitation strategy was outlined including the stripping and management of the topsoil resource and the goal of returning the land to the same land use as is there currently. This rehabilitation will be undertaken progressively. As part of the SEIS (Volume 2, Appendix N) an assessment of the final void has been produced to provide predictions of long term groundwater levels and flow patterns. Both the rehabilitation plan and the final void

predictions will be revisited, based on biophysical monitoring, over the life of mine to refine the most appropriate outcome. These commitments to refine and update these plans are included in the draft EA conditions (SEIS Volume 2 Appendix V, Section 3.7.10) and are expected in the final document to be issued by DERM. Additionally the Project once operational will have a financial assurance that is managed by DERM to encourage the progressive and successful rehabilitation of the land.

Comment – CM98

Stringent conditions are required for conserving flora and vegetation; managing fauna, particular during the laying of slurry and return water pipelines; protecting the quality of surface and groundwater; and ensuring site rehabilitation after the closure of the mine.

Preservation of stock routes is an important economic and historic requirement.

It is envisaged that the bulk of the mine would have undergone partial or complete rehabilitation prior to the end of mine life at 30 years.

Barcaldine Regional Council request that the Co-ordinator General place such conditions to reflect the points noted herein.

Response – CM98

The EIS and SEIS, by addressing the TOR and the comments received from submissions, are designed to adequately identify and assess all existing environmental values of the Project area, the risks and the mitigation strategies. The end result of this process for the mine site is the development of an EM Plan and the draft EA conditions. As part of the approvals process the concerns over flora, fauna, groundwater and surface water have been address and reflected in the EM Plan.

It is agreed that the preservation of stock routes is important from both a historic and economic perspective. Where possible the stock routes have been avoided and where not they will be replaced so as to maintain the ability to move stock around the district.

A commitment of the EM Plan and the EIS is for progressive rehabilitation of the disturbed areas as they become available for rehabilitation.

4.2.1.2 Description of Project

Comment – CM99

Overburden stockpile management ‘out-of pit’ placements. Overburden creates a visual amenity issue and potential dust problem which should be addressed in the environmental management plans and updated periodic reports provided to BRC and included in regular joint stakeholder meetings.

Any potential for health problems or breach of EP Act with off-site release is to be reported within 2 hours to BRC and an action plan developed for a potential release.

Formal notice is to be provided to residents within time frame specified in the plan.

Response – CM99

The open cut mining of coal produces dust. The Project Description has been revised since the EIS and reduced the number of dust generating emission sources (SEIS Volume 1, Section 2, and Volume 2, Appendix P, Section 2.1). The management of this dust is included in the EM Plan for the site (SEIS Volume 2, Appendix V, Section 3.3.7.2 and 3.3.7.4). The Alpha Project within the agreed EA conditions will have reporting mechanisms that will be complied with for any complaints or measured dust exceedances.

Comment – CM100

Predicted number of dwellings required to meet medium population of 1,250. An estimated 268 dwellings are required within the Barcaldine Regional Council to meet the proposed increase in population, such as for the Alpha mine and includes accommodation for services associated with mine activities and increased population over the next thirty years +.

Although it is proposed that the workforce are to be solely fly-in/fly-out this is not seen to be sustainable for the region and the council in discussion have proposed that a percentage, nominally around 50% workforce be based locally to enhance the community, participate in the community and ensure that families and others are not separated for lengthy periods whilst servicing the mine and to ensure a work life balance.

Barcaldine Regional Council request that the Co-ordinator General consider a percentage resident population at Alpha locale within the conditions and that this is reflected in the associated planning, permits and reflected in policy for the Barcaldine Region and associated central Queensland areas.

Response – CM100

The EIS examined the scenario with at least 90% of the workforce being sourced from outside the region due to a lack of potential workers from the area. Hancock will develop a local hiring policy because Hancock would prefer to hire as many locals as possible. The EIS strategy is more aligned to the likely reality. As discussed previously, current labour market and population migration trends indicate mass migration to the Alpha area as a result of the Project is unlikely; however, Hancock will develop benchmarks of population growth with council and other stakeholders as part of the Stage 2 SIMP. Hancock recognises that over time, or as more projects develop in the Galilee Basin, changes to the limiting factors within the community identified in the EIS and other project's policies may change the population trend. Hancock will explore avenues with key stakeholders in Stage 2 of the SIMP to identify influencers of change as part of the benchmarks.

4.2.1.3 Climate**Comment – CM101**

Recommend that Alpha Coal review and include representative BOM data from rainfall station at Alpha (comparison data should be used to supplement to the Clermont rainfall data station).

Recommendation that Alpha Coal work with BOM and BRC to investigate, develop locations and installation/reporting of additional weather reporting station(s) for the mining lease site to provide a tool for informed site management and reporting. The added benefit will include rain/wind predictions and measurements for operations and an early warning system for any potential impacts to surrounding area and community.

Response – CM101

When using observational datasets to describe the climate at a specific location, the closest 'representative' data is usually preferred as it is likely to best reflect local climatic conditions. When identifying suitable data to describe the Alpha Coal Mine, data from the Alpha Post office was considered. However, data from this site could not be adopted as the site only collects daily rainfall. Local climate is characterised by additional parameters such as wind speed, wind direction, surface pressure and temperature.

Data from the Emerald Airport site was considered as the most proximate and representative BOM dataset available containing enough parameters to be suitable for inclusion in the Meteorological Model (discussed in SEIS Volume 2, Appendix P, Appendix A). However, it is recognised in Volume 2, Section 3.1 Introduction, of the Alpha Coal Project EIS that Clermont is not wholly representative of

the climate of Alpha and so it has been supplemented with numerically simulated meteorological parameters (including wind speed and direction) to provide a better representation of local meteorology. The simulation was undertaken using the CSIRO TAPM model which is used to source the Global Analysis and Prediction (GASP) or the Limited Area Prediction System (LAPS) gridded dataset archives of the BOM on a local or synoptic scale. TAPM maps these data down over the local topography and land use to give a simulated description of the meteorology.

Further details of the application of the TAPM model to simulate local meteorological parameters can be found in SEIS Volume 2, Appendix P, Appendix A.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program (as outlined in SEIS Volume 2, Appendix P, Section 7), and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

The Proponent is committed to the control of dust emissions and will consider further controls to minimise dust generation, dispersion and impacts to sensitive receptors if necessary.

4.2.1.4 Geology

Comment – CM102

The coal seams are situated between groundwater aquifers and groundwater recharge including deep recharge.

Mining under the aquifers and aquitards could lead to de-watering, pollution or damage to the water table. This also has the potential to temporarily or permanently alter the hydraulics of the region, affect potable water supply and or dry the river system.

The groundwater in the area is essential for farmers, graziers and residents of the area and the potential loss is not seen to be sustainable and is a significant to catastrophic risk level to the Barcaldine Regional Council and community.

It is indicated that there is approximately 70 m- 90 m between coal seams B and C comprising Labile sandstone, siltstone and mudstone. The loss of this key geological area is of concern to BRC.

The Great Artesian Basin is an extremely important underground water system.

Due to the proposed coal mine depth and excavation it is possible that the mine will impact the mine wall geology with a likelihood of slumping and or subsidence where compromised 'area of puggy claystone or clay matrix sandstone mid way down into the C seam interburden zone (60+m) may be of importance to highwall and waste stability considerations (see Section 4.5).

BRC request that the Co-ordinator general request that the option for underground coal mine be fully considered to preserve the existing landform and topography where possible and protect water resources for now and future generations. In particular seams C and D.

Response – CM102

EIS Volume 2, Section 12 and Volume 5, Appendix G present the potential impacts of mine dewatering on the local and regional groundwater resources. Additional impact evaluations have been included in SEIS Volume 2 Appendix N. This includes the potential impacts on the GAB and surrounding surface water resources.

An additional assessment, comprising numerical groundwater modelling, has been commissioned to further assess the potential impacts of mining on the groundwater resources. SEIS Volume 2 Appendix N presents the preliminary results of the groundwater modelling.

A bore survey was conducted to assess groundwater use and users within the study area. These survey data were included in the assessment to ensure that any potential impacts, such as groundwater level decline resulting in loss of groundwater resources, were identified and that a suitable make-good commitment could be developed by the Proponent. The bore survey report is included in SEIS Volume 2 Appendix N.

The mutually acceptable make-good agreements between the affected groundwater user and the Proponent will ensure that an alternative water source will be made available at no cost to the affected groundwater users (SEIS Volume 2 Appendix V, Section 3.4.7.2).

Comment – CM103

The high intrinsic spontaneous combustion propensity and the potential for spread of flame and the risk to the mine, surrounding properties and the community is of concern to BRC, particularly if an open cut mine were to proceed. This risk would likely persist after LOM and containment is required as part of the rehabilitation of the site to minimize any potential fire hazards.

Additional considerations:

- *Measures to ensure access to adequate water for surrounding land-uses;*
- *Measures to avoid impacts to water that may be detrimental to surrounding land-uses.*

Response – CM103 (Hazard and Risk)

The risk of spontaneous combustion of coal is a complex phenomenon and is dependent on numerous factors aligning to create suitable conditions for the coal to progressively self heat and eventually combust. These factors include the inherent characteristics of the coal, moisture content, porosity, the availability of oxygen and suitable environmental conditions to prevent the dissipation of heat. The propagation of a self heating condition to actual combustion is also highly time dependent.

The risk of spontaneous combustion in coal, which is exposed to oxygen for short periods, principally relates to broken material, generally in stockpiles. A stockpile management plan will be developed for the operations and this will consider both preventative and response measures to manage the risk of spontaneous combustion. Stockpiles of coal will be situated such that they provide a sufficient buffer between the stockpile and surrounding infrastructure and vegetation.

With respect to in-situ coal the risk of spontaneous combustion is inherently lower and is effectively managed by the advancement of the mining front, which continually removes the material which has been exposed to the atmosphere and exposes virgin coal. Although the likelihood of spontaneous combustion is therefore very low, site management will continually monitor the conditions in the open pit through routine inspections and incident / hazard reporting processes. A management plan will be developed and will address the preventative and mitigation controls to manage the risk of spontaneous combustion in mining areas. Emergency and Crisis Management Plans will also provide a command and control structure for responding to emergency situations.

Rehabilitation plans for the end of mine life will include provision to seal off exposed coal from atmospheric conditions, which may otherwise lead to self heating and spontaneous combustion, although this risk is generally low for in-situ material.

Spoil piles (washery tailings and carbonaceous interburden) are also understood to represent a spontaneous combustion risk. Therefore, the spontaneous combustion management plan will provide structured measures for the management of the risk. Such control measures may include capping or encapsulating of these wastes, either progressively (as required) or at the end of mine life, or compaction techniques to prevent the ingress of sufficient air to promote heating and combustion.

Monitoring regimes will also be established to identify heating and these may include visual inspections, infrared thermography and temperature probes. There are also a variety of response measures available in the unlikely event of a large scale heating and these would be selected to suit a particular situation. Such responses include excavation, quenching, surface sealing, inert gas injection, grouting and burnout control. The effectiveness of these prevention and response measures is discussed in a paper submitted at the Coal 2005 Conference, entitled *Spontaneous Combustion in Open Cut Coal Mines -- Recent Australian Research* (Caras et al. 2005).

Response – CM103 (Groundwater)

The Proponent is committed to make-good any loss of water resources due to the Alpha Coal Project. This commitment will ensure that a replacement water supply of equal or better quality will be made available, at no development cost to the impacted groundwater user.

The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during a bore survey;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority Condition trigger values (SEIS Volume 2, Appendix V, Section 3.4.9)
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The make-good commitment agreement, to be compiled by legal experts, must contain a clause regarding on going subsidies even after closure or if the mine is sold. Financial provisions are to be made to ensure future costs regarding alternative water supplies are covered.

Comment – CM104

The coal washery waste is expected to be net acid generating and will require measures to prevent or control acid generation. The management and handling of the coal washery waste and potential for pH alteration and/or treatment for stabilisation need to be included within the conditions to ensure that it does not impact on surrounding environment. As water is a limited to scarce resource in the region, particularly during drought impacts need to be limited to the mine and not be detrimental to the surrounding areas, nor preclude the potential for rehabilitation by acidification. The need for alternative supplies such as for dust suppression and coal processing water with potential for reuse is required for long term sustainability of water supply and to minimize low value uses for quality water supplies.

Regular testing of the coal washery waste needs to be conducted and potentially isolation area ponds, dams or similar established with testing regimes to ensure that they are not impacted.

The plans provided by Hancock Coal must demonstrate that water flow will not occur over the overburden dumps and that any water used for dust suppression or control of overburden is first tested for pH to ensure that acidic water is not used.

Barcaldine Regional Council request the Co-ordinator General to include such conditions as noted in the points herein.

Response – CM104

Related water and waste management details are included in:

- SEIS Volume 2, Appendix I - Surface Water Summary;
- SEIS Volume 2, Appendix K - Flooding Technical Report;
- SEIS Volume 2, Appendix M - Surface Water Quality Technical Report;
- SEIS Volume 2, Appendix N - Groundwater and Final Void Report;
- SEIS Volume 2, Appendix S - Interim Geochemical Report; and
- EIS Volume 5, Appendices F, G, and J

Comment – CM105

Barcaldine Regional Council request that the Co-ordinator General liaise with DERM to ensure that the conditions for design, development and monitoring include provision of water collection and storage volumes which provide sufficient capacity for long term and have additional capacity to withstand rainfall events such as 1:500.

On-line monitoring devices are requested to be included within the provision both due to the time of notification, the nature of isolated area and response times and to ensure that ongoing monitoring is conducted which can provide early warning should conditions within the runoff areas be affected. The environmental dams noted on the sketch plans do not appear to offer sufficient protection in the event of a major water influx and BRC request that these areas be sized, designed and managed to ensure containment and that overflows are captured and diverted for on-site storage and not released to the environment or off-site.

Note to the Co-ordinator General from BRC in conditioning states as the January rainfall and flooding have shown that there are regular cycles of intense rainfall and flooding in the area and as this is a foreseeable event all planning and provisions must be included within the conditioning. Reliance on off-site release as dilution method within extreme events is not considered by Barcaldine Regional Council to be a sustainable method of management and containment of mine wastes, dumps, tailings and pit materials.

Access and associated infrastructure must also be able to withstand the potential for extreme events.

Response – CM105

Surface water documentation details the sizing and designs for water and waste management infrastructure. These details are included in:

EIS Volume 5, Appendices F2, F3, and J2; and

SEIS Volume 2, Appendix L Site Water Management System and Water Balance Technical Report.

Comment – CM106

The geological hazards include many issues of concern for BRC including the ability to manage the mine post impacts and the significant risk posed to the aquifer through loss of pressurization, potential contamination and AMD.

A water resource plan amendment has been requested in earlier notes to the Minister to include the area of the Hancock Coal, Alpha Coal mine. This should be accompanied by a water use plan to be provided by Hancock Coal.

Any blasting impacts, temporary or permanent relocation expenses, or alterations to existing dwellings or infrastructure is to be fully compensated by Hancock Coal throughout the life of the mine and the mining activities and impacts.

Response – CM106

All potential impacts of noise and vibration have been compiled in EIS Volume 5, Appendix I. This is updated in the revised noise and vibration assessment presented in SEIS Volume 2, Appendix R.

Groundwater resources will be impacted by mine activities. The Proponent is committed to make-good agreements, which will allow for the replacement of diminished water resources and/or groundwater supply and reticulation infrastructure, if deemed to have occurred as a result of their mining activities.

Comment – CM107

It is understood that best practice will include the employment of an archaeologist for identification of fossils, should any fossils be found either cultural or historical it is requested that a local indigenous representative be appointed by agreement with the local community and elders to assist in any identification, relocation or management of such materials.

Response – CM107

According to EIS Volume 2, Section 4 (Geology), fossil management will be as follows:

Should significant fossil specimens be identified within the mine then steps will be taken to secure and protect the fossils. The Queensland Museum will be notified to allow for the identification and correct preservation and removal.

In relation to cultural heritage for Indigenous Cultural Heritage a Cultural Heritage Management Plan agreement was registered on 18 January 2010. On registration the CHMP agreement became the guiding document on the way in which Aboriginal cultural heritage will be managed throughout the life of the Project.

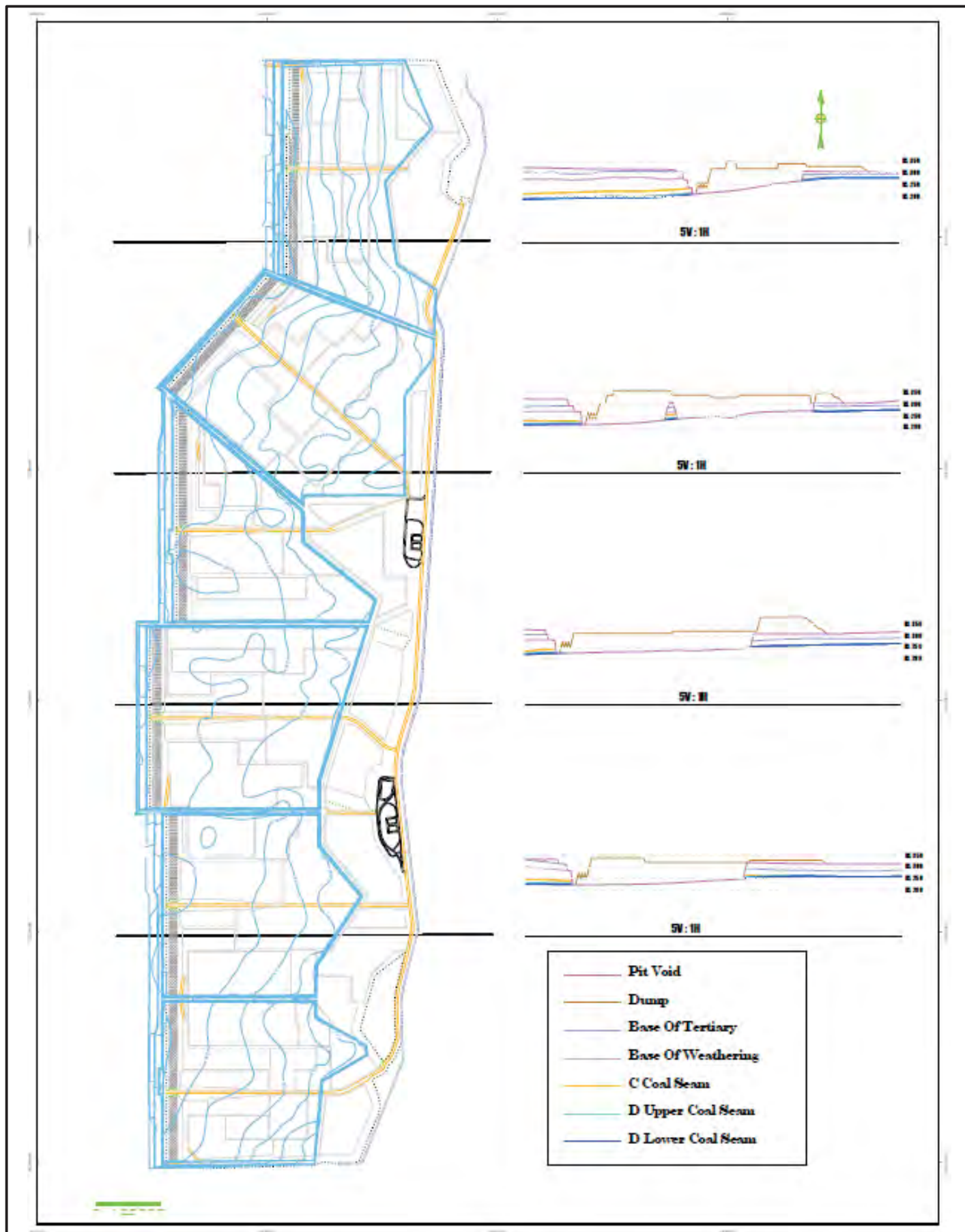
Comment – CM108

The geological stability throughout the life of the mine and post mining is required. A post mining rehabilitation and reinstatement plan is requested by Barcaldine Regional Council due to the high level risks of slope instability, potential for spontaneous combustion and alteration to the aquifers and groundwater table to understand the final mine landform, potential uses and reinstatement of environment, water sources and infrastructure.

Response – CM108

The envisaged final land form is included in Figure 4-3 below. The final void walls have been benched to ensure stability.

Groundwater modelling allowed for the estimation of the pseudo steady water level in the final void, which remains lower than pre-mining groundwater levels due to the negative climate balance (i.e. evaporation is greater than rainfall). Groundwater contours surrounding the final void will be towards the final void. The final void modelling results are presented in SEIS Volume 2, Appendix N.



Source: See Copyright Details below and for full disclosure Please Refer to the SEIS Volume 2, Appendix B

Comment – CM109

Consideration of a blasting zone around the pit, based on rock mechanics, is required to determine any possible risk to mine infrastructure and neighbouring infrastructure. An evaluation of the use of ANFO on water resources will be included in the water management studies. Alternative blasting materials and methods could be considered should nitrate concentrations increase to levels which may impact human health or the environment. Excess in nitrates can yield increase in vegetative growth and in particular within waterways can contribute to algal blooms and toxins which can affect human health, the environment and potentially stock.

BRC request the Co-ordinator General to condition best practice international standards use of explosives and explosive materials to reduce or eliminate any potential excess nitrates is preferred, in particular due to the proximity to the aquifers and groundwater table.

Response – CM109

With respect to blasting zones within the pit, the Proponent will develop a formal blasting management plan. This will include an evaluation of the maximum potential throw lengths for fly rock under burden and stemming controlled conditions. Safety factors, increasing in magnitude for personnel risks as opposed to equipment / infrastructure risks, will be applied to these calculated distances in order to account for uncertainty in the models and unexpected conditions. Blasting designs and procedures will be established to ensure that equipment or people are not located within exclusion zones or that appropriate fly-rock protection is provided.

In accordance with AS2187, which must be applied under the *Coal Mining Safety and Health Act 1999* and the *Coal Mining Safety and Health Regulation 2001*, the following blast characteristics will be considered in developing an appropriate blast plan:

- Geological structure
- Varying rock type
- Oxidising or reactive ground
- Hot or high temperature material
- Consistency of material
- Flammability or combustibility of material
- Presence of hazardous atmospheres
- Presence of water
- Brittleness of material
- Previous workings / voids
- Characteristics of the face.

The following environmental factors will also be considered:

- Distance to buildings, structures and other environmental effects
- Identification of monitoring requirements and the requirement for monitoring locations, systems and instruments
- Ground vibration and air blast overpressure
- Effects of weather patterns and wind directions
- Effects of dust, fume, sediment run-off and noise.

The potential risk of ANFO on the groundwater and surface water environment is primarily from handling techniques. When placed in a blast hole it is detonated within a short time and typically all residue will be removed in the explosive process. As part of the site requirements the handling of ANFO will be strictly controlled for safety as well as environmental reasons. The location of the ANFO store is a minimum of 0.5 m above the 1:3,000 AEP flood level of lagoon Creek.

4.2.1.5 Soils, Topography and Land Disturbance

Comment – CM110

Soil management plans should be implemented as a condition of approval. Refer to previous comments.

Response – CM110

A Topsoil Management Plan (TMP) will be provided as a condition of approval.

4.2.1.6 Land Use and Tenure

Comment – CM111

Negotiations are required between the office of the Co-ordinator General, Hancock Coal and BRC for the inclusion conditions for land use acquisitions and lease.

The alterations in the land use need to be further discussed in forum.

Response – CM111

The Proponent has committed to discussing a range of matters with BRC. A meeting with BRC representatives was held on 4 April 2011 to discuss key Project details, aerodrome issues and alternative road access routes. BRC and the Proponent are developing a firm understanding of the opportunities from the Project, and will maintain ongoing consultation on these and other Project matters.

Commitments

The EIS included a list of commitments that will presumably form part of the CG's recommendation for the Significant Project that comprises the mine and rail components of the Project. These commitments included the following matters that include specific reference to Barcaldine regional Council:

- Contributing to regional development, including the development of community Plans required under the SP Act
- The establishment of a Hancock Consultative Committee as discussed further below
- A proposed road safety program
- Actions to address increased issues of substance abuse and violence
- Support of community development programs
- Supporting Council obtain funding for the upgrade of the Alpha-Clermont Road
- Consultation on the best route between the mine and Alpha

Hancock Consultative Committee

An important mechanism for achieving the above-mentioned and other commitments listed in the EIS is the formulation of the Hancock Consultative Committee (HCC).

The role of the HCC will initially be to assist in the on-going development of the Social Impact Management Plan (SIMP). This will enable a more efficient process with key stakeholders to identify key indicators and tracking tools for the ongoing implementation of the SIMP. The HCC should consider the following potential participants:

- A chair to facilitate the committee;
- Representatives from the Alpha Coal Project;
- Representative from the Kevin's Corner Coal Project;
- Representatives from the three local councils (as required);
- Representatives for the State Government (as required); and
- Key stakeholders (likely on a need be basis).

Further details of the purpose and operation of the HCC are suggested in the SIA Section 8 (EIS Volume 5, Appendix M).

Other Council involvement

The Commitments contained in the EIS contained numerous references to the mine SIMP as required under Queensland legislation for Significant Project. The SIMP is proposed that will contain information on local communities, provide a means of monitoring community issues and provide a mechanism to identify and facilitate the provision of agreed community infrastructure. The development, on-going review and continuing development and implementation of the SIMP will require on-going dialogue with Councils directly impacted by the Alpha Project, predominantly BRC.

BRC will also be involved in decision-making through the approvals processes associated with the Project. The EIS included a list of approvals that may be required for the Project to proceed. This list is contained in EIS Volume 1 (Executive Summary and Chapter 1) that was previously made available during the Public Notification and Consultation process.

While BRC and other Councils may have a limited role in the approval of the primary approval applications, most of the second and third tier approvals will require the involvement of the Council as Assessment Manager, concurrence or referral agency. These approvals may include:

- Changes to the local road network, state controlled roads and stock-routes
- Approvals of off-tenure construction camps and quarries
- Applications for Operational Works and Reconfiguration of Lots.
- Any required approvals for building, plumbing and drainage works.

BRC and other Councils will play a significant role in the respective approvals associated with the project.

4.2.1.7 Landscape Character

Comment – CM112

The landscape character and vegetation is to be preserved post mining and is to be reflected in the rehabilitation works.

Response – CM112

The rehabilitation strategy has been presented in the EIS Volume 2, Section 25. The aim of this strategy which will continue to be developed over time will be to replicate the site's current land use.

4.2.1.8 Land Contamination

Comment – CM113

All land contamination is to be addressed as per the Environmental Protection Act and in accordance with the Draft Guidelines for the assessment and management of contamination in Queensland.

Response – CM113

Agreed - Any investigation or remediation of identified contaminated sites will be undertaken in consultation with DERM and in accordance with the current guidelines.

4.2.1.9 Terrestrial Ecology

Comment – CM114

It is likely that the additional movements, traffic and mining impacts will change and or increase the current pest management requirements on both public and private land.

Response – CM114

The management of weeds is covered in the EIS Volume 2, Section 9.1.3.2.4 *Management Strategies for Non-native Flora Species*. This section states that management of weeds will be co-ordinated with programs led by local government, community or landowners. The Barcaldine Regional Council Pest Management Plan 2010 – 2014 will be considered as part of this process. The mine will also employ an environmental officer that will be available to liaise with landholders over weed and pest control.

EIS Volume 2, Section 9.1.3.2.4 also includes a commitment for the preparation of a site-specific Weed Management Plan (WMP). The WMP will describe how the weeds are to be managed in accordance with the LP Act and/or local government requirements for weeds not declared under state legislation.

4.2.1.10 Aquatic Ecology

Comment – CM115

Based on the alteration of hydraulic and hydrologic flow regimes it is likely that the true nature of the impacts of the mine cannot be quantified prior to operation. It is likely that the impacts will require further assessment.

Response – CM115

Potential impacts described in the SEIS are derived upon baseline ecological conditions for the area identified during each aquatic survey, specialist ecological knowledge and literature reviews for the area. Quantitative impacts are difficult to define prior to commencement of mining activities. Regular monitoring of riparian health will occur for riverine systems at all stages of the project, including pre-construction, construction, operation and rehabilitation. Monitoring will occur biannually, to determine natural seasonal fluctuations and provide a real-time assessment of impacts.

4.2.1.11 Surface Water

Comment – CM116

The impacts have generally been noted however this does not meet with the overall characterization and potential long term impacts.

Response – CM116

Based on the context of the submission, it is assumed that this comment relates to impacts on surface water and the need to ensure adequate safeguards are put in place by regulators.

Environmental authority conditions as proposed in the EM Plan (SEIS Volume 2, Appendix V, Section 3.4.10) for the protection and management of surface water will be refined in consultation with DERM.

Comment – CM117

There have been recent above average rainfall events and it is possible that these may continue and or increase in intensity or frequency over time (Australian Rainfall and Runoff 1987) and the management practices for the mine need to provide adequate HSECH protections.

Response – CM117

The hydrological assessment for the Alpha Coal Project was carried out in accordance with current DERM requirements. The latest revised (and as yet draft) guideline stipulates that the flood immunity for the mine pits needs to be 1% of the life of mine, hence 1% of 30 years equates to a flood immunity of 3,000 years ARI.

In addition to the above, a sensitivity analysis (which assumes a potential fluctuation of up to 20%) is carried out on various parameters including (but not necessarily limited to) rainfall, evaporation, climate change, channel roughness, and catchment roughness. In the case of the flood immunity, the upper bound of the flood flow is adopted as the design requirement for the levees.

Independent of the EIS hydrological and hydraulic assessments, the Proponent has commissioned a Flood Risk Study (November 2010), which adopted a 10% probability of exceedance of a flood event as the preferred flood immunity level. The Flood Risk Study values, detailed in SEIS Volume 2, Appendix K, coincide with those adopted in the EIS hydrological assessment.

In summary, the flood risk has been addressed more stringently than what is required by the standard guidelines, with the aim of minimising risks to the mine site, the environment and to the communities that may potentially be affected by the mine.

Comment – CM118

The proposed diversion drains require more consideration than the general open or spoon drain design noted on other sites due to the sensitive environment in which the mine is located, the connection with a number of major waterways and water bodies and to mitigate impacts to these areas.

The additional cross-drainage structures proposed by HC including rail passes need to be considered as part of a revised hydraulic model to ensure that no additional risks or flooding are created to residences and properties.

Response – CM118

The creek diversions are designed in accordance with the Queensland Department of Environment and Resource Management (DERM), Regional departmental guideline for watercourse diversions (Water Diversions – Central Queensland Mining Industry) and the Australian Coal Association Research Program (ACARP) guidelines.

The sensitive environment in which the mine is located is appreciated and the diversion design aims to replicate the existing channels and stream morphology as closely as reasonably possible to retain the existing characteristics.

Additional design work has been undertaken as part of the development of the rail component of the project and is presented in SEIS Volume 2, Appendix Y.

Comment – CM119

Need for Disaster Management Plan to be combined with the Regional Disaster Management Plan and also. Mine appointed liaison and representative for DM working groups, consultation and planning.

Response – CM119

A company representative will be appointed to participate in disaster management planning and coordination activities, with the aim of ensuring optimum liaison and effective response management.

Comment – CM120

Additional augmentation of the flood warning and alarm systems should be provided to ensure that there is sufficient warning of inundation due to flood waters. This would also provide a further notice mechanism to prepare for mitigation measures at the mine and surrounding areas including reinforcing levees, blocking of diversion drains and redirection to on-site collection point to ensure no off-site releases (EP Act) and ensure that access points are still available for evacuation.

Response – CM120

The mine's flood protection and on site water management are designed to ensure the highest standards of safety. The mine will not significantly increase flood flows (generally flood flows are reduced rather than increased due to the redistribution and staggered flows from catchments) and the flood mitigation measures are designed to industry standards to suit the life of mine. The Proponent adopts the highest standards of OH&S for their staff at all times, which is also reflected in the design of the mine and associated works.

Comment – CM121

The tailings storage facility dam management and surface diversion dams may not represent the best practice for sediment and erosion control and or acceptable practice for storage.

Response – CM121

As a response to the changes in the Project Description and advancements in the conceptual design and assessment process, the SEIS presents an updated TSF report (Volume 2, Appendix T) and updated site water management and water balance report (Volume 2, Appendix L). All of these structures are not at final design stage and will have to go through an additional approvals process post the EIS process prior to construction. This process will be managed by DERM and assessed in accordance with the most recent construction criteria.

Comment – CM122

Total water demands for the three mines were estimated to be upwards of 31,500 ML/a.

Response – CM122

The mine water demand will be up to ~ 11 000 ML/year (EIS Volume 5, Appendix G). The majority of the water will be supplied from groundwater (dewatering and mine ingress) with additional water being supplied via a pipeline.

The details of the Mine water balance are included in SEIS Volume 2, Appendix L.

Comment – CM123

Rehabilitation of waterways is a commitment which the Co-ordinator General needs to condition and must be an annual commitment by the mines to ensure that all impacts are offset at the time of impact and that reinstatement and rehabilitation are gradual and conducted throughout the course of the mining operations.

Response – CM123

Environmental authority conditions as proposed in the EM Plan for the protection and management of surface water will be refined in consultation with DERM.

It is understood that rehabilitation of waterways refers to the establishment of creek diversions and the ongoing preservation of diversions. Monitoring of diversions is detailed in EIS Volume 2, Section 11.7.2 and extends from pre-construction (baseline conditions) to relinquishment monitoring, at which time the Proponent will need to be able to demonstrate that the diversions have achieved dynamic equilibrium and are not adversely impacting on adjoining reaches.

The diversions will be designed in accordance with the requirements of DERM Central West Water Management and use Regional Guideline for Watercourse Diversions.

The above guidelines require that the diversions replicate the natural conditions as closely as reasonably possible and that a natural equilibrium is established in each channel. The objective is to end up with a watercourse that is sustainable within the natural environment and do not require long term maintenance, reinstatement or rehabilitation.

Comment – CM124

Alpha recorded 280 millimetres (mm) for September 2010. The previous highest for September was 118 mm recorded in 1906 and the average is 22 mm.

There is a potential risk for any infrastructure located within a flood plain. There are additional risks of potential losses to the surrounding environment, off-site releases and economic/product losses to Alpha Coal. Any infrastructure within the flood plain should be raised above the predicted flood level and support structures reinforced to withstand any potential flood.

It is recommended that Alpha Coal re-assess the adopted rainfall data.

Response – CM124

The 2011 flood events throughout many parts of Queensland did not represent the typical flood scenario. Instead, many of the catchments were saturated by prolonged rain, causing the runoff coefficients to rise to close or equal to 1. Consequently, even though the rainfall event that caused widespread inundation and flooding may not have been that significant, the net impact was considerable.

In order to adequately capture the runoff resulting from a storm event, all parameters that may influence the flood event in a creek are considered including rainfall, evaporation, topography, land-use, saturation, roughness of the catchment and watercourse, etc. Such parameters can be highly variable and therefore a sensitivity analysis is carried out to determine the upper range of a flood event, to inform the modeller and designers of the worst case scenario. Typically this produces a 20% increase of the flow event.

Separate to the flood modelling carried out for the Alpha Project, the Proponent commissioned an independent study into the flood risk. This study focussed on the volatility of rain and runoff on the

Project area and recommended adjustment of the flows adopted to approximately 20% above the flows derived from the standard available DERM flow gauging data.

Summarised, in recognition of the issues raised in this query, the design flood event has been inflated to include for uncertainties in the modelling and data used, thereby improving the reliability of the flood assessment and thereby adopting conservative and risk averse design parameters for the mine and associated works.

Comment – CM125

All of the statutory Environmental flow Objectives in the Burdekin WRP apply to locations (nodes) that are a long distance downstream of the Project site. The closest water resource plan (WRP) node for which some EFO apply is at the junction of the Suttor River and Burdekin River. As the Project location is a long distance upstream of closest the EFO location and the site area is a very small portion of the total catchment to the closest EFO location, the Project will not materially impact on the State's ability to achieve statutory EFO prescribed in the Burdekin WRP. A study is required to assess the environmental flows for the proposed mine site as an absence of EFO within the existing WRP does not reflect that environmental flows are not required to preserve potable water and maintain the health of the creeks, streams and gullies. An evaluation of the impacts of the diversion drains, their management and the management of surface waters such as from tailings, waste dumps and wash waters needs to be included within a total water cycle plan as part of a water resource plan for the region.

As a number of the environmental flow nodes are downstream it is imperative that any redirection of flows does not negatively impact.

Barcaldine Regional Council request that the Co-ordinator General approach the Minister for the development /amendment of a Water Resource Plan (WRP)/ Water Use Plan to reflect the proposed significant change in land use and water consumption for the region. It is also requested that Hancock Coal assist and provide information as is necessary to develop any such plan. Barcaldine Regional Council request that any such plan is to include an ongoing perpetual water allocation to BRC which will endure post mining and that it is ensured that this water allocation is preserved and not detrimentally impacted through mining.

Request to the Minister as per the Water Act 2000 - Water Use Plan.

'The Minister may prepare a water use plan for any part of Queensland if the Minister is satisfied there are risks that water use in a particular area of Queensland may cause negative effects on land and water resources'.

Response – CM125

The water management of the Alpha Coal Project aims to mitigate any potential impacts on the surface water quantity and quality on the downstream catchment. As such it adopts an approach of mitigation and protection, achieved but not limited by the following:

- a. All fresh water is diverted around the site and returned to the natural creek system.
- b. The mine pits and mining process works are surrounded by a flood levee, providing flood immunity to a 3,000 year ARI flood event, thus providing the mine protection against flooding and protecting the environment from contamination from the mine site.
- c. No water is harvested on site, from any of the creeks (Lagoon, Spring, or Sandy Creek).
- d. The mine internal catchments drain to appropriately engineered environmental and sedimentation dams and this water is used on site (first preference) for normal mining activities (dust suppression, coal washing, etc).

- e. There is a critical shortfall of water on the mine site and surplus water is imported through a supply contract with SunWater.
- f. Internal dams are designed to statutory stringent criteria (DERM) and are generally designed to spill back to the mine pits (in the unlikely event that they should overflow).
- g. All mine affected runoff is captured and stored on site.
- h. An extensive network of pipelines distributes the (dirty) water on site for safe storage and appropriate reuse.

The above notwithstanding, the Alpha Coal Project is committed to being part of a Galilee Basin integrated water management committee that will address and focus on the basin wide water quality and cumulative impacts of the Alpha Coal Project and other proposed mines in the region. The Proponent is amenable to the sharing of information, as is necessary, to assist in the development of a Water Resource Plan (WRP) for the region.

4.2.1.12 Groundwater

Comment – CM126

The impacts of the mining project (30+years) are likely to preclude any further groundwater extraction for the foreseeable future for potable or stock watering purposes and as there is no surety of ongoing supply from rainfall (as experienced during the long term and frequent drought periods) a suitable long term offset is required.

Response – CM126

Initial predictive groundwater modelling and the bore survey of neighbouring bores has allowed for the prediction of impacts after 30 years of mining. Figure 4-2 (refer to Submission Response CM74 above) indicates the envisaged drawdown cone. This is currently considered the maximum zone of influence, cumulative for both MLA 70425 and MLA 70426, subject to ongoing model refinement as additional information becomes available.

The drawdown cone is elongated north-south along strike, and is limited by the aquitards to the east and west, the Joe Joe Formation and the Rewan Formation, respectively.

The make-good commitment (SEIS Volume 2, Appendix V, Section 3.4.7.2) will ensure that alternative water supplies are provided to affected users through mining and beyond.

Comment – CM127

It is understood from the EIS that a major portion of the water will be piped to Abbott Point and this is not considered to be a sustainable long term option for the Barcaldine Regional Council and needs to be re-addressed. This would mean a significant loss of community resource and potential long term and or permanent loss of the groundwater aquifer, resource and future water security for the region.

Response – CM127

All groundwater, derived from mine dewatering, will be used on site. It is envisaged that a negligible amount of water will be lost with the coal product, which will be transported by train to Abbot Point.

EIS Volume 5, Appendix F3 provides the site water balance, which includes water inputs (surface water runoff, groundwater, and imported water) and water losses (water demands). The water balance indicates that the mine will have to import water to meet the mine's water demand. This water balance has been refined (SEIS Volume 2, Appendix L). Various sources of water have been identified and include:

- Gorge Weir below Burdekin Falls Dam;
- Burdekin Falls Dam;

- Connors River Dam;
- Bowen Basin coal seam gas water; or
- Surat Basin coal seam gas water.

With regards to the long term impacts on the groundwater resources within the study area, groundwater modelling (including final void predictions) is ongoing to assess the potential impacts of mining operations on the groundwater resources during operations and post mining (SEIS Volume 2, Appendix N).

Comment – CM128

Co-ordinator General need to consider mandatory potable water supply for dry and wet conditions for the life of the mine without the need to draw down on local water supply or transport water.

Due to the variability of rainfall and the sustained periods of drought, rainwater collection and tanks are considered to provide a supplementary water source and are unlikely to be sustainable for a long term potable or agricultural use.

Response – CM128

Noted.

4.2.1.13 Air Quality

Comment – CM129

Traditional air monitoring solely related to on-site haulage roads and entrances at other mines have not reassured the community of impacts, nor have they always been representative of the off-site impacts. Additional air quality impacts also include amenity and affects from dust/debris.

Response – CM129

An operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to monitor real time particulate concentrations and deposition of dust to the land surface at sensitive receptor locations. If these prove the EPP (Air) and Queensland DERM guidelines for air pollutants are exceeded, then the appropriate reporting procedures to DERM will be followed and further operational and or engineering controls will be considered to prevent exceedances at off-site locations. Please refer to Response CM64 above for more details regarding the air monitoring program.

4.2.1.14 Greenhouse Gas Emissions and Climate Change

Comment – CM130

Hancock coal proposes to export high quality and low emission burning coal.

It is suggested that a portion of the coal reserves need to be returned to the Queensland power production and grids through agreements and purchase options with Australian power supply entities to contribute to Australia's position in a cleaner burning and low emission environment, in particular power supply to the Galilee Basin area.

Response – CM130

The sales agreement for the coal produced from the Alpha mine is a confidential commercial agreement made between the Proponent and purchasers. Future changes in supply and demand pressures may result in a change in the final destination of the coal product; however this is not currently foreseen.

Comment – CM131

Mitigation of vegetation loss and changes to waterways.

Response – CM131

As part of the design and planning process the disturbance of waterways on the site have been avoided wherever possible. Where the waterways are to be diverted they have been designed based on the required DERM and ACARP guidelines. Where possible a buffer zone has been retained around the waterways to provide habitat and reduce the potential for erosion and reduction in water quality.

4.2.1.15 Noise and Vibration**Comment – CM132**

While the EIS finds that noise levels will not be an impact due to heavily vegetated landscape and proximity of communities to the proposed mine, the report does acknowledge that there needs to be consideration given for the proposed accommodation centre.

Response – CM132

The noise assessment found that with appropriate mitigation measures in place, satisfactory internal noise levels are achievable within the accommodation village buildings. As set out in the revised EM Plan (SEIS Volume 2 Appendix V, Section 3.5) a noise monitoring program will be developed, and the monitoring locations (to be determined) are expected to include representative locations at the accommodation village. The EM Plan also states that the Proponent will develop a complaints handling protocol (grievance register) to respond to any complaints related to noise, vibration, or overpressure and investigate these, where necessary. This approach is still valid when considering that the accommodation village has moved to a more northerly location.

Comment – CM133

Although the EIS has proposed some limitation on undertaking blasting activities as a way to limit noise and vibration from these activities. Background monitoring and data collection was noted to be limited and the true potential for impacts does not appear to be truly quantified and mechanisms instilled to review vibration issues and impacts by affected parties in Barcaldine Regional area and surrounds.

Response – CM133

The assessment has been undertaken in accordance with the relevant QLD noise policies and EPA guidelines. The Proponent will develop a complaints handling protocol to respond to any complaints in relation to noise, vibration or overpressure and investigate these, where necessary.

4.2.1.16 Waste**Comment – CM134**

The existing waste services for the Barcaldine Regional Council area are limited and require upgrade and or replacement if additional population pressures are created as expected by the mine site.

Response – CM134

As far as practical, the Project is designed to minimise waste generation and disposal through effective recovery and reuse. An engineered landfill will be developed on-site to accommodate residual solid wastes generated during the construction, operational and decommissioning phases of the Alpha Coal Project. This approach will limit impacts on local infrastructure and services.

At the start of the construction phase and following the grant of the mining lease, an engineered landfill will be constructed on-site. Development of the engineered landfill will consider all relevant legislation and guidance associated with site selection, design and associated impact assessment to minimise the potential impact on soils, groundwater, surface water, visual amenity, air quality, noise, ecological health and human health.

Prior to construction of the engineered landfill, waste generated from early works and initial construction activities will be segregated for recycling or reuse wherever possible, with the balance disposed of at the existing Barcaldine Regional Council landfill facility. Large quantities of general municipal wastes are not generated during early works – refer to Construction Waste Inventory (EIS Volume 2, Section 16, Table 16-1).

4.2.1.17 Transport**Comment – CM135**

Any increase in commuting and transportation to mining and construction projects result in a significant change in existing road and transport usage.

Response – CM135

The TIA document has undertaken an analysis of the increase in traffic volumes on the selected road lengths in accordance with DTMR guidelines. This analysis has indicated that increases in vehicle numbers generated by the Project will have an insignificant impact on the operation of road links and intersections. It has been identified that the intersection of Capricorn Highway and Gregory Highway will be approaching a capacity threshold; however this is mainly caused by increases in background traffic volumes.

It is determined however that the increase in commercial vehicles may have an impact on the existing road infrastructure. The pavement assessment in Section 5 of the updated TIA document (SEIS Volume 2, Appendix U) has recommended road upgrade and ongoing maintenance requirements for sections of Degulla Road and Clermont-Alpha Road.

Comment – CM136

The Alpha airfield or newly constructed airfields will likely be used for FIFO purposes.

Response – CM136

This item is noted and has been addressed in SEIS Volume 2, Appendix U, Section 8.1.3 of the TIA document.

4.2.1.18 Indigenous Cultural Heritage**Comment – CM137**

The Murri communities have advised that approximately 120 people in their community live in or are connected with the Alpha area.

Response – CM137

A cultural heritage management plan (CHMP) has been established with the authorised indigenous stakeholders covering the mine site. The CHMP provides for management and mitigation of cultural heritage matters of importance. In addition, processes for consulting with indigenous persons, and other minority groups, are included in the proposed SIMP (social impact management plan).

4.2.1.19 Non-Indigenous Cultural Heritage**Comment – CM138**

There is a long term association with the region in use for cattle and grazing and this is considered to be a major part of the character for the region as well as the areas of intact remnant vegetation which are a draw card for tourism and enjoyment within the area.

Response – CM138

The Proponent believes this is currently represented from a heritage perspective in the EIS (Volume 2, Section 19) and associated technical report for NICH (EIS Volume 5, Appendix L).

Comment – CM139

A number of the structures and buildings in the area are of local and historic significance. Impacts associated with mining including vibrations, alterations to water regimes, noise impacts and associated mining operations may alter or affect these structures. Any mining works must include reparation & repair, mitigation and compensation for impacts during mining operation and closure.

Response – CM139

All sites which have been identified as having local heritage significance have been captured within the NICH technical report (EIS Volume 5, Appendix L), including mitigation and monitoring regimes, which would be necessary to proactively manage any potential impacts resulting from the proposed Project. The Project EM Plan further develops these initiatives (SEIS Volume 2, Appendix V, Section 3.9).

4.2.1.20 Social**Comment – CM140**

The intention for the mining operations for all workforce to live in FIFO/DIDO camp accommodation which is decentralized from services, family units and local community is at odds with the local council, community and related stakeholder intended outcomes. A portion of the workforce will likely come to the region and support for retention of family units within family style accommodation and the option for longer term integration is crucial to the viability of the mine within the Barcaldine Region.

Response – CM140

The Project has examined the FIFO/BIBO/DIDO on-site accommodation village strategy because of the location of the Project, the proximity to neighbouring communities, the current mining workforce trend, and the current population size realities. The Proponent's preference would be for locally housed workers because they strengthen the communities in the region, allows for easier logistics, reduced costs compared to FIFO, and result in a lower health and safety risk. The reality of the employment market and factors listed is that it is very difficult to force potential workers to relocate to regional communities for employment. The Proponent will not discourage relocation to the region, and will work with council and other key stakeholders during Stage 2 of the SIMP to identify benchmarks of population change to examine mitigation and monitoring strategies for unforeseen growth from the

Project. The Proponent considers that over time some workers may relocate to the region, however, current conditions do not suggest this will definitely occur.

Consideration will be given to providing incentives and support to personnel who choose to relocate to the local area including the provision of lifestyle remuneration packages that include contributions to housing, school education and child care. This will be examined on a case-by-case basis. The Proponent has also agreed to advertise non-mining related employment opportunities to potential workers to help encourage them to move their families to the region. This was identified in the EIS as a means of encouraging workers to relocate while also increasing skills and services in the community. The Proponent will discuss this initiative and others with council during Stage 2 of the SIMP.

Comment – CM141

Key recommendations from GBESIS report included: A: Establishment of a Sustainable Resource Community Officer to be located in Alpha which is key to the plan implementation and evolution. B: Establishment of two reference groups – (1) Technical Group to oversee development and funding of physical infrastructure projects, (2) Community & Business Group to oversee selection and funding of specific community projects. Community and Business Group to be formed by the Integration Workshop participants and representatives of mining companies.

Response – CM141

Hancock will establish a Community Liaison role who will work closely with the Sustainable Resource Community Office and other stakeholders in the management of Project impacts and benefits. The Proponent has indicated that they will establish a Hancock Consultative Committee (HCC) to provide a mechanism for ongoing consultation. The Proponent agrees to participate in other committees or forums established by the local council, State or other projects as required.

Comment – CM142

Collaboration and preparation of new population forecasts for Alpha and the region which factor in the impacts of the coal mine projects and development of urban infrastructure and services; and Liaison with groups and Councils in areas where strategies have been successfully developed for benefiting from mining and minimising social and economic costs.

Barcaldine Regional council are particularly concerned about the potential negative impacts need to be managed, including:

- *Potential negative impacts of non-resident workers staying in local towns, which can lead to various anti-social behavioural problems in host communities (e.g. drug and alcohol abuse, domestic violence and creation of various 'good order' disruptions);*
- *Localised inflation leading to displacement of persons and businesses not benefiting from mining and related businesses; and*
- *Higher road trauma as a result of larger numbers of workers driving long distances between work rosters.*

Response – CM142

Agree - The Hancock Consultative Committee (HCC) will provide a forum for reviewing and revising population forecasts for Alpha and the Barcaldine region more broadly.

Non-resident workers will be housed in an on-site accommodation camp. This camp will be fully self-sufficient providing recreational facilities and onsite catering to all non-resident personnel, contractors and transport workers. The Project will develop a policy that restricts workers from driving in an effort to manage fatigue. This, combined with a policy restricting personnel from leaving the mine site during their shift rotations, will limit the potential for non-resident workers to stay in local towns and engage in anti-social behaviour.

All personnel will be provided with a workplace induction that will include a *welcome to the local community* session. The intent of this session will be to clearly articulate the cultural and community values of the local area as a means of establishing behavioural expectations.

The Proponent will develop a code of conduct for direct and indirect employees and will enforce this code for all workers on their on-shift rotation. The Project does not intend to have contractors staying in the community though the Proponent is aware this may occur from time-to-time. The Proponent will work with local services providers and businesses, and with council and the police to develop effective strategies as part of the SIMP Stage 2.

Comment – CM143

Shared housing and 'hot-bedding' of non-resident workers are known to be common in other regional mining areas and have been identified as problem areas. It is proposed that 50% of the workforce be locally based and that a variety of dwelling types be accommodated for as part of that development to promote and enhance the community including:

- *Houses*
- *Semi-detached Units/ Townhouses*
- *Accommodation suitable for couples and families*

Minimal accommodation provided as SPQ on-site.

There is a need to truly reflect the population associated directly and indirectly with the mine and its operations including ancillary support services to the community.

Barcaldine Regional Council request that the Co-ordinator General advise the Queensland Treasury, Office of Economic and Statistic Research to include the predicted mining and associated population statistics. Also, that Hancock Coal be requested to supply a copy of all FTE's, position type, age, housing type and detail any support services including consultants, contractors etc engaged by Alpha Coal and its operations and third party providers. Often consultants have not been captured within these statistics, however BRC see that it is vital to reflect the true population residing at any time within the region.

Response – CM143

The Project Description identifies that all workers will be accommodated in a camp within the mining lease area. There will not be any need for workers to hot-bed. Accommodation will be sufficient to accommodate all workers, contractors and drivers using the site. The response to the proposed workforce local basing and FTE discussion from BRC has been addressed above (Response CM96).

Comment – CM144

Previous reliance on ABS census data has failed to reflect the workforces which are fly-in and fly-out even though a majority of the time is spent within the mining locale an alternative location has been

identified as 'home'. Itinerant and support workers have often been underestimated or not reflected at all.

This data is essential to provide demographic and planning information for:

- *Education*
- *Age related services (reflective of the current demographic of the region including affordable housing, standards of living and health care or aged facilities)*
- *Health care and allied health services*
- *Indigenous services*
- *Disaster planning and support*
- *Policing and security- law and order*
- *Alcohol and drug intervention programs,*
- *Domestic abuse centre*
- *Childcare services*
- *Youth programs and centre*
- *Lands, parks, open space, paths and cycleways*
- *Emergency services*
- *Services- power, water, roads, postal, courier, telecommunications, waste, sewage and airport etc*
- *Support infrastructure*
- *Accommodation*
- *Transport*
- *Sport and recreation*
- *Water management*
- *Equity and access to services for those not associated with mining (therefore not receiving the same level of economic compensation)*
- *Government planning and assessment*
- *Provision of government services- local, state and federal*

Co-ordinator General is requested to ensure through conditions and direction for collaborative partnerships with all associated providers, Barcaldine Regional Council, Hancock Coal, all levels of Government, Office of Economic and Statistical Research, ULDA, DIP, DME, DERM, essential services and consultants (where applicable), and individual departments. The resources and costs of these services cannot be wholly borne by Barcaldine Regional Council and appropriate forward planning and identification of infrastructure requirements is needed to ensure that a sustainable community continues to operate in the region.

Direction is required by the Co-ordinator General to ensure capacity building from these organizations is provided to assist the direction established by Barcaldine Regional Council and to ensure that it can be delivered effectively to meet the predicted 5000+ workforce associated with the development of Alpha Coal and surrounding permits within the next three to five years.

The average ongoing estimated workforce is currently predicted to be in the order of 3,000 – 5,000 directly employed within mining.

Fly-in fly-out underestimates the population which will be present in the town:

- *reduces the service provision numbers by government organizations*
- *contributes to the alcohol, drug and domestic abuse or serves to 'move the problem' through separation and isolation (SPQ, long absences from family)*
- *does not ensure that equitable funding is received by the region as based on the current method of population reporting as per the ABS census and the way in which responses are noted.*

It is also noted that the competition for resources, housing and other infrastructure is going to intensify as additional applications are received and that supporting a FIFO workforce may not be sustainable or may even limit the capacity for growth and or to service the mines.

This could have detrimental effects to:

- *families*
- *the council*
- *the community*
- *the mining industry*
- *the Australian economy*

BRC are concerned that a majority fly-in/ fly-out workforce with only on-site accommodation will cause potential for an unacceptable risk to health and safety where no local accommodation is provided.

The concerns relate to increase in travel distances and lengthy time for travel for time off and recreational activities and support service providers whom will have to seek accommodation outside of the region or in neighbouring regions. There is still a duty of care to be provided by the mines where they are the recipient of services and create the additional demand.

Nearby areas including mines in the Isaac Region have experienced:

- *High Vehicle turnover*
- *Roll-overs*
- *Near misses*
- *Driver fatigue*

BRC request that the Co-ordinator General understand the interaction and impact of the mine within the community and the potential for impacts to health and safety of mining staff/ contractors, council staff and the community and that conditions are put in place which reiterate the legislative and regulatory obligations and that these be extended to be adaptable to include international standards, best practice and council planning and direction.

Impacts to infrastructure and underestimation of associated population may limit the available resources including health services to support activities and provide early response to workforce and place an additional drain on existing limited community resources.

The concept of 'zero harm' needs to extend outside of the mining operations to the associated community and industry and includes

Health and safety, air, noise, vibration, fatigue, mental and physical health etc.

Response – CM144

As discussed in the Project Description, the Project workforce is to be housed in an on-site accommodation village while on their on-shift work rotation. This is due to a number of factors which

have been addressed in previous responses. The Project has identified a BIBO strategy as a means of reducing road traffic and potential accidents from commuting workers. DIDO has been identified as a case-by-case option and will be discouraged by Hancock as a suitable means of transportation for the majority of workers including those locally based in Alpha. Bus services will be provided and workers are expected to remain in the on-site accommodation village for the duration of their on-shift work rotation regardless of their home community. This too will be examined on a case-by-case basis.

The Stage 2 of the SIMP will examine a range of mitigation and management strategies in consultation with key stakeholders including BRC. BRC will also be asked to be a core member of the HCC in order to keep abreast of all the discussions taking place regarding social impact management.

4.2.1.21 Economics

Comment – CM145

Without investment in supporting physical and social infrastructure very little will change. Alpha has already 'hit' some capacity constraints such as water supply and electricity, and there are very few urban services.

Response – CM145

As a result of the Project, Hancock will be paying significant royalties to the Queensland Government. The intended purpose of these royalties is to be reinvested into the region from which they come. Such reinvestment would typically take the form of provision of physical and social infrastructure. The way in which such additional infrastructure is provided is in the purview of local and state government.

Comment – CM146

The increased requirements of the mining impacts exceeds the current service level requirements for existing infrastructure which is considered to be suitable for the existing population and have not been designed for a 30+year extended mining impacts and associated services, transport, roads etc.

Response – CM146

As a result of the Project, Hancock will be paying significant royalties to the Queensland Government. The intended purpose of these royalties is to be reinvested into the region from which they come. Such reinvestment would typically take the form of provision of physical and social infrastructure. The way in which such additional infrastructure is provided is in the purview of local and state government.

Comment – CM147

It is suggested that funding arrangements and annual contributions for specific purposes be included to improve community infrastructure and services. It is expected that Hancock coal and other local mining entities will become actively engaged to assist in local community development.

Response – CM147

Opportunities for appropriate funding contributions will be identified and confirmed as part of the development and implementation of the project, and are included in the proposed SIMP (Social Impact Management Plan) (EIS Volume 2, Section 27), and as part of the proponents independent community development initiatives.

Comment – CM148

Royalties need to be distributed equitably with a return provided in recognition of the local areas.

Response – CM148

The Proponent will pay significant royalties to the Queensland Government. These royalty payments are intended to be used to provide additional infrastructure to the host region.

Comment – CM149

Any impacts of the access, water provisions or viability of the cattle industry may have great impacts on the livelihood and long term associated industries which has been a historical industry with connections through to early colonial settlement.

Response – CM149

The economic assessment of the EIS estimates the opportunity cost of the loss of cattle production from the Alpha Coal Mine site at approximately \$14.8 million per annum in slaughter value. Being an opportunity cost value, it pertains to the value of an alternative use, but not the actual current use.

This estimate is based on a maximum carrying capacity for the subject land. This carrying capacity is significantly higher than recent stocking levels; hence the opportunity cost in terms of grazing may be overstated.

The Project's impacts on the cattle industry are limited to a loss of potential grazing land, the value of which is reported above.

4.2.1.22 Sustainability**Comment – CM150**

Development may impact sustainability and environmental management from mining practices and non-adherence to proposed EIS measures.

Response – CM150

The EIS process is designed to provide a framework of approvals and management plans for the Project to comply with to protect the environment and ongoing sustainability.

Comment – CM151

The linkages of the organization and collaborative partnerships needs to be recognized and planning implemented for long term sustainability 30+ years.

Response – CM151

The linkages and cooperation between the Project and all stakeholders is seen as vitally important in effective operation of the mine. These relationships will primarily be fostered through the SIMP process.

4.2.1.23 Hazard and Risk**Comment – CM152**

Hazard and risk are to be assessed in accordance with legislative, regulatory and guideline requirements. BRC suggest that where there is no direction provided that best industry practice be

implemented in such circumstances and that BRC be informed of an hazard or risk with the potential to impact the region, community or environment.

A co-ordinated disaster management committee should include representation from the BRC which are to meet regularly and provide a forum for knowledge sharing with transparency and without bias.

Response – CM152

The Proponent is committed to maintaining open lines of communication with the local community throughout the life of the Project and intends to inform the community of new or emerging hazards and risks, which have the potential to impact the region, community or environment. An appropriate community liaison forum will be established in consulting with Barcaldine Regional Council and other interested parties.

Regular reviews of the Project's risk profile will be undertaken to identify new and emerging risks, in accordance with the Risk Management Plan. Each hazard and risk will be evaluated on its merits and managed to a level which is acceptable or as low as reasonably practicable. The Proponent will have consideration for best industry practice when identifying and evaluating potential risk treatments in accordance with these risk tolerance criteria.

The development and regular review of the Project's emergency response plans and procedures will involve consultation with various community stakeholders, including emergency response organisations and local government authorities. An Incident Management Plan will also be implemented to provide a clear command and control structure for managing crises. One of the core functions of the Crisis Management Team will be to consult with appropriate external stakeholders (e.g. community groups, emergency response personnel, regulators) during both the response to, and recovery from a significant incident.

4.2.1.24 Decommissioning and Rehabilitation

Comment – CM153

We request that the Co-ordinator General address these in response and further details have been provided in the following points. Rehabilitation conditions to consider:

- (1) Reinstatement of topographical landforms to similar post excavation.*
- (2) Treatment of mining tailings and slurry prior to disposal.*
- (3) Tracking of in pit and on site disposal locations and records available on the public record and made available including monitoring results, plans, quantities etc to Barcaldine Regional Council upon request and provision of data at 5 yearly intervals minimum.*
- (4) Reinstatement of vegetation and rehabilitation works to be 15% of impact area annually.*
- (5) Additional reinstatement of vegetation along waterways and creek lines, including altered diversion drains.*
- (6) Equipment and contractor sharing and assistance for BRC from Hancock Coal for local area rehabilitation including impacts to local roads, infrastructure and community facilities.*

Response – CM153

This comment has a number of components which are dealt with individually below.

1. The Proponent has committed to the reinstatement of topographical landforms to a state resembling pre-excavation landforms.

2. The treatment of mine generated tailings as part of the disposal process will be dependant on the continuing geochemical assessments currently underway. An updated geochemical report is presented in SEIS Volume 2, Appendix S, which provides the latest information on the assessments undertaken to date. The treatment of tailings could include addition of lime or even the percentage water component of the material. A commitment to treating the tailings will not be made in the SEIS; however as part of the EIS process the Proponent is committed to continuing the understanding of the geochemical nature of the tailings material and implementing the most appropriate management and disposal techniques.
3. Tracking of in-pit and on site disposal locations and records, monitoring results, plans, quantities etc will be undertaken as part of the annual environmental reporting process.
4. Rehabilitation and revegetation works will be undertaken as committed to in the Project plan of operations. Due to operational and seasonal constraints it is not appropriate to nominate a percentage rehabilitation as it will oscillate annually.
5. The riparian re-vegetation zone will be extended where possible from 3 m to 20 m either side of the active channel. The width of the riparian re-vegetation zone will in some areas be restricted by the natural occurrence of exposed rock or similar restricting strata. Please refer to Response CM301.
6. The Proponent is currently in discussions with BRC regarding items such as local road up grades and the Alpha aerodrome. The provision of assistance for areas impacted by mine activity can be discussed in this forum.

Comment – CM154

Planning approvals need to provide strict conditions and timelines and rehabilitation needs to include a minimum expenditure in the order of 10% of capital revenue raised with significant re-instatement 25% to occur within 2-3 years of each stage approaching finalization.

Response – CM154

The rehabilitation of the mine disturbance area is not driven by the amount of money invested but in the achievement of the desired outcomes. Once the Project has been issued an environmental authority and prior to mining a Plan of Operations will be developed and approved that will outline the rehabilitation to be achieved over the plan and Project life. The Proponent will then invest the required capital to achieve this commitment.

Comment – CM155

The existing vegetated buffers have been used as justification for no additional sound barriers etc, therefore it is essential that all available vegetation remain in place until works have progressed directly to that point and not as a matter of 'convenience'....

Response – CM155

Land disturbance will be minimised by clearing the smallest practical area of land for the shortest possible times. This will be achieved by:

- Limiting the cleared width to that required to accommodate any excavation plus areas required for overburden emplacement and topsoil stockpiling; and
- Programming the works so that only the areas which are actively being excavated are cleared.

General clearing and grubbing will not be undertaken until earthwork operations area ready to commence and will be limited to the area required for immediate excavation.

4.2.1.25 Environmental Management Plan

Comment – CM156

Barcaldine Regional Council requests that the council as a key stakeholder retains the right to review and comment on the Environmental Management Plan and is represented on any associated committee(s) and / or reference groups

Response – CM156

The EM Plan once finalised is a publically available document. The development of the EM Plan is achieved through the EIS process and then final negotiation between the Proponent and DERM. All stakeholders including the BRC have the opportunity to comment and provide input to the EM Plan as part of the EIS process. The Proponent does not consider the formation of a specific EM Plan reference group as necessary.

4.2.1.26 Social Impact Management Plan

Comment – CM157

Additional services are required and there are noted to be a number of additional social impacts as a result.

Response – CM157

The workforce will be housed on-site in single person's quarters with required infrastructure to support them (including an on-site medical clinic and recreational facilities). As such, it is not anticipated that the Project will have a significant direct impact on social services or infrastructure in the Alpha community. Any population growth however will have a direct impact on social services and impacts. The SIMP will identify benchmarks for population growth providing required mitigation strategies and responsibilities. It is anticipated that a community development fund will be established by the Proponent. This money will be used to fund community development activities including infrastructure and service improvement based on the priorities identified by stakeholders.

Comment – CM158

The existing Alpha and surrounding medical facilities are not equipped for the predicted increase in population and urgently require upgrades, additional staffing, and ancillary support including patient transport vehicles and staff.

Response – CM158

The Project is not expected to impact seriously on medical services in Alpha based on the EIS Project Description and other various previously discussed. The provision of a 24-hour medical clinic on the mining lease to service mine personnel will further minimise any potential impact of the Project on access to medical services. As the provision of such services is the domain of the council and the State, this has not been assessed as a part of the EIS. The Stage 2 of the SIMP will examine benchmarks for population change, and will look at the requirement for additional services and responsibilities to deliver such services.

Comment – CM159

Suggestion for improvements to social infrastructure.

Response – CM159

The Proponent will continue to discuss ongoing issues with the council through numerous channels including the dedicated Community Liaison role, and the HCC. Social infrastructure improvements will be examined as part of the benchmarks for population growth in Stage 2 of the SIMP. The current Project Description does not create a scenario for significant foreseeable impacts to social infrastructure in the region; however, the Proponent will explore additional opportunities to improve services through other avenues, including a community development fund.

4.2.2 Blackall-Tambo Regional Council (Colin Duffy)**4.2.2.1 Surface Water****Comment – CM160**

Flood waters are also an occurrence for these towns which experience flooding from the Barcoo River on a regular basis. Contamination into this river could also cause disastrous affects.

Response – CM160

The Barcoo River is in the upper reaches of the Lake Eyre system and is located to the west and south of the Project site. The Barcoo River is in no way connected to the surface water system around the Alpha Mine Project. Waters from the site flow north and report eventually to the Burdekin River several hundred kilometres north of the site.

4.2.2.2 Groundwater**Comment – CM161**

The Council is concerned that there has been inadequate investigation of the impacts of the mine on the Great Artesian Basin (GAB).

Response – CM161

The impact on the GAB has been considered and discussed with Mr. Bill Legg of DERM (Rockhampton). The Rewan Formation (or Group) aquitard, discussed in of EIS Volume 2, Section 12.6 limits the impact of dewatering towards the west and the Clematis Sandstone GAB aquifer. Additional investigation has been compiled and included in SEIS Volume 2 Appendix N regarding the potential impacts on the younger GAB units to the west of the mine.

Predictive groundwater modelling (SEIS Volume 2, Appendix N) has been commissioned to confirm the envisaged limited dewatering impacts on the GAB, as detailed in EIS Volume 5, Appendix G and SEIS Volume 2 Appendix N.

The current predictive groundwater modelling indicates no impact on the closest GAB aquifer, the Clematis Sandstone, due to the low permeability (regional aquitard) of the Rewan Formation. Figure 4-2 (Submission CM74) indicates the predicted groundwater drawdown cone within the coal measures (cumulative for MLA 70425 and MLA 70426) at the end of the Project, 30 years. The drawdown cone extends north-south along strike and is limited to the east and west by the Joe Joe Formation and Rewan Formation (aquitards), respectively.

4.2.2.3 Transport

Comment – CM162

The EIS seems to have only addressed the transport issues in the immediate vicinity of the mine and in regard of the proposed rail line to the port. It is suggested that other roads in the vicinity will be affected as people travel from Blackall and Tambo to work in the Hancock and other mines in the area and existing and hopefully new businesses in these towns gain contracts linked to the mine. These affected roads will include:

- *The Tambo to Alpha road and*
- *The Blackall to Jericho road.*

Response – CM162

The TIA (SEIS Volume 2, Appendix U) at present does not envisage any DIDO movements along these roads (due to long distances and Hancock's fatigue management procedures). For this reason they have not been included in the traffic assessment.

Comment – CM163

The safety of residents and potential drive in drive out workforce travelling on dirt roads from Blackall and Tambo to Alpha should be considered.

Response – CM163

The Project will have a strict policy on limiting the ability of the workforce to DIDO. The TIA (SEIS Volume 2, Appendix U) at present does not envisage any DIDO movements along these roads. For this reason they have not been included in the traffic assessment.

Comment – CM164

Also, the Warrego and Landsborough Highways are currently carrying volume loads and heavier vehicles that are higher than the original design strength. This is leading to major maintenance problems. Any increase in traffic volumes, especially if the additional vehicles are carrying heavy mine equipment, would cause even greater problems.

Response – CM164

The vehicles proposed to utilise the Warrego and Landsborough Highways will be trucks transporting container loads between the Port of Brisbane and the Alpha site. These roads are State Strategic Roads under the control of DTMR and assumed to be adequate for heavy vehicles (NB: no over dimensional [OD] vehicles are proposed to use this route).

Comment – CM165

The Alpha to Tambo and Blackall to Jericho roads would be required to be upgraded to all weather conditions. Assistance would be required to upgrade and maintain point of contact through road infrastructure.

Response – CM165

The Project will have a strict policy on limiting the ability of the workforce to DIDO. The TIA (SEIS Volume 2, Appendix U) at present does not envisage any DIDO movements along these roads. For this reason they have not been included in the traffic assessment.

4.2.2.4 Social

Comment – CM166

The impacts of even a modest number of well paid young people living in Blackall or Tambo, with no families and established social networks in the region, and working say a five days on five days off roster, are not addressed. This kind of situation also of course presents new business opportunities to these towns but could also create social issues that require extra police and other services.

Response – CM166

The Project will monitor the number of employees who list their permanent residency from Blackall or Tambo and assess their impact on a case-by-case basis if necessary. These communities were not included in the SIA because the location of potential employees is not known. Given the distance between Blackall and Tambo and the mine site, the impacts on these communities were considered to be primarily in the form of benefits through employment and business opportunities. If a high number of employees are sourced from Blackall and Tambo the Project will work with the council, police and other key stakeholders to identify strategies to manage the potential impacts of a large number of people working on mining shift rotations with high wages. This will be undertaken as part of the Cumulative Impacts Forum established across all projects. There will be a number of benefits arising from the employment of local residents in the mines near Alpha and the business opportunities for local organisations to provide mine services. These benefits include spending the additional income in the local community, having a flow on effect for the broader community. For clarification on study areas and rationale refer to EIS Volume Appendix M, Section 2.1.1.

Comment – CM167

The creation of new, well paid jobs in the mines around Alpha is welcome but may well lead to; - Rising real estate prices and increased rents in Blackall and Tambo. This may well impact on people in the lower paid jobs that are common in this region. - People being drawn away from existing lower paid jobs in the region, with existing businesses and the Council. This may create challenges in what appears to be a tight labour market nationally and in the region. New approaches to training and new kinds of work patterns may need to be developed by existing employers in the region. - A lack of skilled people locally as the better skilled are attracted to better paid mining jobs. This is a problem in a region that does not have an existing training infrastructure.

Response – CM167

Noted. The Project will explore opportunities to offer training spots to the general public on occasion for training offered in the region. The Project is also aware that individuals are free to choose their field and area of employment, and will work with councils to examine potential impacts through the Community Liaison role identified in the SIA.

Comment – CM168

Housing will become a social concern for existing residents and new residents based on the likelihood that demand for housing will increase forcing an increase in the cost of purchasing and renting. Concerns are based on preserving lifestyle attributes for the long term community residence.

Response – CM168

The potential impacts to this council are anticipated to be low; however, the Community Liaison role will maintain consultation links with councils to assess impacts to their communities associated with the Project.

Comment – CM169

Currently Blackall and Tambo are well maintained and presented communities. Impending growth may create difficulties to continue the cost associated with current lifestyle. Liveability is connected to arts and cultural enrichment.

Response – CM169

The potential impacts to this council are anticipated to be low; however, the Community Liaison role will maintain consultation links with councils to assess impacts to their communities associated with the Project.

4.2.2.5 Economics**Comment – CM170**

These new people and expanded and new businesses may well lead to:

- *A demand for new serviced residential and industrial land*
- *Increased demands for electricity in towns where the electricity supply is already under pressure.*
- *Increased demands for improved business skills in a region with limited training infrastructure.*

Response – CM170

The Proponent will pay significant royalties to the Queensland Government. These royalty payments are intended to be used to provide additional infrastructure to the host region.

Planning responses to increased population and industry growth are the responsibility of local government. Should significant demand for increased urban land arise, the appropriate response is for additional land to be zoned for urban use so that it can be developed.

Comment – CM171

Therefore Council envisages a skills shortage within its own workforce being attracted to work in the Alpha mine. This will become a major issue for Council who would consider options for workforce sharing and skills training programs.

Response – CM171

The Proponent will develop a local purchasing strategy to encourage survival of existing business and build the capacity of local business and government work forces. These plans may include workforce sharing programs and skills training programs.

These strategies and plans would be developed in consultation with Department of Employment, Economic Development and Innovation and local government economic development bodies.

Comment – CM172

There are concerns in relation to expected increases in cost of local goods and services such as groceries, and associated ancillary services such as entertainment, petrol.

Blackall has a high percentage of older age groups who would not be able to afford such increases.

Response – CM172

Localised inflation in everyday items, such as groceries and fuel, is considered unlikely. Research conducted by Economic Associates indicates that higher prices for everyday items experienced in central western communities having a strong correlation with transport costs, rather than demand pull inflation created by mining projects.

Comment – CM173

Training will become an important issue for both Council and the impending mining industry development. This new industry will develop opportunities to broaden the skills base of residents and youth in the region.

Response – CM173

The Proponent will develop a local industry strategy to encourage survival of existing business and build the capacity of local business and government work forces.

These strategies and plans would be developed in consultation with Department of Employment, Economic Development and Innovation and local government economic development bodies.

4.2.3 Central Highlands Regional Council (Bryan Ottone)

4.2.3.1 Description of the Project

Comment – CM174

It is anticipated that Bus in/Bus out programs will involve collection of staff from nominated locations in community resource townships and if this involves centralised pick ups then there needs to be a strategy and infrastructure in place for the storage of workers vehicles at the pick up sites. It is not clear from the EIS how the Bus in/Bus out arrangement are to be undertaken.

Response – CM174

The details of the BIBO strategy will be determined as more information on workforce sourcing is available, and will consider the requirement for associated infrastructure in some circumstances to accommodate vehicles and other personal belongings at collection points, or restrictions on long term parking at or near collection points. Council and private citizen concerns will be considered in the development of this strategy.

Comment – CM175

The EIS does not present any preferred long term method of providing power supply to the project but only provides information for the most short term start up phase of the project.

The identification and assessment of the various options for sourcing power is lacking in detail. This is one of the key determiners as to the long term viability of the proposed mines. It is also one of the most beneficial community benefits for the small Central Queensland towns whose size does not typically warrant the provision of this type of infrastructure that could be a by product of the proposal.

Response – CM175

The progression of planning for the Project has resulted in the current permanent power supply arrangements differing slightly from those presented in EIS Volume 2, Section 2.5.7.2.1.

Permanent power supply to the site will be supplied at 132kV from the proposed Powerlink Substation, located close to the eastern boundary of the mine site. The Powerlink Substation is supplied via a 275 kV transmission line from the Lilyvale substation (north-east of Emerald). The permanent power connection is required prior to the commissioning of the coal handling and preparation plant (CHPP) and any draglines.

The electrical system in the operational phase will include all infrastructure required to supply the ultimate mine load. The design will make use of an initial 140 MW (30-minute average) available capacity from the supply authority substation; with provision allowed for future expansion to the ultimate mine electrical demand of approximately 289 MW (30 minute average).

4.2.3.2 Surface Water**Comment – CM176**

The sediment control plans that are so critical to managing the impact of this proposed mine have not yet been undertaken (see EIS, Volume 2, Section 11.6.2.1) and this is a very real concern as those agencies being asked to assess this EIS do not have access to this information. The Proponent has laid out their intentions into the scope of the sediments control plans but this is not a guarantee that the intent will be realised or that they could not have been improved through the EIS review process.

Response – CM176

Proposed environmental authority (EA) Condition W35 requires that the Proponent will prepare an Erosion and Sediment Control Plan (ESCP) prior to commencement of construction activities. Section 3.7.6 of the EM Plan in the SEIS indicates that an Erosion and Sediment Control Plan (ESCP) will be implemented prior to commencement of construction activities. This will ensure that the site complies with the EA requirements relating to erosion and sediment management, as well as ensuring that impacts to water quality are minimised, the site is safe and operational and maintenance costs are minimised.

The ESCP will set out a range of sources of potential erosion and sedimentation and provide a range of solutions on how this will be managed. All runoff from areas potentially contributing to sediment loads in water will be drained to sedimentation dams, where the water is retained until it meets set water quality criteria and can be potentially released. In case the criteria cannot be achieved (e.g. due to high sediment loads, water quality objectives not being achieved or the release conditions as set out in the Receiving Environment Monitoring Plan (REMP) not being achieved), then water will be reused on site.

The ESCP will be a dynamic document that will be subject to review and improvement according to available best practice methodologies and site experience. The ESCP has not been developed at this

stage of the Project as it is a specific control document that requires information not yet available from detailed designs to correctly complete and then implement the plan.

4.2.3.3 Groundwater

Comment – CM177

It is not clear what modelling has been done in regard to contamination of ground water and this aspect of the proposed mine should be thoroughly understood prior to any final decision on the mine proceeding.

Response – CM177

Noted – Predictive groundwater modelling (SEIS Volume 2, Appendix N) has been commissioned, especially with regards to the final void, to assess potential impacts of mining activities on the groundwater regime. Preliminary modelling indicates groundwater movement will always be towards the mining void(s) once dewatering starts. This change in local groundwater flow will prevent groundwater flow from the site. This is indicated in Figure 12-11 (EIS Volume 2, Section 12).

Final void modelling indicates groundwater flow patterns, once a pseudo-steady state in the final void. SEIS Volume 2, Appendix N indicates final void predictions.

Commitments compiled in the revised EM Plan SEIS Volume 2, Appendix V, Section 3.4.7.2, include the instigation of an enhanced groundwater monitoring network and regular (every 3 years) revisions of the groundwater model. This will allow for the refinement of the model based on site-specific data, which will facilitate more accurate long term impact evaluation and suitable closure planning.

4.2.3.4 Waste

Comment – CM178

They have done flood record and surface water analysis and so capacity calculations should be adequate to ensure appropriate holding capacity, however these are potential contamination risk areas for existing waterways if there is any overflow or leakage. They also discuss the need to line these storage areas to prevent leachate leaking into groundwater, and again this is a potential contamination.

Response – CM178

This submission is assumed to relate directly to tailings storage.

Any sources of potential contamination will be subject to a DERM stipulated Design Storage Allowance (DSA). The DSA determines how large the storage(s) need to be to ensure that they do not overflow. The storage capacity is a function of catchment area and the total volume of a stipulated wet season (e.g. 20 years 3 month wet season), while the spillway is sized to a major storm event (e.g. 100 year 72 hour storm event).

Current DERM requirements are increasingly stringent to avoid the dam storage releasing water (controlled or uncontrolled), overtopping or breaching.

The risk of leaking or seepage losses is addressed by providing a liner. This may be in the form of a synthetic liner or a clay lining (subject to final design and availability of suitable materials). The refined TSF design is included in SEIS Volume 2 Appendix T, Section 4.

4.2.3.5 Transport

Comment – CM179

The EIS makes comment on the positive economic benefits to the Region but generally avoids the negative impacts on the road infrastructure.

Response – CM179

Pavement impact which is considered a negative impact on the roads network has been revisited as part of the SEIS. Additional detail and analysis on pavement impacts are provided in Section 5 of the updated TIA (SEIS Volume 2, Appendix U).

Comment – CM180

The current detail in the EIS does not allow Council to make a full assessment of the impact on road infrastructure. It is suggested the impact will be wider than the "immediate vicinity" particularly with respect to the Capricorn Highway where the impact could be significant for around 150 km west of Emerald. The impact can only be determined once additional vehicle numbers and types associated with the Alpha mine are known and can be compared with existing statistics.

Response – CM180

An assessment of all roads to be considered for the proposed vehicle routes has been assessed to DTMR guidelines in relation to level of service for midblock and intersections and on pavement condition impact – this includes the Capricorn Highway between Emerald and Alpha (~ 170 km). The TIA has analysed the increases in traffic numbers due to the vehicles generated by the Project in the construction and operational phases (to within a 10-year horizon) and it has identified that the Capricorn Highway between Alpha and Gemfields will have an impact of greater than 5% during both the construction and operational phases. However, further analysis has identified that there will be no significant deterioration in the Level of Service along this section of road when compared to the background traffic volumes.

In addition, the pavement assessment within the TIA document has been revised and can be found in SEIS Volume 2, Appendix U, Section 5.

Comment – CM181

There has been no undertaking given or responsibility accepted to keep traffic off roads such as Clermont Rubyvale, Capella Rubyvale and Rubyvale/Sapphire/Anakie which are now sealed road and in the case of Capella/Rubyvale/Anakie road a B double routes.

The current standard of these roads and the use of these roads by Alpha Mine Traffic needs to be monitored so that if, despite the intent of the Proponent not to use this part of the road network, this does become a preferred route, arrangements can be made for the Proponent to assist with its maintenance or look at its transport policies with particular regard to specifying routes for oversize and heavy vehicles.

Response – CM181

These concerns will be addressed as part of the RUMP development - see SEIS Volume 2, Appendix U, Section 8.1.4 which outlines a draft of the RUMP document.

The EIS and SEIS TIA documents presents the anticipated routes that will be used traffic servicing the mine. As indicated in the comment this will have to be verified once construction and operations of the Project commence.

Comment – CM182

Many of the roads which will be used by Alpha Mine related traffic are used by School Buses in the morning and afternoon. There is an increased risk to school students, many of whom are not fully aware of the risks associated with roads and traffic that has not been addressed in the EIS.

Response – CM182

These concerns will be addressed as part of the RUMP development - see SEIS Volume 2, Appendix U, Section 8.1.4 which outlines a draft of the RUMP document.

Further detail has also been provided in Volume 2, Appendix U, Section 3.2 of the TIA document.

Comment – CM183

There is concern regarding the extent of overpassing and lay-up areas for vehicles on the highway and at the entry points to towns to cater for the increased heavy and over size vehicles.

Response – CM183

This concern will be addressed as part of the RUMP development - see SEIS Volume 2, Appendix U, Section 8.1.4 which outlines a draft of the RUMP document.

Comment – CM184

It would be desirable if the Proponent reviewed their intention not to back load the coal trains with the mine and its accommodation complex supplies. This would significantly decrease the number of heavy vehicles that would need to utilise the road network. The Council is especially concerned about explosives / flammable transports that pose a particular threat to the safety of the travelling public and requests that where possible these types of goods be transported by rail.

Response – CM184

Alternate methods of transport to site (i.e. rail) are being considered by the Proponent, however, for the purposes of defining a 'worst-case' scenario for traffic impacts, these movements are assumed to occur via road. It is agreed that further use of the rail network will reduce the traffic impacts, particularly of heavy vehicles.

4.2.3.6 Health and Safety

Comment – CM185

The review of the methodology and resourcing of the site management plans is critical to the ongoing operation safety of the mine and its subsequent rehabilitation.

Response – CM185

This has been noted. Review of the methodology and resourcing of site management plans will occur during the construction, operation and decommissioning phases of the mine.

4.2.3.7 Decommissioning and Rehabilitation

Comment – CM186

At the moment the rehabilitation consists of re-establishing grazing areas and fragmented bushland. To encourage the long term sustainability of both these types of areas it is suggested that the bushland areas be inter-connected via wildlife corridors to adjoining bushland areas. The wildlife corridors could act as wind breaks and follow recreated water courses and fence lines.

Response – CM186

The bushland areas will be located to form interconnected wildlife corridors and will link with adjoining bushland areas.

4.2.4 Department of Communities (Rick Williams)

4.2.4.1 Social

Comment – CM187

The section describes the impacts and mitigation strategies to address Culture and Community Dynamics. The range of strategies described is insufficient to address the possible schisms described, particularly those that follow the disparity in wealth between those that are employed by the mine, be they existing or new residents, and those who are not.

Response – CM187

The Project is not in a position to develop policies to address disparities in wealth within any community, for any industry sector. The Proponent believes the mitigation strategies identified for Culture and Community Dynamics are sufficient for the likely impacts that could occur in the community, as are those in Labour Market and Employment, and Income and Cost of Living. The SIMP will develop benchmarks for population growth during Stage 2 which will look at additional Culture and Community Dynamics mitigation if unforeseen population growth attributed to the Project occurs. The Hancock Consultative Committee (HCC) will be tasked with monitoring the effectiveness of mitigation, management and enhancement strategies and providing input to update the SIMP on a regular basis throughout the life of the Project.

Comment – CM188

The section describes the strategy of encouraging personnel to undertake volunteering in the community. The drain of workers particularly skilled workers out of the community and into the mining industry has had numerous impacts on the capacity of other mining communities to maintain their social infrastructure in terms of attracting volunteers and staff and workers to undertake maintenance work on community facilities.

Response – CM188

This will be determined as part of the Project HR policy and is a development program, not an impact that needs management or expansion at this stage.

4.2.4.2 Economics

Comment – CM189

The EIS states that the Proponent will develop an employment and procurement policy that will maximise local employment, Indigenous employment, and the employment of apprentices and trainees. It is not stated whether this policy will also be applied to contractors working on the Mine Project.

Response – CM189

An employment and procurement policy will be established for the project with the aim of providing maximum opportunity to persons and businesses within the local community. Specific opportunities will be identified as part of the SIMP (Social Impact Management Plan) development.

4.2.4.3 Social Impact Management Plan

Comment – CM190

Insufficient detail in the Social Impact Management Statement (SIMP).

Response – CM190

Refer to Section 2.9, Section 8.3 and Section 11 of the SIA (EIS Volume 5, Appendix M).

The methodology states the timeline for SIMP development and the rationale behind this strategy. Stage 2 of the SIMP is designed to produce the details of the plan in consultation with key stakeholders. This strategy has been discussed with the DEEDI SIAU and councils and is currently in the design process for Stage 2.

4.2.5 Department of Community Safety (Gary Mahon)

4.2.5.1 Description of the Project

Comment – CM191

Maps should be provided to the Alpha Fire and Rescue Station identifying water supply locations and access points to, from and within the project. These maps will enable assessment by all emergency response agencies to determine whether emergency services access will be adversely impacted upon.

Response – CM191

Maps that identify water supply locations and access points to, from and within the Project will be supplied to the Alpha Fire and Rescue Station at an appropriate time.

Comment – CM192

QAS to be provided with a map and location details of access road from Hobartville Road to the construction office site.

Response – CM192

Map and location details of the access road from Hobartville Road to the construction office site will be provided to the QAS. If the location of the access road changes prior to construction, details will be provided to the QAS.

Comment – CM193

Details of accommodation villages and temporary camp sites or other residential development, and fuel storage areas to be notified.

Response – CM193

The QAS will be provided details of accommodation villages and temporary camp sites or other residential development, and fuel storage areas.

Comment – CM194

An evacuation and access map of these facilities to be provided along with a possible landing site identified for the rescue helicopter service if required.

Response – CM194

The QAS will be provided with an evacuation and access map of facilities (accommodation villages and temporary camp sites, other residential development, and fuel storage areas) along with a possible landing site for a rescue helicopter service.

4.2.5.2 Surface Water**Comment – CM195**

The commitment to locate critical infrastructure at least 0.5 m above the predicted 1 in 3,000 year flood inundation level exceeds the requirements of SPP 1/03 and is therefore discretionary. Flood immunity for accommodation and administration buildings need to comply with SPP 1/03 by being located with immunity to the 1% AEP flood level.

Response – CM195

Note that in the original EIS, this should have indicated 0.5 m above the 1 in 1,000 year ARI. This is still in exceedance of the requirements of SPP 1/03. It should be noted that the accommodation and administration buildings associated with the project will also be located at a minimum 0.5 m above the 1 in 1,000 year ARI.

The Proponent aims to mitigate potential risk to its mining activities and operate in at least full compliance with the DERM and Department of Local Government and Planning (DLGP) requirements.

Comment – CM196

DCS notes that the potential for increased flood levels downstream of the mine lease is under consideration and will be further reviewed as part of the detailed design.

Response – CM196

The SEIS has considered upstream, downstream and adjacent flooding impacts. It is understood that water level and velocity impacts are influenced by the catchment areas reporting to the creeks, time of concentration (ToC), internal storages within the system, channel gradients, roughness, and water quality. Whilst some of these parameters will reduce the flow, others will influence the ToC, potentially leading to increased or reduced flows and/or velocities depending on location.

The SEIS (Volume 2, Appendix J and Appendix K) presents a design approach that has minimal impact on flood levels and flow conditions in the affected creeks and waterways and mimics the flow conditions of the natural channel. If there is likely to be an impact, this impact will be limited in magnitude and duration.

Comment – CM197

Additional information requested: Clarification is requested from the Proponent outlining the level of flood immunity associated with the administration facilities and accommodation component of the mine development.

Response – CM197

Flood immunity for the administration facilities and accommodation component is set at 0.5 m above the 1 in 1,000 year ARI.

The Proponent aims to mitigate risk to its mining activities and operate in at least full compliance with the DERM and DLGP requirements.

4.2.5.3 Social**Comment – CM198**

The QFRS should be involved in the planning and assessment process for accommodation facilities.

Response – CM198

The Proponent agrees with this submission and will actively involve the QFRS in the planning and assessment processes for the accommodation facilities on the Project site. It is intended that this consultation will extend to the development and ongoing review of the various Project Emergency Response Plans and systems as well as the development of a staff (and community) training plan.

4.2.5.4 Health and Safety**Comment – CM199**

A fatigue management plan is to be implemented to address the issue of fatigued workers driving immediately after completion of their shifts. This should assist in preventing road crashes which may occur if workers drive while fatigued.

Response – CM199

The Project as a whole will have a fatigue management plan for both construction and operational phases. This will include the number of hours a worker is able to work and travel within a given time frame. The Project is committed to reducing the number of light vehicles on the regions roads as much as practicable and has proposed a high level of BIBO to address this.

Comment – CM200

The QFRS identifies that the Alpha auxiliary fire service should be included as an appropriate stakeholder along with the Rural Fire Brigade in the Emergency Management Plan and should be immediately notified of an emergency, potential emergency or reportable incident at the site.

Response – CM200

The Alpha auxiliary fire service will be included as an appropriate stakeholder along with the Rural Fire Brigade in the Emergency Management Plan and will be immediately notified in accordance with that plan of any emergency, potential emergency or reportable incident at the site.

Comment – CM201

As a referral agency, the QFRS requests to be engaged to provide advice on the design of the fire systems to be installed throughout both the mine site and accommodation camps. Being the primary respondent to any incident at these sites, the equipment to be installed must be compatible with QFRS appliances and equipment and meet operational capabilities.

Response – CM201

The QFRS will be engaged to provide advice on the design of the fire systems to be installed throughout both the mine site and accommodation camps. The equipment to be installed will be compatible with QFRS appliances and equipment, and meet operational capabilities.

Comment – CM202

The QAS would seek an opportunity to meet with the Principle regarding a proposal for the provision of dedicated paramedical services on site during the construction period and full time operations.

Response – CM202

The QAS is invited to meet with the Principle regarding a proposal for the provision of dedicated paramedical services on site during the construction period and full time operations.

Comment – CM203

Identify any expected increase in traffic that may impact on the delivery of ambulance operations from the ambulance stations to road network locations within the project area.

Response – CM203

The expected increases in traffic as a result of the Project are presented in the revised TIA (SEIS Volume 2, Appendix U). The assessment shows the level of traffic at given periods of the Project development and operation.

Comment – CM204

Notification if accommodation camps will be alcohol free.

Response – CM204

The accommodation camps will not be alcohol free. Alcohol consumption will, however, be strictly monitored.

4.2.5.5 Hazard and Risk**Comment – CM205**

Detail is requested from the Proponent about the nature of storage facilities for hazardous materials in bulk and the compliance of these facilities with SPP 1/03.

Response – CM205

Presented in Table 4-6 below is a summary of hazardous materials or dangerous goods, which may be used during the course of the Project.

Table 4-6 Summary of hazardous materials or dangerous goods that may be used during the course of the Project

Chemical Name/ Shipping Name	Dangerous Goods Class	Packaging group	Purpose/ Use
Diesel fuel	3 (Class C1)*	III	Fuel for mobile equipment
Lubrication oils (hydraulic oil)	3 (Class C2)**	N/A	Lubricate plant and equipment
Ammonium nitrate/fuel oil (ANFO)	1.1D	N/A	Blasting explosive
Caustic soda (sodium hydroxide)	8	II	Concrete degreasing agent
Anionic flocculants (acrylamide / acrylate copolymer)	N/A	N/A	CHPP
Cationic flocculant (polydimethyl diyl ammonia chloride)	N/A	N/A	CHPP
Magnetite	N/A	N/A	Dense Medium Agent
Sodium Hypochlorite	8	II or III	Water Treatment Plant
			Sewage Treatment Plant
Sodium Hydroxide	8	II or III	Water Treatment Plant
			Sewage Treatment Plant
Aluminium Sulphate	N/A	N/A	Water Treatment Plant
			Sewage Treatment Plant
Citric acid	N/A	N/A	Water Treatment Plant
Powdered activated carbon	N/A	N/A	Water Treatment Plant
Powdered polymer (cationic polyacrylamide)	N/A	N/A	Water Treatment Plant
Lime (calcium oxide)	8	III	Water Treatment Plant
Solvents (e.g. acetone)	3	II	Workshop degreasing agent
Sulphuric acid	8	II	Batteries
Paints	3	III	Paint

State Planning Policy 1/03 requires that public safety and the environment are not adversely affected by the detrimental impacts of floodwater, landslide and bushfire on hazardous materials manufactured or stored in bulk.

The principal risk associated with hazardous material stores is that they may become entrained in floodwaters and transported both on and off-site. In order to manage this risk, hazardous materials will be stored at locations which are above the Defined Flood Event, as per SPP 1/03, which is represented by a flood elevation having an Annual Exceedance Probability (AEP) of one percent (1%). In cases where elevation alone is not sufficient to prevent a flood of AEP 1% from reaching hazardous material stores, man-made structures, such as bunds, dykes or levees will be constructed to prevent the contamination of flood water with hazardous materials in bulk.

With respect to bushfire, hazardous materials stores will be separated from surrounding vegetation by distance, such that a bushfire will not represent a risk of hazardous materials release and a fire within the storage compound will not represent a risk of fire spread to vegetation.

With respect to landslide, hazardous materials in bulk will be stored on stable landforms and will be separated by distance from potentially unstable landforms which, in the event of failure, could expose the storage facility to damage and hazardous material release.

4.2.6 Department of Employment, Economic Development and Innovation (DEEDI) (Celeste Bownds)

4.2.6.1 Climate/Surface Water

Comment – CM206

The document recognises that flow velocities can impact fish movement and habitats. However there is no detailed discussion of the impact of the Project on creek flow velocities to fish and fish habitat. Further information is required to allow DEEDI (Fisheries Queensland) to assess impact on fish habitat from proposed in stream works.

Response – CM206

In response to this issue, a meeting was held with DEEDI on 25 January 2011. At that meeting, it was concluded that the Project is exempt from the *Fisheries Act 1994*. Correspondence confirming the above (dated 16 February 2011; ref 003/0001049 (#305710)) has been received from DEEDI.

Notwithstanding the above, EIS Volume 2, Section 11.5.5.2 states that included in the key design objectives and criteria is that the “...diversion active channels will allow for replication of substrate conditions similar to the existing stream substrates of significance for geomorphic processes, water quality, vegetation, and aquatic habitat features as required.”

4.2.6.2 Terrestrial Ecology

Comment – CM207

This is the first section of the EIS that refers to a waterway named Splitter Creek.

Response – CM207

The use of Splitter Creek is limited to terrestrial ecology component of the EIS document. The use of the name was derived from a local map and has not been used in other sections of the EIS or SEIS. To remove confusion any reference to Splitter Creek should be read as referring to Greentree Creek.

4.2.6.3 Surface Water

Comment – CM208

The proposed creek diversion is likely to impact on fish passage and approval may be required under the Fisheries Act 1994.

As substantial works are proposed including diversion of waterways, Hancock Prospecting are requested to consult with Fisheries Queensland officers to ensure compliance with relevant Fisheries legislation and policies in the design of any waterway barrier works and creek diversions.

Creek diversions will also require approval under the Fisheries Act 1994.

Response – CM208

In response to this issue, a meeting was held with DEEDI on 25 January 2011. At that meeting, it was concluded that the Project is exempt from the *Fisheries Act 1994*. Correspondence confirming the above (dated 16 February 2011; ref 003/0001049 (#305710)) has been received from DEEDI.

Notwithstanding the above, EIS Volume 2, Section 11.5.5.2 states that included in the key design objectives and criteria is that the “...diversion active channels will allow for replication of substrate conditions similar to the existing stream substrates of significance for geomorphic processes, water quality, vegetation, and aquatic habitat features as required.”

Comment – CM209

The proposed rock armouring may constitute waterway barrier works under the Fisheries Act 1994.

It is noted the Proponent indicates that diversions will mimic the meandering of the low flow channel, the width and depth of the waterway and natural bed substrates to the greatest extent possible to promote fish passage and the replacement of lost habitat. DEEDI (Fisheries Queensland) supports this approach and seeks a commitment from the Proponent to this effect.

Response – CM209

In response to this issue, a meeting was held with DEEDI on 25 January 2011. At that meeting, it was concluded that the Project is exempt from the *Fisheries Act 1994*. Correspondence confirming the above (dated 16 February 2011; ref 003/0001049 (#305710)) has been received from DEEDI.

Notwithstanding the above, EIS Volume 2, Section 11.5.5.2 states that included in the key design objectives and criteria is that the “...diversion active channels will allow for replication of substrate conditions similar to the existing stream substrates of significance for geomorphic processes, water quality, vegetation, and aquatic habitat features as required.”

4.2.7 Department of Employment, Economic Development and Innovation (DEEDI) (Nicole Brizuela)**4.2.7.1 Terrestrial Ecology****Comment – CM210**

Risk of increasing numbers of wild dogs and feral pigs in and near site as a result of an increased human presence.

Response – CM210

EIS Volume 2, Section 9.1.4.2.6 *Management Strategies for Pest Fauna Species* details the pest fauna present in the area including Feral Pig (*Sus scrofa*), European Rabbit (*Oryctolagus cuniculus*), Feral Cat (*Felis catus*), Feral Goat (*Capra hircus*), House Mouse (*Mus musculus*), and Cane Toad (*Rhinella marina*).

Control of pest fauna is detailed in the revised EM Plan (SEIS Volume 2, Appendix V, Section 3.8.5.2). This section states that a site-specific feral animal control plan will be created and implemented for the Project site to target the seven non-native fauna species identified on the Project site. Pest management strategies for the Project site will incorporate strategies from DEEDI Pest Fact Sheet and the Burdekin Dry Tropics Regional Pest Management Strategy. As part of the feral animal control plan the Proponent will engage and collaborate with neighbours to ensure consistent feral pest management. This will be conducted through liaison with the Environmental Officer on site.

4.2.7.2 Transport**Comment – CM211**

Road safety. Cattle in the area are controlled predominantly by a series of cattle grids. There is limited fencing.

Response – CM211

These concerns will be addressed as part of the RUMP development. SEIS Volume 2, Appendix U, Section 8.1.4 outlines a draft of the RUMP document.

Comment – CM212

Further degradation of local roads as a result of increased road usage.

Response – CM212

Following Project Description changes and consideration of comments received on the EIS the pavement impact assessment has been reviewed and more detail and analysis is provided in SEIS Volume 2, Appendix U, Section 5.

4.2.7.3 Decommissioning and Rehabilitation**Comment – CM213**

Concerns in relation to the proposed Environmental Management Plan and the prospects of rehabilitating the land at the conclusion of the project. In particular in relation to top soil erosion, salination, contamination and topsoil erosion as a result of the mine development.

Response – CM213

Rehabilitation objects and principles have been provided in the revised EM Plan (SEIS Volume 2, Appendix V, Section 3.7).

Detailed management plans such as the Topsoil Management Plan (TMP) and the Erosion and Sediment Control Plan (ESCP) will be developed prior to commencement of mine construction.

4.2.8 Department of Employment, Economic Development and Innovation (DEEDI) (Phil Ferenczi)**4.2.8.1 Description of Project****Comment – CM214**

The Proponent has not reported full resource statements relating to the project. In the Terms of Reference document the Proponent states “To date, Hancock has identified a measured, indicated and inferred resource of approximately 4 billion tonnes of coal within the areas of its Mineral Development Licence” (Page 8 project summary). The Proponent has also stated Measured Indicated and Inferred JORC compliant resources totalling 3614 million tonnes in several public presentations during 2010. On page 4-39 and in Table 4-5, the Proponent has stated only 1,475 million tonnes for the project.

Response – CM214

The most recent resource evaluation data for the Proponent’s coal reserves in the study area provide an indication of the full resources.

The Alpha Coal Project (Mine) resource estimate is presented in Table 4-7 below and refer to Figure 4-4.

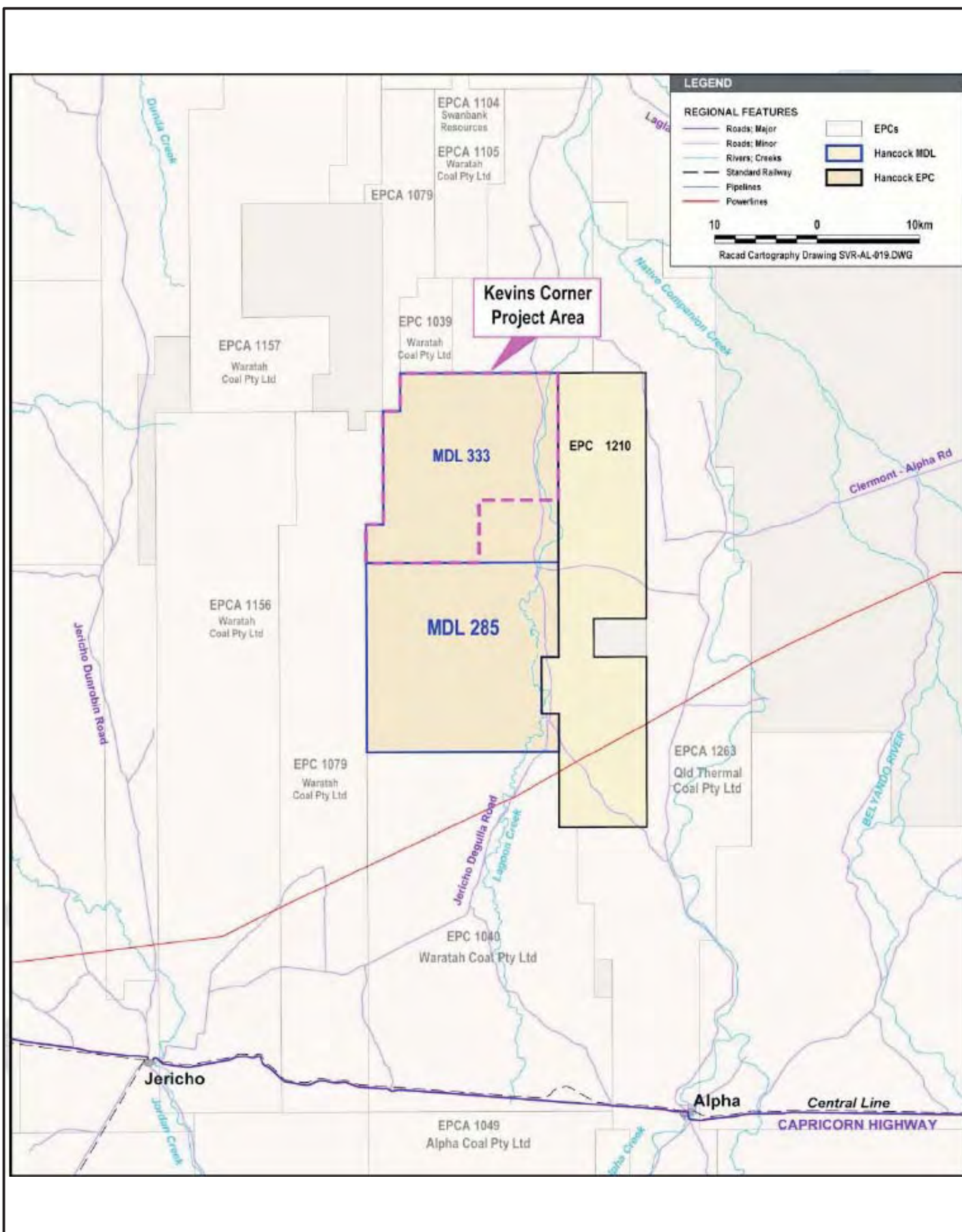
Table 4-7 Mining Development Licence (MDL) 285 and the south-eastern corner of MDL 333 coal resources, July 2010

Resource Category	Value	Seam Group				Tonnes Total (Mt)
		A	B	C	D	
Measured	Volume (Mm ³)			155	382	
	Area (Ha)			36	39	
	Thickness (m)			3.2	5.6	
	In situ Density (t/m ³)			1.55	1.52	
	Subtotal Tonnes (Mt)	-	-	240	581	821
Indicated	Volume (Mm ³)		0.60	163	300	
	Area (Ha)		0	36	34	
	Thickness (m)		3.92	3.1	5.4	
	In situ Density (t/m ³)		1.64	1.53	1.50	
	Subtotal Tonnes (Mt)	-	-	250	450	700
Inferred	Volume (Mm ³)	1	23	46	126	
	Area (ha)	1.9	5	10	25	
	Thickness (m)	1.1	6.16	3.2	5.6	
	In situ Density (t/m ³)	1.50	1.76	1.52	1.51	
	Subtotal Tonnes (Mt)	-	40	70	190	300
Grand Total Tonnes (Mt)			40	560	1,221	1,821

The Proponent's Kevin's Corner Coal Project (remainder of MDL 333) resource estimate is listed in Table 4-8 (refer to Figure 4-5).

Table 4-8. Kevin's Corner Coal Project (remainder of MDL 333) resource estimate

Resource Category	Value	Seam Group				Tonnes Total (Mt)
		A	B	C	D	
Measured	Volume (Mm ³)	7	79	7	67	
	Area (Ha)	284	1 031	569	1 658	
	Thickness (m)	2.5	6.5	1.24	4	
	In situ Density (t/m ³)	1.33	1.49	1.49	1.42	
	Subtotal Tonnes (Mt)	10	114	10	96	229
Indicated	Volume (Mm ³)	142	444	36	149	
	Area (Ha)	5 514	7 149	2 342	3 496	
	Thickness (m)	2.5	6.2	1.57	4.2	
	In situ Density (t/m ³)	1.35	1.50	1.49	1.44	
	Subtotal Tonnes (Mt)	190	600	50	200	1 040
Inferred	Volume (Mm ³)	279	602	444	874	
	Area (ha)	10 076	8 663	19 774	18 697	
	Thickness (m)	2.5	6.9	2.2	4.6	
	In situ Density (t/m ³)	1.37	1.49	1.45	1.43	
	Subtotal Tonnes (Mt)	300	900	70	1 200	3 000
Grand Total Tonnes (Mt)						4 269



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HANCOCK PROSPECTING PTY LTD

Alpha Coal Project
Supplementary Environmental Impact Statement

**ALPHA COAL PROJECT (MINE)
LOCATION PLAN SHOWING
KEVIN'S CORNER PROJECT AREA**

Job Number 4262 6680
Revision A
Date 09-04-2011

Figure: 4-5

Datum: GDA94, MGA Zone55

File No: 42626680-g-1018.cdr

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4.2.9 Department of Employment, Economic Development and Innovation (DEEDI) (Alenta Kabamba)

4.2.9.1 Executive Summary

Comment – CM215

S.O.12.19 states: approximately 2,680 rail construction jobs will be created. The EIS should provide consistent employment creation numbers.

Response – CM215

This comment is noted and the consistency of workforce numbers will be presented as part of the SEIS.

4.2.9.2 Social

Comment – CM216

The EIS should include a workforce participation strategy to maximise the regional economic benefits from the construction and operation of the mine and associated infrastructure. This would ensure the investment benefits not only the project area but can also deliver benefits to areas of regional Queensland where significant employment opportunities are not currently available.

Response – CM216

The Proponent is currently exploring regional employment opportunities as part of their recruitment strategy. The details of this ongoing strategy will evolve as potential employees are identified once final investment decision is reached and contracts can begin to be secured.

Comment – CM217

Although S22.3.5 mentions a small proportion of the workforce likely to choose to reside within the region, it does not address the impacts of these additional residents on the local region.

Response – CM217

The EIS found that the likelihood of an influx in population associated with the Project (construction and operation) is low given the limited factors currently restricting growth in the Alpha area. The potential for former residents to return would result in the population returning to a similar level it was in the recent past (< 15 years ago), which would not result in significant changes to current population numbers since the former residents are already integrated into the community.

The SIMP Stage 2 will examine mitigation strategies to deal with influxes in the population that may occur outside the SIA conclusions.

4.2.9.3 Economics

Comment – CM218

The EIS should comprehensively consider the broader contribution to infrastructure to complement and support FIFO arrangements, including working with Barcaldine Regional Council to ensure sufficient capacity at Alpha Airport.

Response – CM218

The Project is working with BRC in this regard. The Alpha Coal Project intends to use the Alpha aerodrome and will continue to explore and discuss alternative arrangements with BRC and other key stakeholders.

Comment – CM219

Although this section does mention possible utilisation of local businesses, it does not include reference to the Queensland Government's Local Industry Policy (Department of Employment, Economic Development and Innovation, 2008). The policy applies to projects that are deemed to constitute a "significant" project by the Coordinator general and which require an EIS.

Response – CM219

The Proponent will comply with the Local Industry Policy and develop an appropriate Local Industry Participation Plan, which identifies areas of local industry capability. The Local Industry Participation Plan would be developed by the Proponent in consultation with the Department of Employment, Economic Development and Innovation and local government economic development bodies.

Comment – CM220

Section 22: This section does not address the ToR adequately.

Response – CM220

The Proponent will comply with the following policies, where relevant and appropriate:

- Queensland Government Building and Construction Contracts Structured Training Policy (the 10 percent policy);
- Indigenous Employment Policy for Queensland Government Building and Civil Construction Projects (the 20 percent policy); and
- Local Industry Policy (Department of Employment, Economic Development and Innovation, 2008).

Compliance with these policies will be achieved in consultation with the Department of Employment, Economic Development and Innovation and local government economic development bodies.

The principal negative economic impacts associated with the Project would be largely related to localised inflationary pressure on the housing, commercial accommodation and labour markets. Strategies to address housing and accommodation pressures are discussed in the social impact assessment. Major increases to the stock of housing to accommodate construction workers could ultimately lead to an oversupply of housing within the region. Hence, there is a need to balance the short term demand for housing and commercial accommodation against the possibility of longer term oversupply of stock.

Inflationary pressures within the labour market would be managed through the use of non-resident workers and provision of single persons accommodation.

4.2.9.4 Social Impact Management Plan

Comment – CM221

The EIS does not provide details on the adequate provision of education, training and employment for women and people with a disability.

Response – CM221

The Proponent is committed to providing education, training and employment opportunities to a broad cross section of the community including women and people with a disability. The SIA was not the appropriate place for detailed information about these programs to be included. The Proponent's intention is to develop a range of employment policies, programs, manuals and strategies as well as a training plan, in consultation with key stakeholders. These separate documents will clearly articulate the company's equal opportunities employment policies and commitment to training. Opportunities for women and people with a disability to work on the Project will be an integral part of this process.

4.2.10 Department of Employment, Economic Development and Innovation (DEEDI) (Mick O'Flynn)

4.2.10.1 Geology

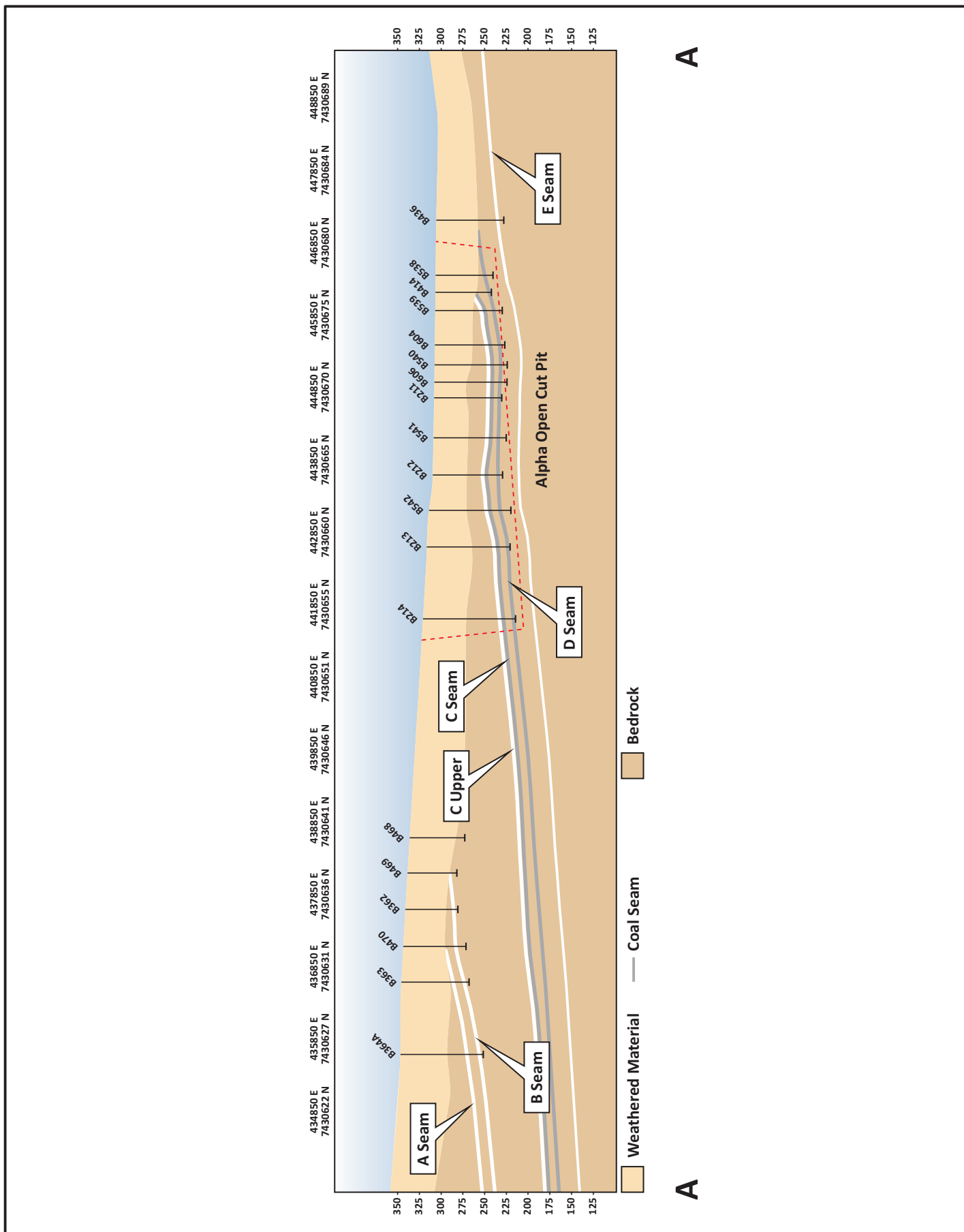
Comment – CM222

Geology generally well done although it is noted that the description of the geology in the text does not match the section in Figure 16.5 in that there are no Tertiary or Quaternary sediments shown in the section.

Response – CM222

EIS Volume 2, Section 16.3.2 regarding waste refers to a cross section and not the lithostratigraphic column presented in Figure 16.5. The cross section referred to is Figure 4-3 in the Geology Chapter (EIS Volume 2, Chapter 4).

The cross section presents the Cainozoic sediments as weathered material, due to the lack of core through this weathered horizon. Plate 4-1 of the Geology Chapter (EIS Volume 2, Chapter 4) provides a picture of the drill chip returns (percussion drilling) through the Tertiary and Quaternary sediments. The latest cross section is provided below in Figure 4-6.



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Comment – CM223

Whilst the geology/stratigraphy of the mine sequence may be predictable on a gross scale, the extent of sampling of waste rock units, considering the scale of the mine, is relatively sparse. The EIS recommends and commits to additional drilling/sampling to improve the reliability of geochemical characteristics determined from relatively widely spaced drill intersections. However, an improved presentation of the existing data would better demonstrate the consistency of the geology of the area and the geochemical characteristics of the waste rock package.

Response – CM223

With reference to EIS Volume 2, Section 16, the geochemical sampling strategy allowed for the collection of 988 samples from 252 drill holes across the site. The drill hole spacing east to west were deemed sufficiently spaced to provide an accurate assessment of the geochemistry (from a statistical perspective). The larger distances between holes in the north - south orientation required infilling.

Fence diagrams, showing geology and geochemical characteristics, have been constructed, both east-west and north-south, to illustrate uniformity. These figures are presented in SEIS Volume 2, Appendix S, Section 6 (as discussed in CM226 response).

Comment – CM224

In particular, analyses of REM and/or Carbonaceous materials lying immediately above the C seam (the 1 metre section above the seam) show some evidence of higher than average total sulphur (and sulphide sulphur) and therefore are at higher risk of being acid generating than the bulk of the waste rock materials. The EIS fails to adequately discuss this.

Response – CM224

The Proponent has commissioned additional geochemical work on the Alpha Coal Project to address the lack of C Upper seam material sample data available for inclusion in the EIS (SEIS Volume 2, Appendix S, Section 3.1). The additional work clearly demonstrates that the geochemical nature of the C Upper seam is controlled by the degree of weathering of the materials. The current data set indicates that C Upper materials above, or close to, the Base of Weathering (BoW) are non acid forming (NAF) with excess acid neutralising capacity (ANC). However, where the C Upper coal seam materials remain reasonably fresh below an unweathered overburden cover (e.g. at the southern end of the proposed pit) potentially acid forming (PAF) C Upper coal seam materials may be present.

Open-pit mining geological control coupled with pre-mining and ongoing geochemical sampling and testing of C Upper coal seam material will be used to delineate the extent of any PAF C Upper coal seam materials and ensure that these are selectively handled and managed in a similar manner to PAF coarse coal reject materials from the coal handling and preparation plant (CHPP).

Comment – CM225

EIS suggests that Carbonaceous material (of which 35% is PAF) may be able to be selectively mined and disposed of safely (encapsulated in NAF). Note that all Carbonaceous material totals 784 mt of which 261 Mt (35%) is PAF. However, there is 539 Mt (AMIRA) or 885 Mt (NPR) of REM that is PAF but there seems to have been no attempt to clearly define what this tonnage represents and where it is distributed in the mine section (stratigraphically and spatially; e.g. as roof and floor strata, as particular lithologies or randomly distributed) or whether there is any potential to mine this material selectively as well. Also some discussion of what causes samples to be PAF (e.g. pyrite content)

would be useful, especially if there are ways to visually identify PAF materials in an operating mine environment.

Response – CM225

The Proponent has commissioned additional geochemical work on the Alpha Coal Project to address the distribution of PAF materials. The distribution of PAF materials in, and/or very close to, the coal seams at the Alpha Coal Project is now clearly demonstrated in SEIS Volume 2, Appendix S, Section 3.5. The EIS has already stated that any PAF materials identified at the Project will be selectively mined and encapsulated in NAF materials. Relevant cross sections are also included in the SEIS, as discussed previously in the response to Submission Number CM223.

4.2.10.2 Waste

Comment – CM226

Section 16.3 – Mine Waste Management and Appendix J1 – Geochemical Characterisation

There are some apparently conflicting statements in different parts of the EIS that raise questions about the conclusions drawn, with respect to waste rock characteristics. The difference in tonnages of PAF calculated on the basis of NPR and AMIRA classifications is marked (4% of REM samples were PAF using AMIRA classification whereas 19% were PAF using the NPR scheme).

Response – CM226

The Proponent has commissioned additional geochemical work on the Alpha Coal Project to address the limitations of the Net Potential Ratio (NPR) material classification criteria (especially for low sulfur materials) relied upon in the EIS (SEIS Volume 2, Appendix S, Section 3.5). Using alternative classification criteria that includes a low sulfur cut-off threshold provides greater confidence in the likely quantities of Potentially Acid Forming (PAF) material. The low sulphur cut-off threshold method has significantly reduced the amount of material identified as PAF and demonstrates that these PAF materials are located in or close to the coal seams. A north-south cross section and five east-west cross sections are also presented and discussed in SEIS Volume 2, Appendix S, Section 6.

Comment – CM227

Section 16.5 - Coal and Mining Waste Characterisation

Minor comment: The overview of approach (Section 16.5.1) is supported as shown in the flow chart.

It is suggested that the diagram should have another layer of Geological Model - Environment of Deposition for the area, based on published data of terrestrial sediments formed in glacial periods with minor interglacial periods.

Response – CM227

The flow chart in the EIS is a reproduction of the flow chart provided in the 1995 Queensland DME Technical Guideline for the Assessment and Management of Acid Drainage (DME, 1995). The merits of the above suggestion should be addressed to the Queensland Government in the standard review process when or if the DME (1995) guideline is updated.

Comment – CM228

Flow chart box Geochemical Data appears to be inconsistent with the text in that 281 samples (not 252) from 35 drill holes and 988 samples of washed raw coal from 252 drill holes.

Response – CM228

Whilst the EIS did provide the correct number of drill-holes (35) used to generate overburden (and coal) samples at the Alpha Coal Project, the number of samples tested was incorrect and is actually 278. An additional 25 samples of raw coal, washed coal, coal seam roof and coal seam floor material, coarse coal reject and tailings from 4 drill-holes in the vicinity of the Bulk Sample Test Pit area were also included in the EIS geochemical assessment. The number of raw/washed coal samples (988) from 252 drill-holes, for which total sulphur data was available is correct. The SEIS provides the correct number of overburden (and coal) samples in SEIS Volume 2, Appendix S (Table 3-12).

The suggested flow chart/diagram change has been addressed previously at Submission Number CM227.

Comment – CM229*Section 16.5.3 – Geochemical Data - Sampling Strategy*

There needs to be more explanation as to why the geology is considered so consistently backed up by drill hole sections.

Response – CM229

The submission provider is referred to EIS Volume 2, Section 04, where the Geology of the Alpha Coal Project and the development of the geological model for the Project¹ is discussed and illustrated in some detail. The additional geochemical work commissioned by the Proponent and included in SEIS Volume 2, Appendix S, provides a number of figures, including cross sections, illustrating the consistent geology and stratigraphy throughout the Project.

4.2.11 Department of Environment and Resource Management (DERM) (John Bradley)

The DERM submission and subsequent responses have been compiled and can be found in Volume 2, Appendix AJ of this SEIS.

4.2.12 Department of Infrastructure and Planning (DIP) (Damian Pearson)**4.2.12.1 Description of the Project****Comments – CM331**

The EIS makes reference to the fact that Hancock owns a ~1500 acre property close to the township and states that Hancock will explore opportunities with council for future use. Indicate how the site owned by Hancock to the west of Alpha (between Alpha town and Airport) is intended to function and how it will be integrated in relationship to the existing Alpha town area.

Response – CM331

Opportunities to enhance local community development will be identified as part of the SIMP (Social Impact Management Plan) development, and as part of that work, opportunities to best utilise land owned by the proponent will be assessed.

¹ The geological model for the Alpha Coal Project complies with the *Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* (JORC Code), 2004, for public reporting

Comments – CM332

Provide detailed commitment to investing in the upgrade and expansion of Alpha airport.

Response – CM332

This is a decision that is outside the scope of the EIS and will be discussed with BRC and other relevant parties.

4.2.12.2 Social**Comments – CM333**

Impact of the operational coal mine workforce on Alpha in terms of accommodation and employment opportunities.

Response – CM333

Local is defined as BRC in the EIS SIA. The 150 persons is likely spread throughout BRC area. The methodology is explained in detail (EIS Volume 5, Appendix M, Section 2). Types of employment opportunities were provided during the public comment period consultation events and can be provided to the community in poster form for reference.

Comments – CM334

Concrete commitments to contribute to the community. Provide further information on how the project will address the following strategies raised in the Plan: - Social Justice and Safety; explain how current and future needs of regional communities will be met through coordinated and timely planning and provision of social services and facilities. - Cultural Values; explain how the unique and cultural heritage values of the central west will be identified, protected and maintained.

Response – CM334

See EIS Volume 5, Appendix M, Section 7.4 for details about the strategies identified to maintain the current cultural values of the Alpha community following the establishment of mining in the region. A key element of this will be the Project's communication and community engagement plan and the new resident induction program.

The actual details of these strategies and implementation plans will be determined during Stage 2 of the SIMP process that will involve consultations with the community and council.

It is important to note that the EIS indicates the Project workforce will be accommodated on-site and there are significant limiting factors to population growth in Alpha.

Comments – CM335

Urban development in and around Alpha town. Explain how the desired regional outcome "A well planned region that has diverse, quality and affordable housing options supported by an appropriate level of infrastructure to compliment the rural lifestyle of the region" will be met with particular focus in the "Housing Mix, Affordability and Design" strategy.

Response – CM335

The Project does not intend to develop urban areas around Alpha and as such has not assessed that scenario. The workforce will be accommodated in the on-site accommodation village and transported to and from the site on their work rotations.

The Project will establish benchmarks for population growth within the SIMP during Stage 2 and will consult with council and other stakeholders during the development of Stage 2 of the SIMP.

Comments – CM336

Social impacts on Alpha town

Response – CM336

The EIS determined most social impacts would be reduced on the Alpha town because of the Project workforce transportation and accommodation strategies. Regardless, Stage 2 of the SIMP will examine benchmarks for population growth as well as influencers of change to plan for unforeseen or unlikely population growth. The EIS acknowledges that ultimately people can make their own decisions about relocation to the area, and though there are not any current incentives to do so because of Project strategies, this could still occur. As discussed in previous responses, BRC will be a major partner in the development of Stage 2 of the SIMP.

4.2.13 Department of Transport and Main Roads (DTMR) (Patricia Aprile)**4.2.13.1 Transport****Comments – CM337**

The road impact assessment (RIA) must be completed in accordance with DTMR's "Guidelines for Assessment of Road Impacts of Development Proposals" (GARID) and shall assess the accelerated reduction in pavement life, proportional increase in maintenance and road operational and safety issues. This must be completed as part of the Supplementary EIS process to allow specific conditions of approval to be recommended to the Coordinator-General. Mitigation strategies must also be negotiated and a Road-use Management Plan finalised before project construction commences.

Response – CM337

The pavement assessment of the report after discussions with DTMR has been reviewed and more detail and analysis is provided in the updated traffic impact assessment (TIA) (SEIS Volume 2, Appendix U, Section 5). A draft structure of the RUMP has been provided in Section 8.1.4 of the updated TIA and this will be completed prior to the construction phase of the Project.

Comments – CM338

This principle also states that the 5% criteria may also apply to ESA's as well as traffic. However, an analysis of road impacts has not been undertaken for road/s that exceed this threshold.

Response – CM338

The revised pavement assessment section of the updated TIA (SEIS Volume 2, Appendix U, Section 5) has taken this criteria into account.

Comments – CM339

No road impact analysis has been undertaken of the Clermont - Alpha Rd and Clermont Connection Road intersection.

Response – CM339

The pavement impact assessment has been revised based on a review of the EIS and comments received from public submissions, this can be found in SEIS Volume 2, Appendix U, Section 5. The updated pavement impact assessment includes Clermont-Alpha Road. The Clermont Connection Road intersection is not analysed given that the number of vehicles using Clermont-Alpha Road between Degulla Road and Clermont has significantly reduced given the proposed ban imposed by the Proponent on commercial and over-dimensional vehicles travelling on this section of road (NB: CVs and ODs are to now travel via Emerald).

Comments – CM340

Reference is made to new intersections with the road network. It is not clear whether these intersections are with SCRs or LG roads.

Response – CM340

The depiction of the road classification (SCR and LG roads) is presented in Figure 3-1 of the revised TIA (SEIS Volume 2, Appendix U, Section 3.1).

Comments – CM341

Reference is made to a Transport Management Plan (also called a Road-use Management Plan) which must be developed to summarise a) project traffic generation, b) impact assessment findings, and c) proposed impact mitigation strategies. No draft plan has been prepared to date.

Response – CM341

After discussions with DTMR a draft outline of the RUMP has been developed and is presented in the revised TIA (SEIS Volume 2, Appendix U, Section 8.1.4).

4.2.14 Department of Transport and Main Roads (DTMR) (Rick Rolfe)**4.2.14.1 Transport****Comments – CM342**

There is little mention of transport infrastructure works which are required as part of this project. The transport infrastructure mentioned in this section is related to the Bulk Sample Test Pit which is separate to this EIS.

Response – CM342

The pavement impact assessment has identified road upgrades for Clermont-Alpha Road and Degulla Road based on a review of the vehicles generated by the Project and revised access arrangements. These are separate to the BSTP program (using Hobartville Road) and these upgrades and associated maintenance programs are outlined in the revised TIA (SEIS Volume 2, Appendix U, Section 5).

Comments – CM343

The Capricorn Highway extends from Rockhampton to Barcaldine and not Longreach as stated.

Response – CM343

Noted - Text in the relevant section of the TIA document (SEIS Volume 2, Appendix U) has been updated to reflect the correct information.

Comments – CM344

There seems to be a lack of detail for this section with regard to public transport/ school bus routes and which particular towns these routes service, nor analysis/discussion about whether there might be an increased road safety risk from additional project traffic.

Response – CM344

All public transport services have been identified in Section 3.2 of the revised TIA (SEIS Volume 2, Appendix U). The management of the interactions between the public transport/school bus routes and the Project traffic will be addressed as part of the RUMP development.

Comments – CM345

A number of references in the EIS to the lack of information made available from DTMR are not believed to be correct.

Response – CM345

Further consultation with DTMR and local councils has resulted in appropriate information being used in the TIA. Text in the TIA (SEIS Volume 2, Appendix U) has been revised to remove these comments.

Comments – CM346

Classification of Commercial Vehicles and Light Vehicles is too simplistic and not in accordance with what was asked for in the Terms of Reference.

Response – CM346

The appropriate AustRoads classification has been incorporated into Tables 4-4 and 4-5 of the TIA document (SEIS Volume 2, Appendix U). The classification system now identifies a category for each of the proposed vehicle types in accordance to the class 1 to class 12 system used by AustRoads. However, it should be noted that in further assessments vehicles are grouped back into CVs and LVs as these are direct inputs required for the SIDRA modelling at intersections.

Comments – CM347

Neither table 17-3 (construction vehicles) nor table 17-4 (operational vehicles) seems to account for service/trade vehicles for the project.

Response – CM347

Service and trade vehicles were not assessed as a separate category. The stated vehicle estimates include allowances for all functions, including service and trade vehicles supporting the project.

Comments – CM348

It is not clear why the 2017 Project Generated traffic figures for Capricorn Highway (Emerald-Rockhampton) and Gregory Highway is stated as 0. These predicted traffic volumes should be greater than zero due to equipment deliveries and other generated traffic.

Response – CM348

This snapshot will be during the operational phase of the Project and therefore it is predicted that no CVs (or LVs) will be generated along these defined sections of road. NB: that the updated TIA document has some redistributions of traffic routes. BIBO programs will still operate from Emerald and Barcaldine and therefore these movements are still considered in 2017.

Comments – CM349

The transport operator has provided the Proponent with further detailed planning regarding Over - Dimension vehicles which has not been documented in the EIS.

Response – CM349

Conceptual over-dimension swept paths have been provided in Appendix B of the revised TIA (SEIS Volume 2, Appendix U).

Comments – CM350

The statement referring to discussion occurring with DTMR regarding an infrastructure agreement for ongoing maintenance costs of Degulla Road and Alpha-Clermont Rd is incorrect, given Degulla Rd is a local government road.

Response – CM350

The TIA document has been revised to distinguish between SCRs and LG roads. This includes maintenance costs, infrastructure agreements, etc.

Comments – CM351

The project-related transport infrastructure mentioned in this section relates to the Bulk Sample Test Pit which is separate to this EIS. There is little mention of transport infrastructure works as part of this project (as per earlier comment regarding Volume 2 (p. 17-1))

Response – CM351

The pavement impact assessment has identified road upgrades for Clermont-Alpha Road and Degulla Road based on a review of the vehicles generated by the Project and revised access arrangements. These are separate to the BSTP program (using Hobartville Road) and these upgrades and associated maintenance programs are outlined in the revised TIA (SEIS Volume 2, Appendix U, Section 5).

Comments – CM352

The other major output of the project will be waste materials. During early works only, solid waste will be delivered to the BRC landfill on the Landsborough Highway. It is not clear where the traffic generation has been accounted for in the EIS.

Response – CM352

The number of vehicles generated to transport the waste material to the BRC landfill during early works will be limited and temporary (i.e. less than six total trips per day for the operation period only) and as such impact to the Landsborough Highway created by waste delivery vehicles during these early works has not been considered in the TIA.

Comments – CM353

The Clermont-Alpha Road is proposed as an alternate route for haulage.

Response – CM353

The proposed vehicle routes have been reviewed based on the revised pavement impact assessment and Clermont-Alpha Road (between Degulla and Clermont) is now to only be used by light vehicles for personnel travelling between Clermont and the site. This section of Clermont-Alpha Road is not suitable for commercial and over-dimensional vehicles and therefore these will be required to travel to site via Emerald and Alpha.

Comments – CM354

In the Traffic Impact Assessment, it is stated that the Peak Downs Highway (70) has no line marking between mine sites.

Response – CM354

It is agreed that this statement is incorrect and the description of Peak Downs Highway has been updated to state that line marking exists along its length (SEIS Volume 2 Appendix U) .

Comments – CM355

In the Traffic Impact Assessment, it is stated that Capricorn Highway has overtaking lanes at various locations.

Response – CM355

The Capricorn Highway between Rockhampton and Alpha has overtaking lanes, although these are infrequent along the entire road section.

Comments – CM356

In the Traffic Impact Assessment, it is stated that school bus route operators and local school principals should be contacted as part of any road use management plan. Further stakeholders should be included.

Response – CM356

This item is addressed in the draft RUMP (see SEIS Volume 2, Appendix U, Section 8.1.4). Additional stakeholders who will be contacted include DTMR, Local Councils, Queensland Police (in particular for escort arrangement protocols) and School Bus operators.

Comments – CM357

While the number of over dimensional vehicles is estimated as a nominal 10%, further information should be provided.

Response – CM357

Further revision of all vehicle movements and deliveries has been undertaken in the updated TIA. OD vehicles now represent approximately 7% of all trips during the peak period of the construction phase (SEIS Volume 2, Appendix U, Section 4.4.1).

Comments – CM358

The EIS does not provide sufficient information about hazardous and recoverable waste needing to be removed from the site to Emerald for treatment.

Response – CM358

An indicative list of dangerous goods and hazardous substances transported for the Project is provided in the TIA (SEIS Volume 2, Appendix U, Table 7-1). Further details regarding the types of dangerous goods, use, purpose and a refined estimate of quantities will be provided in the RUMP (also see EIS Volume 5, Appendix K Section 7.8)

Comments – CM359

Sewage sludge will be transported to an existing BRC sewage treatment works at Alpha or Jericho.

Response – CM359

The Proponent has revised this section of text (SEIS Volume 2 Appendix U). Sewage sludge, as part of the traffic impact assessment, has been considered should it be transported to Emerald.

Comments – CM360

Table 5-1 Contribution estimates (that is, project traffic) - Clermont-Alpha Road North (Clermont to Degulla Road) & Table 5-2 Contribution estimates - Clermont-Alpha Road South (Alpha to Hobartville Rd) may not be easy for the reader to understand.

Response – CM360

This section of the TIA has been revised following review of comments received from the public submissions. These two tables have been revised and the text throughout section 5.3 (SEIS Volume 2, Appendix U) has been updated and identifies increases in vehicle traffic.

Comments – CM361

The EIS indicates: "At the time of the assessment, no specific details were available on the number, size or weight of Over-dimensional vehicles required for the project."

Response – CM361

Further detail is provided in relation to over-dimensional (OD) vehicles in the traffic generation estimates of the updated TIA document (SEIS Volume 2, Appendix U, Table 4-4). Indicative swept paths created by the proposed over-dimensional vehicles are also provided in Appendix B of the TIA.

Comments – CM362

This section states that "From this assessment, it is considered that the impact of the project on the performance of both road links and intersection are insignificant and do not require mitigation by the Proponent".

Response – CM362

Further consultation with DTMR and local councils has resulted in appropriate information being used in the TIA (SEIS Volume 2, Appendix U). The text in the updated TIA document has been revised to remove these comments.

Comments – CM363

Section 9.2 asserts that the background traffic growth does not include any significant impacts by other potential large developments which may occur during the mine life period and that these impacts will be included in the Cumulative Impact Assessment. Section 9.5 says "It should be noted that these recommended mitigation measures may change due to the influence of the cumulative impacts of other proposed developments in the surrounding region."

Response – CM363

The TIA (SEIS Volume 2, Appendix U) focuses solely on the impacts of this Project on the background conditions on the road network. On this basis the background traffic volumes are based on existing data for 2010 and increased to future years based on forecast projections. These comments in Section 9 are included in the document to indicate that further increases in background traffic volumes from other developments have not been included in the TIA as this is an analysis of the Project impacts to the current road network. The Cumulative Impact Assessment considers these further increases from other developments in the area, and based on these results could potentially alter the mitigation measures provided in Section 9.5 (SEIS Volume 2, Appendix U).

4.2.15 ISAAC Regional Council (Mark Crawley)**4.2.15.1 Project Description****Comments – CM364**

The EIS report should accurately address the process of ensuring that sufficient water is available for ordinary operations of the proposed mine under climate change and drought conditions. The sustainability of water resources across the Barcaldine and Isaac Regional Council area is fundamental to the long term viability of the region and should be addressed as a single coordinated approach not in isolation as presently described.

Response – CM364

As part of Project development, a rigorous assessment of water availability under drought conditions was undertaken. Through this process the amount of water expected to be generated through mine dewatering was identified as below requirements as was the water that would be captured on site as

runoff and form within sediment dams that could not be released but could be used for site activities. SEIS Volume 2 Appendix L contains the details of the mine water balance. As a result the Proponent has entered into an agreement with third party water provider, SunWater, for the provision of up to 11,000 ML per annum of raw water to the site. The source of the water is currently expected to be from the yet to be constructed Connors River Dam, however, it is up to SunWater as to where they source the water from to meet the Project contractual agreements.

4.2.15.2 Soils, Topography and Land Disturbance

Comments – CM365

All disturbed mining areas shall be rapidly revegetated and stabilised to prevent dust and surface water pollution for, the site exceeding the pre development levels at the property boundary.

Response – CM365

Vegetation germination and establishment are constrained by prevailing climatic conditions following sowing. It is recommended that a prescriptive timeline for a successful re-vegetation outcome should not currently be established.

4.2.15.3 Terrestrial Ecology

Comments – CM366

Mine operation needs to satisfactorily address the ingress of invasive weed species within the lease area and implement management strategies to prevent further expansions of existing infestations into the surrounding rural landscape.

Response – CM366

The management of weeds is covered in the EIS Volume 2 Section 9.1.3.4.2 (Management Strategies for Non-native Flora Species). This section states that the management of weeds will be co-ordinated with programs led by local government, community or landowners. Weed management strategies to be implemented include:

- The present location of weeds will be highlighted and a comprehensive weed spraying program be implemented, prior to the commencement of works. Declared weed species will be treated as per the relevant DEEDI fact sheet for each particular species;
- Monitoring in the form of annual observations by site personnel for weeds of management concern will be undertaken. These will also be conducted following significant rain events particularly in disturbed areas, roadsides, riparian zones and wash down facilities once safe access can be provided;
- Washdown facilities will be constructed at access points for vehicles arriving and departing from the Project site. These facilities will be bunded and located away from drainage lines to minimise the risk of weed spread;
- All vehicles entering the Project site and leaving properties known to contain declared weeds will be thoroughly washed down before entering clean areas;
- Radiators, grills and vehicle interiors will be cleaned for accumulated seed and plant material;
- All materials will be certified as weed-free prior to acceptance on-site;
- Soil and fill material from weed-affected areas will not be transported to clean sites;

- If weeds of management concern are identified, they will be eradicated from the site in accordance with local best management practice from the Burdekin Dry Tropics Regional Pest Management Strategy and / or the DEEDI Pest Fact Sheets;
- Monitoring and evaluation of treated areas to assess the success of declared weed eradication will be undertaken;
- To promote the awareness of weed management issues, weed management will be included in the site induction; and
- Preparation of a site-specific Weed Management Plan (WMP) that will describe how the weeds are to be managed in accordance with the LP Act and / or local government requirements for weeds not declared under state legislation.

4.2.15.4 Groundwater

Comments – CM367

The EIS report should establish an analysis of managing and protecting aquifers in the area. The present document does not reflect the ongoing sustainable management of this finite water resource. The long term decline of this valuable resource is not clearly managed given the impacts of the proposal will see aquifers altered beyond 20 kms from the operational site.

Response – CM367

The mining activities, as currently envisaged, will have a permanent impact on the groundwater resources. Predictive groundwater modelling indicates a cone of depression, resulting from mine dewatering, could extend some 10 km from the mine boundary (SEIS Volume 2, Appendix N) (Refer to Submission CM74, Figure 4-2, above).

The final void at the end of mine life will, based on high evaporation compared to ingress, result in a groundwater sink. This will result in groundwater flow patterns towards the final void. Groundwater modelling, SEIS Volume 2, Appendix N, included the evaluation of long term groundwater levels and flow patterns.

The SEIS includes a revised mine plan and methodology, which aims at reducing environmental impacts, including groundwater, and reducing mine waste. This will reduce the impacts on groundwater resources. The mining, cumulating in a large final void, will however have a permanent impact on the groundwater resources. No mitigation measures can be comprised to prevent dewatering impacts. Alternative water supplies will be provided to impacted groundwater users based on the Proponent's make-good commitment (SEIS Volume 2, Appendix V, Section 3.4.4.2).

To further reduce the Project's impact on water resources all groundwater intercepted within the mining voids and from dewatering will be used on the mine. This will reduce the volumes of raw water needed at the mine. SEIS Volume 2, Appendix L includes the site water management details.

Comments – CM368

The EIS has not satisfactorily addressed the potential for ground water contaminant ingress due to long term de watering during 30 years of operations. The presence of potential free sulphur compounds with the capability to generate acid compounds under de watering condition has not been addressed. This has the potential to contaminate the underling aquifers beyond the life of mine and impact on the residual land use after mining has ceased.

Response – CM368

Available geochemistry information is sourced from:

- Waste (EIS Volume 2, Section 16);
- Mine Waste (EIS Volume 5, Appendix J1); and
- Discussions with A. Robertson, RGS Environmental Pty Ltd, (pers. comm. 15.02.2011);

These data sources indicate that there is limited acid generation potential associated with the carbonaceous shale material and coal seam roof and floor. These units will be exposed within the mine voids and exposed to oxygen.

The groundwater resources associated with the low permeable coal seams and carbonaceous shale are limited and will be dewatered during mining. The voids are to be backfilled and rehabilitated over time, as discussed in the EIS.

Based on the current envisaged mine plan, a final void will remain after the life of mine. Based on climatic data the final void will act as a sink and this will result in groundwater flow patterns towards the final void. Any potential poor quality groundwater will then move towards the final void, as conceptualised in Figure 12-11 (EIS Volume 2, Section 12).

The potential for contaminant plume migration off site, after mining ceases and rehabilitation is complete, is limited.

4.2.15.5 Air Quality**Comments – CM369**

The open cut mining operation shall not emit particulate dust contamination levels beyond the mining tenement lease above the existing pre development background levels measured at the property boundary as the proposed operations cumulative effect will affect the ecological sustainability of the surrounding ecosystems and land uses. The reduction in dust emissions shall be focused on industry best practice by enclosing all the operational components of the mine including wash plant, crushing plants and conveyors to reduce dust inputs into the environment.

Response – CM369

A zero dust level above background at the mining lease boundary is neither achievable, a reasonable compliance level, nor has this been applied to any other mining operation within the State of Queensland. Hancock has committed to a number of operational practices that are designed to minimise the impact of dust emissions from the site on local air quality. This includes modifications to the Project Description which has been shown to reduce the amount of dust likely to be generated and, where feasible, the partial or full enclosure of dust generating sources.

An operational monitoring program (SEIS Volume 2, Section 7) will be used to monitor real time particulate concentrations and deposition of dust to the land surface at sensitive receptor locations. If these prove the EPP (Air) and Queensland DERM guidelines for air pollutants are exceeded, then the appropriate reporting procedures to DERM will be followed and further operational and or engineering controls will be considered to prevent exceedances at off-site locations. Please refer to Response CM64 above for more details regarding the air monitoring program.

Comments – CM370

The EIS should clearly identify the shut down parameters and thresholds for Dust, Noise and Vibration of the mining operation when metrological conditions are such that impacts upon any urban area are unavoidable. The identification of metrological conditions should be linked to real time monitoring of conditions and provide historical data to the EPA for use in the assessment and validation of complaints received.

Response – CM370

Predictive atmospheric dispersion modelling of dust deposition, which refers to the dust that drops out of the air and 'deposits' on the surface, showed no exceedances of Queensland DERM's objective of 140 mg/m²/day. However, as these are predictions the monitoring program will cover dust deposition to the land surface at sensitive human receptors to provide an indication as to whether the deposition of dust can be considered as a nuisance or is excessive.

An operational monitoring program will be used to assess the accuracy of these predictions by monitoring real time particulate concentrations and rates of dust deposition to the land surface. If exceedances of the Project Goals are recorded, then the appropriate reporting procedures to DERM will be followed. Further operational and or engineering controls will be considered to reduce deposition at off-site locations if the data shows that the dust deposition is attributable to the mine and not the natural environment. The monitoring network is described in SEIS Volume 2, Appendix P, Section 7.

Hancock is committed to the consultation process and is happy to pursue a dialogue regarding access to the monitoring datasets for landholders as part of the community consultation program. If additional studies indicate that the deposited concentrations of dust are likely to impact upon pastures, animal health and or meat quality, Hancock will engage with landholders to discuss further mitigation and potential compensation measures.

Comments – CM371

The EIS has not provided information on the bracket creep or cumulative dust impacts as resource region grows in the region. More specifically the potential locality of sensitive receptors to cumulative impacts is not described yet several projects are identifiable in the approval pipeline. This peace meal approach to the management of sensitive receptors is unacceptable over the life of the mine.

Response – CM371

It is recognised that there will be development of other mines within the area (such as Waratah Coal Mine and Kevin's Corner Coal Mine). Sufficient information regarding likely emissions from other proposed Projects in the area is currently unavailable. This makes an assessment of cumulative impacts guesswork. Such an assessment of cumulative impacts could be undertaken when more information is available in order to more accurately estimate the likely air quality future environment.

Predicted ambient concentrations and rates of deposition estimates from dispersion modelling for the Alpha Coal Project have been presented as both Project-only i.e. incremental and total as Project plus estimates of background concentrations. The total estimate for the ground-level concentration of pollutants has then been compared against ambient air quality criteria.

Refinement of the estimate of background levels may be warranted should sufficient additional information such as site-specific monitoring data become available.

Comments – CM372

The EIS identifies existing sensitive receptors as being subject to an existing background level of PM₁₀ dust at 27 ug/m³. It is not described in the EIS where the sensitive receptors will see an increase in mine dust to exceed the EPA limit of 50 ug/m³. The increase in dust levels for sensitive receptors equates to in excess of 100% increase. In certain examples places the respirable health of occupants is at risk. The EIS described little evidence of how this increase is proposed to be managed or eliminated as an impact.

Response – CM372

Recent changes to the Project Description have resulted in a significant reduction in estimated dust that will be generated from the site. These revised estimates of dust generation have been incorporated into an updated atmospheric dispersion model which has been used to predict concentrations of particulates in ambient air and the rate of deposition of dust to the land surface in the immediate area adjacent to the mining lease boundary.

These updated predicted concentrations and rates of deposition have then been compared to the Queensland DERM standards (SEIS Volume 2, Appendix P, Table 2-3) set for the protection of human health and the prevention of nuisance from deposition of dust to the land surface. The comparison reveals that at the sensitive receptor at location 8 which lies approximately 5 km to the south-west of the site:

- Exceedances are predicted of the EPP Air PM₁₀ 24-hour average, PM_{2.5} 24-hour average and the PM_{2.5} annual average objectives;
- Compliance is predicted with the EPP (Air) TSP annual average objective and the Queensland DERM rate of dust deposition guideline.

Contour plots reveal that it is likely that the pollutant concentrations predicted at a location 8 km to the west of the site (on the assumption that this location is 8 km to the west of the mining lease boundary) will exceed the Project Goals. An operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to assess the accuracy of these predictions by monitoring real time ambient concentrations and rates of dust deposition. This will occur at sensitive locations which have been identified, with the nearest being Receptor 8 which lies 5 km to the south-west of the mining lease. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedances at off-site locations. Please refer to CM64 for more detail regarding the air monitoring program.

The Environmental Management Plan for the Alpha Coal Project has been updated and is included as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program (as outlined in SEIS Volume 2, Appendix P, Section 7), and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

Comments – CM373

The EIS describes how 8 sensitive receptors are unacceptably impacted upon by >50ug/m³ PM10 dust levels. Several residences >150 ug/m³ which is 3 times the allowable limit or 200% above the desired standard. Clear human health impacts will eventuate and the EIS provides limited advice on protecting the health of sensate receptors. Similar concerns exist with PM 2.5 dust levels as modelled in the EIS with significant increase to the present background levels.

Response – CM373

Recent changes to the Project Description have resulted in a significant reduction in estimated dust that will be generated from the site. These revised estimates of dust generation have been incorporated into an updated atmospheric dispersion model which has been used to predict concentrations of particulates in ambient air and the rate of deposition of dust to the land surface in the immediate area adjacent to the mining lease boundary.

These updated predicted concentrations and rates of deposition have then been compared to the Queensland DERM standards (SEIS Volume 2, Appendix P, Table 2-3) set for the protection of human health and the prevention of nuisance from deposition of dust to the land surface.

As a result of the predicted exceedances, an operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to assess the accuracy of these predictions by monitoring real time concentrations. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedances at off-site locations. In addition to this compensation agreements are or will be entered into with the affected landholders. These discussions will include provision of site specific mitigation measures or acquisition if required.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached in SEIS Volume 2, Appendix V. The updates include the ambient monitoring program (as outlined in SEIS Volume 2, Appendix P, Section 7), and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

4.2.15.6 Noise and Vibration**Comments – CM374**

The mining operation shall not emit noise contamination levels beyond the mining tenement lease above the existing pre development background levels measured at the property boundary at any given time day or night.

Response – CM374

A set of noise criteria has been established for the Project in accordance with relevant Queensland noise policies and guidelines. The predicted noise levels at the identified receptor locations beyond the mining lease boundary are within the performance criteria limits. These limits are set with the intention of preserving amenity and are based on existing background noise levels. It should be noted that there is no requirement for noise to be rendered inaudible beyond the boundaries of the site, but only that the noise must be controlled to within acceptable limits with the intent of preserving noise amenity. The assessment of noise effects has determined that these limits will not be exceeded at the identified receptor locations (beyond the mining lease boundary) without any specific physical noise mitigation measures. Whilst not considered necessary in terms of achieving compliance with the noise limits, EIS Volume 5, Appendix I sets out noise management measures which would further reduce the potential for noise issues during the proposed construction and operational phases of the Project duration.

Comments – CM375

The mining operation shall not emit vibration levels beyond the mining tenement lease above the existing development background levels.

Response – CM375

A set of vibration criteria has been established for the Project in accordance with relevant Queensland and international policies and guidelines. The assessment has determined that vibration limits will not be exceeded at the identified receptor locations (beyond the mining lease boundary) considering their setback distance from the proposed blast sites. Notwithstanding this, EIS Volume 5, Appendix I sets out recommended blasting noise and vibration management measures, including the development of a Blasting Management Plan (BMP), which would further reduce the potential for noise and vibration issues from blasting.

Comments – CM376

The EIS should clearly identify the shut down parameters and thresholds for Dust, Noise and Vibration of the mining operation when metrological conditions are such that impacts upon any urban area are unavoidable. The identification of metrological conditions should be linked to real time monitoring of conditions and provide historical data to the EPA for use in the assessment and validation of complaints received.

Response – CM376

The Alpha Coal Project is situated in a sparsely populated section of Queensland. The nearest residential receptor to the pit is over 5 km. The nearest township (Alpha) is over 50 km to the south. As a result, it is considered that mitigation measures other than shut down parameters and thresholds are the most appropriate way to manage potential off site impacts.

said the EIS studies show that the noise levels predicted from the Project are within established criteria (under all meteorological conditions) at all receptors located outside the mining lease boundary. Adverse meteorological conditions would not be expected to give rise to any exceedance of the criteria at these locations and therefore shut-down parameters in relation to meteorology are not considered necessary with respect to noise and vibration exceedances.

4.2.15.7 Noise and Vibration and Air Quality**Comments – CM377**

The Proponent needs to amend the draft EIS to facilitate a movement away from the philosophy of "pollution for profit" as the cumulative impacts on the surrounding land users and ecological communities well being have not been satisfactorily addressed.

Response – CM377

There is limited information available on other proposed projects and this is reflected in the cumulative impact assessment. Noise, dust and vibration monitoring is proposed as part of the Project and will be undertaken in line with the Project's approval conditions. The Proponent is not responsible for establishing a regional monitoring system or placing the information on a public register. The EIS was undertaken in line with and met the DLGP finalised TOR for the Project.

4.2.15.8**4.2.15.9 Waste****Comments – CM378**

The EIS document should address how the process of disposal of additional liquid sewerage waste waters and solid wastes from the operation and the likely increase in the volume of this waste. Especially the long term burden for local government resources of the region.

Response – CM378

All waste streams generated from the construction and operation of the Alpha Coal Project will be managed in accordance with the waste management hierarchy, i.e. avoid, reuse, recycle, recover energy, safe disposal. The Project will adopt waste minimisation (including resource recovery and segregation for re-use or recycling), cleaner production, and safe disposal of residual solid wastes at an engineered landfill facility.

Off-site disposal is the least preferred waste management option to minimise impacts on local government resources of the region. An engineered landfill facility will be constructed on site at the start of the construction phase and following grant of the mining lease. The first landfill cells are expected to be operational within approximately six months of the start of the construction. Once the on-site waste facility is established, only recyclable, regulated or hazardous waste would be sent off site for either recycling or final disposal.

Prior to construction of the engineered landfill on-site, solid waste generated from early works and initial construction activities will be segregated for recycling or reuse wherever possible, with the balance disposed of at the existing Barcaldine Regional Council landfill facility. There are not expected to be large quantities of general municipal wastes generated during the first months of early works – refer to Construction Waste Inventory (EIS Volume 2, Section 16, Table 16-1).

Subject to the design of the Wastewater Treatment Plant (WWTP), it is anticipated that sludge collected from the WWTP (for sewage wastewaters) and septic tank (for industrial wastewaters) will be dewatered and disposed of to the engineered landfill on-site. Prior to construction of the on-site facility, sludge will be periodically removed by a licensed contractor to a regional sewage treatment works located at Emerald.

Development of waste facilities on-site will consider all relevant legislation and guidance associated with site selection, design and associated impact assessment to minimise the potential impact on soils, groundwater, surface water, visual amenity, air quality, noise, ecological health and human health.

4.2.15.10 Transport**Comments – CM379**

The EIS should address the process of the road transport impacts from the change in operational work method of operating transitional work forces and not housing workers locally. The proposed BIBO methodology clearly will impact service standards of road infrastructure that is presently omitted from the EIS.

Response – CM379

The BIBO movements during the construction and operational phases of the Project have been incorporated into the updated TIA traffic impact assessment (SEIS Volume 2, Appendix U). It is through the use of BIBO instead of DIDO that the Project will minimise the traffic on the regions roads and lessen the potential for incidents.

Comments – CM380

The EIS should clearly address the impacts on the interregional supply of materials for construction of the operational mine and the later materials handling on an ongoing basis. To date the cumulative impacts of the mine construction and operations are being looked at in isolation to the wider interregional growth occurring. Particular attention must be made to the transport of all liquid fuels to the project. It is inconceivable that fuels will be transported to site by road over a 30 year mine life.

Response – CM380

Alternate methods of transport to site (i.e. rail) are being considered by the Proponent, however, for the purposes of considering a worst-case scenario for traffic impacts, these movements are assumed to occur via road for the future operational years of the Project. As stated previously the cumulative assessment for the Project has been undertaken utilising existing publically available data. A more comprehensive assessment would have to be undertaken by government.

4.2.15.11 Social**Comments – CM381**

The EIS should address the process of the social impacts from the change in operational work method of operating transitional work forces and not housing workers locally. The exclusion of the workforce demographic 25 to 35 year olds from the local community via the onsite FIFO camp significantly undermines the community business economies and local resilience given the economic stimulus from operational workers available from the project over the 30 year mine life.

Response – CM381

The decision not to house workers locally has been made not only to reduce the potential social impacts on the host community but also as a result of worker preference within the current employment market – where demand for labour means workers can be selective about employers, not a company preference by the Proponent. The Project would prefer to house all employees locally, which would be safer, more economical, and provide better regional benefit from the Project; however, this is not considered possible under the current labour market and geographical location of the Project. Currently there is a high level of demand for people with construction or trades skills and for drivers/machinery operators associated with the mining and construction activities throughout Queensland and Australia as a whole. As such, there is a high degree of competition for labour, meaning that workers will be attracted to the best jobs with the best pay first. Requiring personnel to relocate to the area around Alpha will restrict the potential applicants and will impact on Hancock's ability to resource the Project. Over the last 20+ years, there has been a population trend away from rural and remote areas to larger urban centres, regional centres or towards the coast where there are a larger number of services and facilities available. This trend has been magnified by decreasing employment in agriculture and the hub and spoke approach to service delivery whereby services are located in larger centres and accessed by people living in a number of smaller communities nearby. For example, many Alpha residents reported regularly travelling to Emerald, Rockhampton or Longreach to access medical and government services as well as to shop for larger items. As a result of these trends, it is possible that a requirement for workers to reside locally may result in difficulty attracting and retaining personnel. This is further rationalised based on the difficulty of State and private service providers to attract and retain staff in the area, and region as a whole. Such conditions may in fact result in the Proponent having to recruit labour internationally resulting in additional social impacts, particularly if they are housed in the local community.

Comments – CM382

The EIS should address more closely the clear identification of the benefits to the regional community. The EIS needs to identify clearly local inter generational benefits and target demographics to support regional sustainability over the mine project life. A limited assessment is presently provided that does not identify or compensate the community for the proposed intergenerational change to the local employment and service nexus that is presently omitted from the EIS.

Response – CM382

The SIA identifies numerous positive impacts (benefits) to the regional community as identified in EIS Volume 5, Appendix M, Section 7. The current paradigm in the study area is a steady decline in the population. Younger generations tend to seek educational and employment opportunities outside the region and decide not to return. As a result these communities also struggle to attract people from this demographic to replace the loss. The Project is more likely to act as an anchor to slow or stop this decline than it is to result in an intergenerational change to the local economy to the detriment of the community. This will assist in regional sustainability. The Project may also attract young people who have previously left the area to pursue employment opportunities outside the region. These population impacts could help address the current situation where the community has a disproportionate number of mature and elderly residents, which is perceived as unsustainable over the longer term.

The SIMP and a future potential community development fund will explore sustainable means to strengthen the community in consultation with councils and other key stakeholders.

Comments – CM383

The EIS assessment should address the process of allocating additional water and housing resources to the Regional communities of the Barcaldine and Isaac regional council area, from the economic stimulant the mining operation will have on the economy, both direct and indirect. The EIS process needs to make a firm and unbiased assessment of the triple bottom line of economical, environmental and social impacts on the Regional community especially the retention of skilled workers in non mining service industries that will be placed under accelerating duress as a result of the project proceeding. The proposal is now located within the amalgamated Local government area of Barcaldine regional council and the presentation of the project in a light isolation does not reflect the guiding intent of the integration process of the local communities and the wider interregional supply chains.

Response – CM383

Improving water and housing supply in the BRC and IRC are not a part of the Project Description and therefore outside the scope of the EIS. These services are the responsibility of council, not businesses operating within the region. The EIS proposes a consultative committee (HCC) to discuss interconnection between the regions; however, the on-site accommodation strategy clearly outlined in the EIS does not directly or indirectly impact the existing communities in the area. The Project will bring water and electrical supplies to the site to service the mine operations, which means the Project will bring these utilities to the region. There is potential for council or the State to extend these services to the communities at a significantly reduced cost were they not brought to the region by the Project. As an element of the Project's social responsibility however, there is a commitment through the EIS to work with the councils and support their efforts to generate additional funding and ensure sufficient land is available for housing development.

The SIMP will develop population increase benchmarks to determine additional mitigation requirements should an increase occur above anticipated levels, in consultation with key stakeholders. Consideration will also be given to establishing a community development fund. How these funds will

be spent will be governed by a committee/forum made up of community stakeholders, with the ultimate end decision likely with the Proponent. These stakeholders will identify the best use of money in the fund based on community needs.

The Proponent is committed to working with stakeholders such as local industry to develop employment policies and strategies that will minimise the potential impact on other industries of the anticipated skills drain.

Comments – CM384

The EIS should clearly address the impacts imminent to the rural and service industry skills loss as a result of the economic drivers of mining employment in the region. At present the EIS does not satisfactorily address the long term impacts of skills loss to non mining industries in the wider region.

Response – CM384

It is important to note that choosing employment in a mine as opposed to other industries is personal choice. Presently, there has been a drain of skills from the community as young people leave the area to seek employment in mines in the nearby Bowen and Surat Basins, as well as other industries in larger communities, particularly Brisbane. As mines are established locally, it is more likely that these people will remain in the area or return, bringing skills with them. The SIA acknowledges that skills drain is likely to occur, and will work with stakeholders to identify ways to increase local skills and skilled workers.

Throughout the SIA within the EIS, mitigation options have been identified to address skills loss including exploring apprenticeship programs with councils, exploring workforce sharing opportunities, promoting non-mining employment opportunities in the region, establishing a spousal/partner employment program to link partners of mine personnel with employment opportunities and allowing the general public the opportunity to participate in some training opportunities associated with the Project.

The Project will also explore opportunities to work with councils and DEEDI through programs such as Skilling Queenslanders for Work to explore employment and economic development in the region.

Comments – CM385

The EIS should clearly detail the intergenerational maximisation for resource equity return to the local community over the life of the mine cycle. The project represents 30 years 2 generations and presently the EIS remains silent on the benefit to intergenerational equity in the face of considerable skills loss in traditional industries to the region.

Response – CM385

As discussed previously, the Project is likely to act as an anchor to stabilise the region, and hopefully reverse the population decline trend witnessed for the last 15+ years. Intergenerational equity issues are more akin to under-developed countries unlike Australia where people have the freedom to move throughout the land and seek employment where they choose. Furthermore, the current non-mining related migration trend throughout regional Queensland, particularly in communities under 1,000 people, has seen an intergenerational skills loss as the offspring of landholders migrate to the cities and abandon the family farming tradition.

There are numerous examples of mining and agriculture active and vibrant in the same area, including Clermont and Emerald. The Project will not develop a resource equity return to the community outside the increase in skills associated with employment and training from the Project.

As the State is the owner of mineral resources (on behalf of the people of Queensland), *resource equity return to the local community* is taken to mean State investment in the local area, funding for which is sourced from consolidated revenue which benefits from Project royalty payments. It is expected that the State will continue to meet its service delivery obligations and development commitments in the Project area.

Intergenerational maximisation of return and intergenerational equity are therefore interpreted to mean the long term community benefit to be derived from the Project. The respondent makes an assumption that there will be a loss of skills from the agricultural sector that could be to the detriment of future generations seeking to derive livelihoods, either solely or partially, from agricultural production.

It is noted that there is considerable overlap in skill sets required for farming and mining workforces. The Minerals Council of Australia and the National Farmers Federation have collaborated to facilitate the uptake of mining jobs by workers from the agricultural sector as a means to overcome a skills shortage in mining, and to allow the generation of off-farm income for agricultural workers. From an individual and community perspective, the Project can be expected to generate local employment and economic diversification that will strengthen the community's economic base, enabling the better management of stress due to adverse economic circumstances such as drought and low commodity prices. These benefits to the community are expected to be long-term in nature.

From a landholder perspective, there may possibly be some impacted properties where agricultural production is no longer economically viable, meaning that the property could not be passed on to a future generation as a going concern. However in this case, property owners are in receipt of compensation that may be re-invested in other agricultural enterprises should that be their decision.

4.2.15.12 Hazard and Risk

Comments – CM386

The EIS report should address the process of transporting, storing and handling additional explosives on the extensive mine area and the safety of additional materials given the lengthy supply chain that will support the operational mine for the 30 year life of the project.

Response – CM386

The Proponent is investigating a full service contract for the management of explosives and the explosive experts will handle the delivery and storage. It will be a Down the Hole (DTH) contract and a Build Own Operate (BOO) arrangement for on-site storage and handling facilities.

The Proponent is bound by the requirements of the *Queensland Explosives Act 1999* and *Explosives Regulation 2003*, except to the extent that if there is any inconsistency with the *Queensland Coal Mining Safety and Health Act 1999*, then the requirements of the latter will prevail. These legislative instruments provide stringent requirements for the transport, storage and use of explosives, with particular emphasis on the management of risks to people, property and the environment, as well as security measures to prevent explosives from being obtained by unauthorised persons.

With respect to the explosives supply chain for the Project, the off-site transport, storage and handling of explosives will be conducted in accordance with the Explosives Act by appropriately licensed contractors. The Proponent will verify that all contractors who are engaged by them to undertake activities involving explosives are appropriately authorised and licensed for the respective activities.

Any other parties who are not directly engaged by the Proponent as contractors, but form part of the explosives supply chain in Queensland are also bound by the Explosives Act and Regulation.

All parties carrying out authorised explosives-related activities are required to implement a safety management system, which addresses the management of the activities for which they are authorised. In accordance with the *Explosives Regulation 2003*, all parties transporting explosives must comply with the Australian Explosives Code (Class 1 explosives) or and Australian Dangerous Goods Code (Class 2-9 explosives). The Australian Dangerous Goods Code and Explosives Code provide extensive transportation safety requirements. One particular overarching principle of safe transport relates to route selection, whereby the code requires that routes should be selected to minimise the risk of personal injury or harm to the environment or property. All parties involved in the transportation side of the supply chain will be required to adhere to this principle.

The *Explosives Act 1999* deals extensively with licensing and authorities, as well as general responsibilities, whereas the *Coal Mining Safety and Health Act 1999* specifically states that explosives are to be managed in accordance with AS2187: Explosives – Storage, Transport and Use. Whilst the Proponent and on-site explosives contractors will comply with the requirements of the *Explosives Act 1999* and subordinate Regulation, the application of AS2187 will define the specific activities which will be undertaken to ensure the safety of people, property and the environment associated with the onsite transport, storage and use of explosives.

AS2187 requires that whenever explosives are to be used, a competent person will carry out a detailed risk assessment to identify all foreseeable potential hazards and take appropriate steps to eliminate or reduce the likelihood and mitigate the severity of any effects of such hazards, so that risks are at an acceptable level. The Proponent and their on-site contractor will ensure that such risk assessments are undertaken and that appropriate risk controls are implemented to achieve the risk acceptance criteria. This requirement will be incorporated into a management plan for the transport, storage and use of explosives, which will be developed for the on-site activities. As per the initial EIS publication, this plan will be in the form of a Principal Hazard Management Plan for explosives.

All blasts will be subject to a blast management plan, authorised by a competent person, and incorporating a risk assessment, blast design and safety management plan. Procedures will also be implemented to report any property damage, injury or environmental harm associated with explosives use to the relevant authority. Also in accordance with AS2187, emergency procedures will be developed for all foreseeable emergencies, including:

- Fire
- Transport accident
- Natural phenomena
- Unplanned detonation
- Unauthorised site entry
- Deteriorated explosives

In addition to the requirements for storage, transport and use of explosives, AS2187 also defines processes for the safe destruction and disposal of surplus explosives.

4.2.15.13 Decommissioning and Rehabilitation**Comments – CM387**

Rehabilitation works are to be designed and implementation factored towards rapid ecosystem reestablishment on the sites to facilitate the maximum opportunity for stabilisation of the terrestrial ecosystems prior to further underling mineral resource exploitation and disturbance.

Response – CM387

Rehabilitation works will be designed to optimise the potential for rapid ecosystem re-establishment. Vegetation germination and establishment are constrained by prevailing climatic conditions following sowing. For optimal ecosystem re-establishment it is recommended that a prescriptive timeline for a successful re-vegetation outcome should be avoided. Rehabilitation works will, however, be progressive over the life of mine and be in accordance with the mine's plan of operations.

4.2.15.14 Environmental Management Plan**Comments – CM388**

Council calls on EPA, Department of Mines and Energy and Regional Council representatives to conduct a study tour of environmental protection measures of the Hunter Valley coal mines in NSW, taking in mines at Mt Arthur (BHP), Bengal (Anglo) to control measures with a view of implementing similar industry best practice control parameters at the Alpha Coal Project.

Response – CM388

The Proponent recognises that this comment is directed to the appropriate government agencies.

4.2.16 Queensland Health (Sophie Dwyer)**4.2.16.1 Surface water and Groundwater****Comments – CM389**

While it is understood the treatment processes may reduce the concentration of some contaminants, information on the direct and indirect human health risk of exposure to waste water has not been provided.

Response – CM389

The waste water mentioned as part of this submission falls into two categories, the waste water generated from sewage treatment process and the water generated through the mining and coal washing process.

The sewage treatment will be to Class A quality and, therefore, the effluent is not deemed a direct or indirect human health risk.

Nonetheless, as outlined in the response to Submission CM316, a site Effluent Irrigation Management Plan will be prepared and updated from time to time, as necessary. This Plan will include, but not be limited to, identification of the area(s) on which treated sewage effluent can be disposed, sewage effluent irrigation procedures and monitoring requirements. Management of treated effluent will be consistent with relevant procedures outlined in *Queensland Water Recycling Guidelines (December 2005)* and the *Australian Guidelines for Water Recycling: Managing health and environmental risks (Phase 1) (2006)*.

In relation to the water generated from mining (groundwater and pit dewatering and runoff from overburden emplacements), this is expected to be of variable quality with the potential for some elevated salinity and some metals (in comparison with the ANZECC guidelines). Information on the

predicted water quality is presented in the Site Water Management System and Water Balance Report (SEIS Volume 2, Appendix L) and Surface Water Quality Technical Report (SEIS Volume 2, Appendix M). Waste water from around the CHPP will be recycled within a closed loop. There is the potential for some chemicals to enter the waste water system at this location and health and safety controls will be implemented to reduce the potential of exposure or risk to employees and the environment.

4.2.16.2 Groundwater

Comments – CM390

The Proponent proposes to extract groundwater for industrial and potable use and the site has an on-site water treatment plant. This plant must provide water that complies with the Australian Drinking and Water Guidelines published by the National Health and Medical Research Council.

Response – CM390

Groundwater samples collected during the bore survey, presented in SEIS Volume 2, Appendix N, indicates that groundwater is generally suitable for potable supply, however, elevated electrical conductivity in all bores sampled exceed the Australian Drinking Water Guideline (ADWG) value of 100 $\mu\text{S}/\text{cm}$. Thus groundwater would require treatment before it could be within all ADWG guideline values for drinking water.

EIS Volume 2, Section 11.5.3.2 indicates that the surface water runoff across disturbed areas and groundwater from dewatering will be used to supply a portion of the mine operational needs for non-potable uses.

The proposed external pipeline, operated by SunWater, from Moranbah will be relied upon to meet potable demands (after treatment) (EIS Volume 2, Section 11.5.3.2). EIS Volume 2, Section 11.5.3.3 details the potable water details, which include:

- The bulk water supply is to be treated on-site with a package potable water treatment plant (WTP), such as a reverse osmosis system to supply the potable water needs for the Project.
- Water storage tanks for potable water will be required at the WTP and at the accommodation village as the water supply at the village must have sufficient reserve for fire fighting.
- Potable water is to be reticulated throughout the site in dedicated services corridors proposed to be created throughout the MIA/CHPP areas and in a dedicated corridor to the accommodation village.
- For construction potable water, the permanent WTP will be supplemented with a temporary potable water package treatment plant, with a treatment capacity of 125 kL/day, giving a peak supply capacity of 575 kL/day during the construction phase.

These provisions will ensure water quality standards to meet the Australian Drinking Water Guideline 2004 (ADWG).

As the Proponent will not be a bulk drinking water service provider it is envisaged that the Proponent will not be regulated by the *Water Supply (Safety and Reliability) Act 2008* and the *Public Health Act 2005* but will develop a detailed water quality management system.

4.2.16.3 Air Quality

Comments – CM391

Modelled PM₁₀ air emissions substantially exceed the criteria.

Response – CM391

Recent changes to the Project Description have resulted in a significant reduction in estimated dust that will be generated from the site. These revised estimates of dust generation have been incorporated into an updated atmospheric dispersion model which has been used to predict concentrations of particulates in ambient air and the rate of deposition of dust to the land surface in the immediate area adjacent to the mining lease boundary.

These updated predicted concentrations and rates of deposition have then been compared to the Queensland DERM standards (SEIS Volume 2, Appendix P, Table 2-3) set for the protection of human health and the prevention of nuisance from deposition of dust to the land surface.

As a result of the predicted exceedances, an operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to assess the accuracy of these predictions by monitoring real time concentrations. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedances at off-site locations.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program (as outlined in SEIS Volume 2, Appendix P, Section 7.), and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

The results of the revised modelling still show that there are exceedances of PM₁₀ at sensitive receptor locations. As noted above the Proponent will be undertaking practical measures to try and reduce the off-site dust impacts and monitor to determine if the modelled results are indicative of what is happening in the field. Should it be determined that EPP (air) levels are being exceeded the Proponent as outlined in SEIS Volume 2, Appendix V, Section V.3.3.7 will instigate an investigation to determine if there are additional mitigation measures to be employed. In addition to this compensation agreements are or will be entered into with the affected landholders. These discussions will include provision of site specific mitigation measures or acquisition if required.

Comments – CM392

The PM_{2.5} levels at the identified sensitive receptors may also exceed the health and well-being goals identified in the Environmental Protection (Air) Policy 2009.

Response – CM392

Recent changes to the Project Description have resulted in a significant reduction in estimated dust that will be generated from the site. These revised estimates of dust generation have been incorporated into an updated atmospheric dispersion model which has been used to predict concentrations of particulates in ambient air and the rate of deposition of dust to the land surface in the immediate area adjacent to the mining lease boundary.

These updated predicted concentrations and rates of deposition have then been compared to the Queensland DERM standards (SEIS Volume 2, Appendix P, Table 2-3) set for the protection of human health and the prevention of nuisance from deposition of dust to the land surface.

As a result of the predicted exceedances, an operational monitoring program (SEIS Volume 2, Appendix P, Section 7) will be used to assess the accuracy of these predictions by monitoring real time concentrations. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedances at off-site locations. In addition to this compensation agreements are or will be entered into with the affected landholders. These discussions will include provision of site specific mitigation measures or acquisition if required.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program (as outlined in SEIS Volume 2, Appendix P, Section 7.), and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

Comments – CM393

The Proponent has NOT assessed the increase in risk to human health at the surrounding sensitive receivers of respiratory illnesses and symptoms due to exceedances in the air quality goal.

Response – CM393

The Environmental Protection Policy (Air) 2008 was prepared by the Queensland EPA (now DERM) in order to establish levels by which potential risks to human health (or other receptors identified in the standard) are considered acceptable to DERM. The Alpha Coal Mine Project – Supplementary Report describes the assessment of impacts from the proposed mine against those standards. The standard does not imply impacts will occur if the results are higher than the standard, or that impacts will not occur if the results are below the standard. Specific impacts to a person (i.e. respiratory illnesses) are dependant on many variables, including the existing health and wellbeing of that specific person. As such an assessment of risk of respiratory illnesses and symptoms due to exceedances in the air quality goal is outside the scope of the assessment of Air Quality.

A revised Project Description and the corresponding updated Air Quality Assessment has been provided in SEIS Volume 2, Appendix P and a revised Environmental Management Plan provided in SEIS Volume 2, Appendix V. These detail the measures taken by the Proponent to reduce emissions from the proposed mine and those proposed to manage and measure its impact on air quality.

4.2.16.4 Noise

Comments – CM394

The Proponent describes the sleep disturbance criteria however no assessment appears to have been conducted within S15.6.5

Response – CM394

Criteria for assessing potential sleep disturbance are presented in EIS Volume 2, Section 15.4.3. An assessment against these criteria is presented in EIS Volume 2, Section 15.6.5.

4.2.16.5 Waste

Comments – CM395

Queensland Health has concerns regarding the potential for off-site human exposure should waste water be released or escape.

Response – CM395

Under the proposed conditions of the site environmental authority the site will be authorised under certain stream flow conditions to release water from the site. The criteria agreed to with DERM will be for the protection of the environment, cattle and humans. If waste water was to escape (be discharged in an uncontrolled manner) from the site, due to the size of the site and its geographic location, it would most likely leave via the existing water courses. The water courses are ephemeral and only flow in certain rainfall events. These rainfall events would provide dilution to any uncontrolled releases. The areas around the industrial area, tailings dams, etc. that contain waste water will be designed to the appropriate standard to reduce the risk of an uncontrolled release to an acceptable level.

4.2.16.6 Health and Safety**Comments – CM396**

The identified potential impact of the mine activities is the increased need for emergency first response, at Alpha. Any increase in the population of Alpha by supporting industry workers may result in an increase in demand for a cross section of health services.

Response – CM396

Noted - The SIMP Stage 2 will identify benchmarks for population growth in the Alpha community. A range of strategies and actions will be developed to address population growth in consultation with key stakeholders.

Comments – CM397

The project's potential to generate and harbour disease vectors.

Response – CM397

It is considered that the greatest potential for the generation and harbouring of disease vectors on-site is through mosquitoes. As presented in EIS Volume 2, Section 21.3.1, on-site water management will be expected to limit the potential for increase in disease vectors such as mosquitoes and biting midge breeds. The Project is located in an area which typically has low annual rainfall and the waterways are ephemeral in nature resulting in stagnant water not typically being a large issue.

A Pest Management Control Plan will be developed for the Project and it will contain measures to prevent increase in local populations and spread of biting insect species of pest and health significance. As suggested by QHealth the plan will be guided by Queensland Health's *Guideline to minimise mosquito and biting midge problems in new development areas* (Queensland Health, 2002).

Comments – CM398

The Proponent has not identified whether any food services will be provided on-site to the workers.

Response – CM398

The Project will have an on-site accommodation village and as a result food services will be provided to workers on site. The preparation and handling of food will be undertaken in accordance with all of the applicable legislative requirements including the *Food Act 2006*. It is expected that the provision of food will be on a contract basis and the meeting of legislative requirements will be a strictly enforced contractual condition.

4.2.17 Queensland Police Service (Bruce Moy)

4.2.17.1 Project Description

Comments – CM399

QPS will be required to fund and expand radio network in the area. QPS would request support from Proponent to 'piggy back' communications technology on planned towers or investigate Proponent assisting QPS to install appropriate technology in area.

Response – CM399

The Proponent appreciates the apparent funding constraints the QPS is currently under. The Proponent is open to dialogue on how QPS may be able to utilise (share resources) infrastructure planned for the Project to assist in meeting their communication needs.

4.2.17.2 Transport

Comments – CM400

Total future traffic volumes indicate impacts of about 5% for Horbartville Road and Alpha-Clermont Road. Table 17-5 is calculated at the year 2017 and does not reflect impact in 2013 on roads relevant to the construction phase.

Response – CM400

The updated TIA includes an assessment during both the construction (2013) and operational (2017) phases of the Project. This is based on a review of the vehicle generation rates, personnel numbers and the proposed routes. As such, the TIA document (SEIS Volume 2, Appendix U, Tables 4-8 and 4-9) now identify impacts during the construction and operational phases of the Project.

Comments – CM401

Increased traffic branch resources (2 officers + 1 vehicle) would be required or funding for additional deployment. Funding would also be required from a proactive perspective to support community and work force traffic related educative programs.

Response – CM401

The increase in traffic branch resources and funding required for these expansions is understood to be a State funding responsibility. The State will receive generous royalties from this Project and would be expected to use some of this revenue in the local community.

The issue of traffic related education programs will be addressed as part of the RUMP development (refer to SEIS Volume 2, Appendix U, Section 8.1.4). Consultation for escort arrangements will be undertaken in the RUMP.

Comments – CM402

The QPS welcomes any opportunity to be involved in the consultation and development process for the Transport Management Plan. Copies of Transport Management Plan/s and related documents should be provided to QPS.

Response – CM402

The Proponent welcomes the input from the QPS on the issues of traffic management. It is envisaged that QPS involvement in the development of the RUMP will be the most logical forum for this discussion (SEIS Volume 2, Appendix U, Section 8.1.4).

Comments – CM403

Furthermore, OD loads require permit processing capabilities where the loads originate in Central Region. The requirement for police escorts will impact on QPS resources and planning in terms of both the availability of officers and the provision of escort vehicles. It is anticipated that six additional vehicles will be required solely for escort duties in order to allow current fleet to manage core business policing activities.

Response – CM403

Escort arrangements for over-dimensional vehicles are defined by the requirements of QPS based on width and/or length. The Proponent will consult with QPS during the development of the RUMP to determine how these escort arrangements can be planned and undertaken during the construction phase of the Project. A draft outline of the RUMP document can be found in Section 8.1.4 of the TIA document (SEIS Volume 2, Appendix U).

Comments – CM404

The QPS should be considered a key stakeholder in the development of Traffic Management Plans. QPS requests Proponent and transport operator DHL provide proposed OD movement schedule/plans three months prior to schedule commencing.

Response – CM404

QPS have been specifically identified as a key stakeholder in the development of the RUMP document (refer to SEIS Volume 2, Appendix U, Section 8.1.4 for an outline of the proposed structure). Consultation with QPS will include investigating escort arrangements for over-dimensional vehicles between the Port of Mackay and site.

Comments – CM405

Traffic Management Plan to include mitigating measures to acknowledge and address matters including but not limited to:

- *OD vehicle movements and in particular, movements after 'shut down periods' (wet weather) to clear back log*
- *Community engagement strategies, inclusive of awareness programs for transport contractors, project workforce and community.*
- *Planning around public transport and school transport issues.*

Response – CM405

These items listed will be addressed in the RUMP (SEIS Volume 2, Appendix U, Section 8.1.4).

Comments – CM406

QPS would be required to reassess resources in Clermont as a result of cumulative impacts as a result of population increase in the area. Require clearer information on access issues that may influence social impacts in Clermont.

Response – CM406

As previously indicated, QPS is specifically identified as a key stakeholder in the development of the RUMP document. The Proponent will consult with QPS to confirm escort arrangements between the Port of Mackay and site. Additionally QPS will be consulted as part of the Stage 2 SIMP development of the Project which will assess the potential social impacts from the Project.

4.2.17.3 Social**Comments – CM407**

Request the Proponent specifically includes the QPS in any future consultation process relevant to the Social Impact Management Plan and its ongoing involvement. Areas of interest for the QPS and relevant to the valued social components (VSC) include Culture and Community Dynamics; Housing and Accommodation, Social infrastructure, Labour market and employment.

Response – CM407

The Proponent acknowledges the QPS will be one of the key stakeholders actively involved in the development and ongoing evolution of the Project SIMP. Stage 2 of the SIMP process is commencing shortly, with consultations over the coming months. This process will involve widespread consultation with all relevant stakeholders including QPS, local government and other emergency service providers. This process will likely be managed through the Project's Community Liaison role and the Hancock Consultative Committee (HCC). The HCC will meet on a regular basis throughout the Project life cycle to provide a forum for involvement of various community stakeholders. The Community Liaison role will provide stakeholders such as council and QPS with a dedicated contact point within the Project. Initially the development of the SIMP will be a key focus of the HCC and the Community Liaison Function. Over time this will turn to an ongoing review function and will provide the forum for identifying and considering emerging social impacts and developing an appropriate mitigation/management process.

Comments – CM408

QPS requests consultation during ongoing development of site security plans and the development of protocols to enhance liaison between QPS and site security and management. QPS will nominate a liaison officer to meet on a periodic basis with camp management to discuss any ongoing issues.

Response – CM408

The Proponent agrees with this submission and QPS will be actively involved in the development of the Alpha Coal Project Site Security Plans as well as the Project RUMP. This process will include providing QPS personnel with a comprehensive induction to the mine site so that they are able to enter the site immediately in the event of an emergency.

The Community Liaison role will provide QPS with a dedicated function to facilitate ongoing engagement between QPS and the Project and Camp Management. QPS will also be consulted in the development of mine personnel code of conduct and workplace/community induction programs.

Comments – CM409

Large numbers of employees returning to regional centres such as Emerald, Mackay, Rockhampton at one time to enjoy 'off shift time' may have social order implications for policing – relevant to the number of workers and the size of the centre. QPS requests ongoing consultation in safety and security issues with mine management, including the provision of any relevant intelligence regarding shift cycles that may have policing implications.

Response – CM409

At this time the town of origin of mine personnel is not known. Once this information is known, a basic profile (that includes place of origin) may be provided to QPS and other relevant stakeholders. This opportunity will be discussed in more detail with QPS as part of the ongoing consultation.

The shift rotations will not be finalised until the place of origin of personnel is known. The process of finalising these rotations will take into consideration the place of origin as well as the views of various community stakeholders. As part of this process, QPS will be consulted to ensure any major concerns can be addressed and to ensure that QPS are aware of movement to and from the mine site.

Comments – CM410

Furthermore, as an adjunct to this consultation process, the QPS requests the confirmation of and details as to primary transport hubs relating to FIFO and BIBO at the earliest opportunity.

Response – CM410

The Proponent agrees with this submission and will engage with QPS in a proactive manner to support effective management of the cumulative impacts of FIFO and BIBO.

Once the source of the workforce is better known, the Proponent will be able to confirm the FIFO and BIBO routes and pick up locations. It is anticipated that the BIBO services will be provided from Barcaldine, Jericho, Alpha, Emerald, and Clermont, and that these services will stop in other communities along the way if there are personnel to collect. FIFO services are expected to be provided from regional centres such as Townsville and Brisbane. It is important to note that there are no definitive FIFO and BIBO locations decided upon at this point. The exact routes and frequencies will be dependent upon the sourcing of personnel. The Proponent will discuss with QPS whether a workforce profile noting the home location of FIFO/BIBO workers will be made available. The Proponent will consult with the QPS on the BIBO/FIFO schedules once available.

Comments – CM411

Suggest there is some discrepancy as outlined between social impact assessments and traffic route information. The traffic section of the mine volume and Appendix G (Cumulative Impacts), suggest that the Clermont Alpha road will be upgraded whereas the SIA indicates this will not be the case and discounts any significant effects upon Clermont from project activities.

Response – CM411

The Project Description indicates that the Alpha - Clermont Road will be upgraded by the Proponent between Alpha township and the Project Site only. This is the basis of the Social Impact Assessment. Given the current condition of the road, particularly in poor weather, and the Project policy that vehicles are not permitted to access the site from the Clermont end unless further upgrades are undertaken, there will be reduced social impacts on Clermont than if the road was more accessible. If the road is upgraded by council/State, it can be assumed that the impacts on Clermont will be

proportionately larger as access improves. This needs to be considered by any third party planning to upgrade the Alpha - Clermont Road at the Clermont end as it could result in social impacts from the Project to the Clermont area that were not a direct result of the Project design.

Clermont has a greater range of services, available land for housing development and less limitations on growth (such as water and electricity supply). Therefore it is more likely that people moving to the local area would choose to live in Clermont if access to the mine site are improved. This would likely significantly lessen the probability of Alpha experiencing high population growth attributed to the Project. This would be similar to the experience of Springsure as a result of the establishment of the Rolleston mine. In this example, Springsure experienced greater population growth than Rolleston despite the greater distance between the Rolleston mine and Springsure than the mine and Rolleston. This is largely because of the existing limitations to growth and the pre-mine size in Rolleston, which make it less attractive to new residents than the larger community of Springsure.

Comments – CM412

QPS would be required to reassess resources in Clermont as a result of cumulative impacts as a result of population increase in the area. Require clearer information on access issues that may influence social impacts in Clermont.

Response – CM412

The Project Description currently does not plan to upgrade the Alpha-Clermont Road beyond the Project site to Clermont. As a result social impacts are not anticipated to shift towards Clermont. If however the upgrade of the Alpha-Clermont Road is extended beyond the mine site to Clermont, it is anticipated that the social impact on the Clermont community will be significantly greater. The SIMP will be developed to enable appropriate responses to be made dependant on the magnitude and nature of social impacts. This will be managed through the establishment of benchmarks around key VSCs such as population. As these benchmarks are approached, the SIMP will stipulate required actions, nominate responsible parties and identify ongoing monitoring strategies. It will also be important to understand the circumstances behind any road upgrades, and the responsibility of developers and sponsors of such an upgrade in the management and mitigation of social impacts.

4.2.17.4 Hazard and Risk

Comments – CM413

Vehicle collision on site with wildlife or other vehicles listed as rare. QPS does not agree with these assessments as being 'rare' or unlikely given volume of proposed traffic and relevant environment.

Response – CM413

The likelihood relating to a vehicle collision with wildlife or other vehicles was rated as rare due to the consequence of such an event resulting in multiple fatalities. The assessment of consequence was based on a probable maximum loss basis whereby the consequence of a risk is the likely outcome of a risk scenario, allowing for the absence / failure of mitigating controls. The likelihood ascribed to the risk is the product of the likelihood of the initiating event occurring and the probability of the defined consequence resulting from that initiating event, taking into account the reliability of the mitigating controls.

Owing to the nature of the preliminary hazard analysis, the likelihood descriptors are somewhat subjective and as a result, the consequence estimates in this assessment err on the conservative side, to ensure that issues with potentially severe consequences are highlighted for management attention. Any issue with the potential to result in a Level 5 safety consequence will be closely monitored by

management to ensure that the control strategy is designed and implemented effectively. Therefore, whilst there may be a case for selecting an alternative likelihood rating for this risk, the management strategy will already be conservative on the basis of the magnitude of the potential consequences.

As the safety management system for the Project evolves, the risk of vehicle interactions may qualify for the development of a Principal Hazard Management Plan, in accordance the requirements of the Queensland *Coal Mining Safety and Health Act 1999* and *Coal Mining Safety and Health Regulation 2001*.

Comments – CM414

Road incidents due to rainfall listed as unlikely

Response – CM414

The Road-Use Management Plan will comprise notification protocols in accordance with the *Coroners Act 2003* and *Transport Operations (Road Use Management) Act 1995*.

Comments – CM415

QPS requires consultation in relation to development of Emergency Management Plan/s and Disaster Management Plan/s to ensure appropriate notification and management protocols are in place.

Response – CM415

The Proponent commits to consulting the QPS in relation to the development of Emergency Management Plan(s) and Disaster Management Plan(s).

Comments – CM416

QPS requires Mine Liaison officers identified and establish network with local QPS staff to facilitate communication during emergency and incident response.

Response – CM416

The Proponent commits to appointing Mine Liaison officers to liaise and communicate with local QPS staff regarding emergency and incident response mechanisms and procedures.

Comments – CM417

The QPS would welcome consultation and input into the development, implementation and ongoing assessment of Security Management Plans.

Response – CM417

The Proponent will consult with the QPS in relation to the development, implementation and ongoing assessment of Security Management Plans.

Comments – CM418

The QPS request the Proponent appoint Security and Emergency liaison officers as a point of contact for QPS for ongoing liaison and consultation.

Response – CM418

The Proponent commits to appointing Security and Emergency liaison officers at an appropriate time as a point of contact for QPS for ongoing liaison and consultation.

Comments – CM419

The Proponent indicates higher road use off site may increase potential for traffic accidents and assesses the probability of same as 'unlikely'.

Response – CM419

The likelihood relating to higher road use / changed road conditions was rated as unlikely due to the consequence of such an event resulting in multiple fatalities. The assessment of consequence was based on a probable maximum loss basis whereby the consequence of a risk is the likely outcome of a risk scenario, allowing for the absence / failure of mitigating controls. The likelihood ascribed to the risk is the likelihood of the initiating event occurring and the probability of the defined consequence resulting, taking into account the reliability of the mitigating controls.

Owing to the nature of the preliminary hazard analysis, the likelihood descriptors are somewhat subjective and as a result, the consequence estimates in this assessment err on the conservative side, to ensure that issues with potentially severe consequences are highlighted for management attention. Any issue with the potential to result in a Level 5 safety consequence will be closely monitored by management to ensure that the control strategy is designed and implemented effectively. Therefore, whilst there may be a case for selecting an alternative likelihood rating for this risk, the management strategy will already be conservative on the basis of the magnitude of the potential consequences.

Comments – CM420

Extra Activity – will lead to increased demand on emergency services, leaving Emergency services unable to respond to an incident or regular calls for service.

Response – CM420

It was determined that the Proponent will provide all resources, training and equipment for first response capability for foreseeable incidents. However, the local rural fire brigade will be relied upon for a coordinated response to wild fire. In this case, the Proponent will supplement the existing resources, capability, and equipment of the rural fire brigade.

Regarding safety incidents, the Proponent will again provide first response capability. It was recommended that additional medical staff may be required in the region. Specifically additional nurses may be required at the Alpha hospital. In the event of a safety incident the Proponent would rely on support from the Royal Flying Doctor Service (RFDS) to get injured people to suitable medical treatment facilities.

The RFDS has 17 aircraft in Queensland which is considered adequate for the foreseeable worst case emergency situations. In the event that there are insufficient response aircraft available RFDS has been known to charter larger jets out of Brisbane and the Gold Coast.

The risk register has been updated to indicate that *Extra Activity - increased demand on emergency services (including access)* is an on-site and off-site risk. It is also accepted that this risk relates to both the construction and operational phases of the Project, as suggested by QPS.

Comments – CM421

Proponent's risk register indicates light vehicle interaction with wildlife or collision with other vehicles may occur but assessed as rare.

Response – CM421

The likelihood relating to a light vehicle interaction with wildlife or other vehicles was rated as rare due to the consequence of such an event resulting in multiple fatalities. The assessment of consequence was based on a probable maximum loss basis whereby the consequence of a risk is the likely outcome of a risk scenario, allowing for the absence / failure of mitigating controls. The likelihood ascribed to the risk is the likelihood of the initiating event occurring and the probability of the defined consequence resulting, taking into account the reliability of the mitigating controls.

Owing to the nature of the preliminary hazard analysis, the likelihood descriptors are somewhat subjective and as a result, the consequence estimates in this assessment err on the conservative side, to ensure that issues with potentially severe consequences are highlighted for management attention. Any issue with the potential to result in a Level 5 safety consequence will be closely monitored by management to ensure that the control strategy is designed and implemented effectively. Therefore, whilst there may be a case for selecting an alternative likelihood rating for this risk, the management strategy will already be conservative on the basis of the magnitude of the potential consequences.

Comments – CM422

QPS does not agree with these assessments as 'unlikely' or rare given volume of proposed traffic during operations around the site; the nature of the traffic (heavy and commercial vehicles) and the relevant environment.

Response – CM422

Please refer to CM421 above.

Comments – CM423

Proponent notes process developed in relation to proposed Emergency Management Plan.

Response – CM423

The Proponent has committed to consultation with the QPS officer in relation to ongoing development of the Emergency Management Plan.

Comments – CM424

QPS suggests a basic tenet of the plan should be an obligation for all relevant agencies (QAS, QFRS, QPS, BRSC, SES, EMQ) to 'exercise' the plan at least annually with the Proponent.

Response – CM424

The Proponent commits to exercising the Emergency Management Plan with all relevant agencies as required.

Comments – CM425

QPS requests plans acknowledge external agencies such as QPS or other emergency services may have legislative authority in some emergency situations that will require mine management cooperation to affect a particular response. QPS requests consultation in the compilation of the plan to make roles and responsibilities clear.

Response – CM425

The Proponent commits to acknowledging external agencies such as QPS (or other emergency services that may have legislative authority in some emergency situations) in the Emergency Management Plan. The Proponent will consult with QPS during compilation of the Emergency Management Plan to make roles and responsibilities clear.

Comments – CM426

QPS acknowledges the primary purpose of Emergency Management Plan is first response issues but requests specific 'recovery' related issues be addressed in some sub plans that may be relevant to QPS crime scene and investigative responsibilities.

Response – CM426

The Proponent commits to addressing specific recovery related issues be addressed in sub plans relevant to QPS crime scene and investigative responsibilities.

4.2.17.5 Social Impact Management Plan**Comments – CM427**

QPS has vested interests in matters to be addressed in various stages of the SIMP and requests ongoing specific consultation as the plan develops as a key stakeholder.

Response – CM427

The Proponent agrees with this submission. As noted above, key stakeholders including QPS will be actively consulted in the development of the SIMP. This consultation will continue throughout the life of the Project and will be used as a basis for the regular reviewing and updating of the SIMP as new and emerging social impacts become evident. Consultation will be coordinated through the Community Liaison role (a dedicated resource that will provide continuity in the stakeholder engagement process) as well as through the Hancock Consultative Committee (HCC).

Comments – CM428

The QPS suggests, given its wide ranging roles and the propensity for some issues to arise without warning or to change rapidly, specific Liaison officers be designated with the project and QPS to address issues as they arise and ensure continuity of knowledge and building of relationships.

Response – CM428

The EIS identified the creation of a designated Project Community Liaison role to address stakeholder consultation throughout the Project. This role will be utilised to liaise with the QPS as suggested.

4.2.18 Whitsunday Regional Council (Jon Gibbons)

4.2.18.1 Soils, Topography and Land Disturbance

Comments – CM429

URS studied the soils of the mine site. An assessment of the possible introduction of irrigation to the area should have been considered to assess the suitability of irrigated cropping.

Response – CM429

Section 3.2.3.1 of the Terms of Reference for the Alpha Coal Project prescribes that the limitations and land suitability classification system should comply with that in Attachment 2 of Land Suitability Assessment Techniques in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland (DME 1995). This guideline only provides land suitability assessment limitations for two land use types:

1. Rainfed broadacre cropping; and
2. Beef cattle grazing.

Consequently, an objective and quantitative assessment into the suitability of these two land uses is possible using the DME 1995 guidelines.

To undertake an equivalent standard of assessment for irrigated cropping requires criteria which, at present, are not available as the same industry accepted standard as the DME 1995 publication. It would be difficult to draw sound conclusions regarding the suitability of the land for irrigated cropping and then compare these findings with other land use suitabilities determined using the DME 1995 guidelines.

Comments – CM430

The construction of the mine will destroy 22,000ha of soil resources. The Proponent has stated that it will attempt to stockpile the topsoils for re-use in the rehabilitation process. The storage and stockpiling of vertosoils will be problematic.

Response – CM430

The Proponent disagrees with this submission. The most appropriate soil management techniques for the site conditions will be included in a detailed Topsoil Management Plan (TMP) prior to commencement of mining.

Comments – CM431

It is anticipated that the establishment of the quarry will require a separate development application process. The information contained in the EIS reports do not have sufficient information regarding the proposed quarry site or how associated environmental impacts would be mitigated and further details of this should be provided as part of the SEIS.

Response – CM431

An off lease quarry will certainly require a separate development application and as not been included in the EIS assessment process for the mine. Quarrying for material on site has however been included in the dust and noise assessments and will be undertaken as a mining related activity under the prescribed EA conditions.

Comments – CM432

The soil mapping over the mine area is quite good, however, the interpretation of the soil information for agricultural suitability was limited to only beef cattle and rain fed cropping. From the soil mapping it is clear that there are some quite good soils in sections of the MLA which would be suitable for irrigated cropping.

Response – CM432

Section 3.2.3.1 of the Terms of Reference for the Alpha Coal Project prescribes that the limitations and land suitability classification system should comply with that in Attachment 2 of Land Suitability Assessment Techniques in the Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland (DME 1995). This guideline only provides land suitability assessment limitations for two land use types:

1. Rainfed broadacre cropping; and
2. Beef cattle grazing.

Consequently, an objective and quantitative assessment into the suitability of these two land uses is possible using the DME 1995 guidelines.

To undertake an equivalent standard of assessment for irrigated cropping requires criteria which, at present, are not available as the same industry accepted standard as the DME 1995 publication. It would be difficult to draw sound conclusions about the suitability of the land for irrigated cropping and then compare these findings with other land use suitabilities determined using the DME 1995 guidelines.

4.2.18.2 Terrestrial Ecology**Comments – CM433**

The mine will require the removal of approximately 5,000 ha of remnant vegetation. The construction of the mine will remove habitat for the protected Squatter Pigeon.

Response – CM433

The Squatter Pigeon (southern) occurs mainly in grassy woodlands and open forests that are dominated by eucalypts. It has also been recorded in modified ecosystems such as sown grasslands with scattered remnant trees, disturbed habitats (i.e. around stockyards, along roads and railways, and around settlements), and remains common in heavily-grazed country north of the Tropic of Capricorn. However the Squatter Pigeon (southern) tends to avoid the treeless pastures, which provide little food. The conservation and long-term survival of the Squatter Pigeon (southern) depends on the maintenance and restoration of the subspecies' grassy woodland habitats and the alleviation of mortality caused by predators, particularly cats and foxes DSEWPC (2010).

Given that extensive areas of habitat suitable for the southern Squatter Pigeon exist on the Project site, and within the local region, it is unlikely that there will be a significant impact on the regional population of the species due to the broad extent of habitat in the local region (EIS Volume 5, Appendix E1, Section 7.2.3).

However, in light of the Squatter Pigeon's ability to inhabit disturbed habitats and their preference for open grassy woodland, the following actions have been recommended (EIS Volume 2, Section 9.1.4.2.5) *Management Strategies for Species of Conservation Significance*.

- Care will be taken reduce the probability of vehicle strikes. When in proximity to vehicles, this bird freezes in an attempt to go unnoticed. This species has commonly been observed on tracks and roadways and in areas of vehicle activity. Project persons operating vehicles in and adjacent to

the Project site will be made aware of the presence of this threatened species and the potential for it to be encountered on vehicle tracks;

- Fauna spotters will conduct a thorough survey of the site prior to vegetation clearing in order to determine the location of Squatter Pigeon (*Geophaps scripta scripta*) nests. If nests are located, translocation of the eggs / young will be conducted by qualified personnel to a suitable nearby habitat;
- The control of pest species that occur on site will be required, including the European Rabbit (*Oryctolagus cuniculus*) and Feral Goat (*Capra hircus*), in areas that are known to be foraging habitat. In addition, measures to assist with control of the Feral Cat (*Felis catus*) and feral Dog (*Canis lupus familiaris*) will be applied. This is specified in EIS Volume 2, Section 9.1.4.2.6 *Management Strategies for Pest Fauna Species*; and
- A section of the staff induction program will be dedicated to raising awareness of this avian species, including photos, descriptions and areas of preferred habitat.

4.2.18.3 Surface Water

Comments – CM434

The mine will require changing the alignment of four creek watercourses. There is little information concerning how this will occur and whether there will be any detrimental environmental impacts from these works.

Response – CM434

The introduction of creek diversions is limited to three creeks; Lagoon Creek, Spring Creek, and Sandy Creek. The creek diversions are designed in accordance with the Queensland Department of Environment and Resource Management (DERM), Regional departmental guideline for watercourse diversions (Water Diversions – Central Queensland Mining Industry) and the ACARP guidelines. The key objective of the guidelines is to minimise any impacts of the proposed diversions.

The design methodology and extent of the diversions are described in detail in the revised SEIS Flooding Technical Report (SEIS Volume 2, Appendix K), complemented by the Geomorphology Technical Report (SEIS Volume 2, Appendix J). The current design, monitoring and mitigation measures described in these reports are believed to address the potential impact issues satisfactorily.

4.2.18.4 Waste

Comments – CM435

The Mine will have a landfill to manage its own construction and domestic waste. The EIS does not contain sufficient information on the landfill construction, except its proposed location.

Response – CM435

EIS Volume 2, Section 16, Figures 16-1 to 16-4 illustrates the anticipated conceptual design of the landfill.

The proposed landfill location is expected to meet the DERM landfill siting criteria in all areas, and future assessments of the site will validate the claim. For any case of site characteristics not meeting DERM siting criteria, the design rehabilitation plans will incorporate measures to manage and mitigate such shortfalls.

Currently, design assumptions consider that landfill excavations will yield adequate volumes of soils suitable for construction, including soils necessary for liner and cap construction. Existing topsoil will require stripping and stockpiling for rehabilitation activities, and other suitable soils will go toward the

landfill liner, daily cover, intermediate cover and final capping. As for most landfills, leachate drainage systems typically require aggregate from external sources. Landfill earthworks designs otherwise endeavour to meet a balance of cut and fill, or to have excess spoil remaining at the end of all earthworks activities; thus, minimising the need to import materials. If *in-situ* soils are not suitable or available for liner construction, designers will typically consider two options:

- Import suitable soils (clays), or
- Use flexible membrane liner (FML)s. FMLs might include synthetic clay, high density polyethylene (HDPE) or a variety of other polyethylene or polyvinyl chloride (PVC) liners.

The basis of choosing a suitable natural soil or FML liner is usually economic, as both types typically meet industry environmental performance standards. Similarly, if suitable aggregates are not available, the design might include imported aggregates or synthetic drainage media chosen on economic grounds.

The proposed landfill phyto-cap system, though different from the well-known clay cap system, is a relatively new landfill design feature that has proven very effective in several areas. Phyto-caps:

- inhibit water infiltration through high rates of evapotranspiration,
- filter and neutralise odour emissions,
- inhibit cap erosion with a healthy vegetation canopy at the surface and dense root mass in the soil;
- provide significant habitat for local fauna; and
- provide a more natural-looking surface with a wide variety of native vegetation (e.g. trees, shrubs, scrub, grasses, etc.).

Phyto capping has become a very popular alternative to conventional clay capping, and is quickly becoming a part of industry standard for landfill capping in Australia and around the world. Professional waste associations, in conjunction with several waste industry leaders and local and State governments, have been promoting and studying the results of phyto-capping across Australia. Results typically indicate equal or superior performance to conventional clay capping systems.

Regardless of the media chosen for liner, leachate drainage or capping, all construction materials will meet DERM design guidelines and industry standards for the construction and operation of solid waste landfills and associated infrastructure.

Until the landfill component of the Project enters the detailed design phase, additional information will not be available.

Comments – CM436

The location of the overburden areas (spoil and rejects) are shown on plans but how these areas will be managed is not clear.

Response – CM436

The location of the out-of-pit overburden emplacement area (including encapsulated coarse reject material) will be adjacent to the initial box-cut area mined in Year 1. It will be adjacent to the low wall of the eastern side of the open pit as described in EIS Volume 2, Section 16.3.1, and EIS Volume 2, Section 2, Figures 2-7 to 2-18.

At the end of Year 1, overburden and coarse reject materials will report back to the open-pit. The coarse reject will be placed in the voids between the dragline spoil, compacted, alkaline amended (if required), and covered with clay and then a 10 m overburden cover.

4.2.18.5 Decommissioning and Rehabilitation

Comments – CM437

The EIS discusses the rehabilitation of the mine in general terms. There is no detailed information concerning exactly how the Proponent will rehabilitate the mine and the final condition the mining area will be returned to.

Response – CM437

The EM Plan provides the frame work for proposed rehabilitation activities for the Alpha Coal Project. Additional management plans e.g. final void management plan (FVMP), erosion and sediment control plan (ESCP), topsoil management plan (TMP), etc will form addenda to the EM Plan and be developed prior to construction of the mine. Plans such as the FVMP will be reviewed and updated as required throughout the life of mine. Another plan that will be developed over the life of the mine is the mines closure plan. Once mining has commenced site and areas of the site become available for rehabilitation, site specific trials will be undertaken to confirm the best landform and rehabilitation methods for the Alpha coal mine site. These activities will inform the rehabilitation criteria and final closure plan.

4.2.18.6 Environmental Management Plan

Comments – CM438

The mine will rely upon the evaporation of the tailing dam to manage the contaminated water. There was little discussion concerning the likelihood of pumping out the tailing dam during periods of heavy rainfall or what methods would be in place to monitor overflowing.

Response – CM438

Water management for the tailings storage facility is described in EIS Volume 5, Appendix J2. In summary, recovery of surface water from the tailings storage facility will be predominantly via a decant system. The tailings decant water dam will act as one of the primary sources of water for the coal handling and preparation plant (CHPP) and will be equipped with a pump and return water pipeline to the CHPP.

The decant system will include decant structures located at low points immediately upstream of the main embankment. The decant structures will consist of concrete rings supported on a reinforced concrete footing. The crest height of the decant structures will be adjusted by adding rings as the level of the tailings in the TSF rises.

Water collected by the decant system is proposed to be removed by an outfall system comprising flexible pipes that discharge into the decant water dam located downstream of the main embankment. The decant discharge pipe work will include flow measurement to monitor flow between the TSF and the decant dam. Design of the pipe work under the embankment and siltation issues will be evaluated at the detailed design stage.

The Waste Management section of the revised EM Plan (SEIS Volume 2, Appendix V, Section 3.6.6) has been amended to include more detail on water management from the tailings storage facility.

4.3 Organisation Respondents

4.3.1 Capricorn Conservation Council (Michael Alan McCabe and Chantelle James)

4.3.1.1 Terrestrial Ecology

Comment – CM439

Of major concern for our organisation is the destruction and loss of habitat associated with the diversion of 9.6km of Lagoon Creek and the loss of x hectares of vegetation which is located in an environmentally relevant area. This environmentally relevant area would forms part of a broader landscape scale wildlife corridor (probably defined in the BAMM mapping and data) for the movement of wildlife across the landscape and more importantly, for the movement of wildlife between the Nature refuge located to the south, and the Cudmore National Park and Resource Reserve located to the north of the project area.

Response – CM439

A section of Lagoon Creek is proposed to be diverted, as the open cut pit and mine infrastructure has been planned along this watercourse. All diversion channels will be designed according to the DERM (2008) Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities.

The proposal to divert Lagoon Creek will enable wildlife to utilise this riparian corridor. No species have been identified as being endemic to Lagoon Creek or of conservational significance (aside from the southern squatter pigeon which primarily inhabits grassland areas). Low mobility species (where even a small reduction in movements can reduce genetic continuity within a population, hence reducing the effective population size) may be negatively affected by the temporary alteration of this watercourse.

Geomorphic condition and riparian health will be monitored upstream, within and downstream of the Lagoon Creek diversion. Monitoring will occur throughout all stages of the Project, including pre-construction (to establish baseline conditions), construction, operation and rehabilitation. Locations upstream, midstream and downstream will be monitored biannually, to determine natural seasonal fluctuations and to assess impacts on watercourse morphology due to the project. Monitoring associated with the creek diversion will occur until the final rehabilitation phase has proven successful and all performance criteria are met.

A qualitative assessment regarding impacts on creek morphology, aquatics flora and aquatic fauna has been provided in EIS Volume 5, Appendix E2 Section 7.2 (Aquatic Ecology Assessment) and EIS Volume 5, Appendix E1, Section 8 (Terrestrial Flora and Fauna Assessment).

Comment – CM440

Reference is made that the endangered RE 10.3.25 was not identified as a mappable area on the project site. As noted in the comment below for section 9.1.2.2.1, no information is provided as to the how, what and why it is not mappable.

Response – CM440

Details of the non-mappable community are provided in EIS Volume 5, Appendix E1, Section 6.1.2.2 of the Terrestrial Flora and Fauna report and EIS Volume 2, Section 9.1.3.1.2 of the Terrestrial Ecology. These sections present the methods employed to map these units, as well as the context of the mappable unit ground-truthing that was conducted in the field. Note that the mappable areas

adhere to the Queensland Herbarium's *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al., 2005).

Comment – CM441

It is stated in this section that "The ERE 10.3.25 identified by DERM as being on the Project site was not identified as a mappable community on the site. Therefore, regional integrity of RE 10.3.25 will remain unaffected by the Project."

*No information is given to describe what a 'mappable community' is and what size it is before it is mappable; the wording suggests that the *Eremophila mitchelli* community may be on the project site but that it is not at a mappable scale. The statement is vague and provides a conclusion without clarity as to how this came about.*

Response – CM441

A mappable community is determined by the scale to which the site has been sampled. At a 1:25,000 scale, the minimum size a vegetation pattern must be is 0.25 ha or 25 m for linear features. RE 10.3.25 was not distinguishable at this scale. The total remnant extent of RE 10.3.25 (in 2005) is 23,175 ha. If RE 10.3.25 occurs in patches smaller than the minimum mappable area and is cleared for the Project, this would potentially affect < 0.001% of the total remnant extent.

4.3.1.2 Aquatic Ecology and Stygofauna**Comment – CM442**

It appears that the Proponent has only considered the ANZECC water quality guidelines and has not considered the surface water results in relation to more local trigger values that have been adopted and are available.

Response – CM442

The ANZECC guidelines along with water quality data collected from the site and historical data from the nearby Native Companion Creek were used in the assessment of the site water quality criteria. This information has been updated as part of the SEIS utilising additional sampling that has occurred since the EIS. This information is presented in the surface water quality report SEIS Volume 2, Appendix M. The Proponent will continue to sample the sites watercourses to gain a better understanding of the locations water quality characteristics.

Comment – CM443

It is proposed to divert Lagoon Creek by 300 m width and for a length of 9.6 km. It is also proposed to divert Sandy and Spring Creeks. Given that the riparian habitat assessment provided in section 10 (Table 10-3) provides the results of assessment to all be of good and moderate value, further detail and information into the justification of the removal of this habitat should be provided. Furthermore, the Proponent fails to identify any mitigation measures, such as replacing and increasing the number of hectares and length of riparian vegetation proposed to be removed, through revegetation programs with indigenous species.

Response – CM443

Where possible the removal of any riparian vegetation will be avoided. In the case of the stream diversions described in the EIS and SEIS there will be unavoidable impact on reaches of these watercourses. Any impact on these watercourses will be undertaken in accordance with the DERM

imposed conditions. The design of these diversions has been undertaken to mirror as closely as possible the natural stream characteristics (SEIS Volume 2, Appendix J). It is proposed as part of the diversion stabilisation works to replace and replicate as close as practical the stream riparian vegetation. The establishment of this habitat will obviously take time to mature.

Comment – CM444

The Proponent fails to identify any cumulative impacts (from this project and other projects) associated with the diversion of streams and rivers across the Burdekin Basin and state of Queensland and how this project contributes to the cumulative impacts.

Response – CM444

The EIS has, where possible addressed the concerns of cumulative impacts relating to this Project and others across the region. The EIS cumulative impact assessment is provided in EIS Volume 4, Appendix G. The limiting factor in the cumulative assessment process for the position of the Proponent is the limited information available to undertake a meaningful assessment. It is considered that government is better placed with knowledge across all current and proposed projects to undertake such an assessment.

4.3.2 Construction, Forestry, Mining & Energy Union (Jim Valery)

4.3.2.1 Groundwater

Comment – CM445

We ask the Coordinator General to offset the loss of bore water for local residences and local farmers by requiring the mining operation to contribute portable water to both Alpha and Jericho at a rate equal to their usage of bore water. Water is an essential ingredient to all and one we must protect for future generations, especially in our regional communities. Consideration should also be given to providing the communities with water supplies for the life of operations as a means of providing assistance for the extra demand.

Response – CM445

Mine dewatering is envisaged to impact on neighbouring groundwater users (Figure 4-2). Groundwater monitoring and modelling will be used to assess impacts on neighbouring groundwater users.

The Proponent has made a make-good commitment. The make-good commitment, to be mutually agreeable to the Proponent and the affected groundwater user, is envisaged to include:

- Details regarding the baseline data compiled during the current bore survey of groundwater use;
- Access to groundwater monitoring;
- Groundwater level data trends and comparison to Environmental Authority condition trigger values (SEIS Volume 2, Appendix V, Section 3.4.7.2);
- Details regarding the groundwater monitoring network and dewatering scheme(s);
- A commitment that all groundwater monitoring will be conducted and assessed by a suitably qualified independent expert;
- Provision for the repair or replacement of damaged bores or water supply infrastructure, if the Proponent is deemed to have caused the damage;
- The replacement of diminished groundwater, same quality or better, and volume;

- A subsidy to cover additional costs associated with:
 - Larger pumps;
 - Deeper depths;
 - Additional water related infrastructure;
 - Power costs; and
 - Spare parts
- Financial provisions are to be made to ensure future costs are covered;
- A dispute resolution system; and
- In the absence of agreement the provision for arbitration to settle the terms of agreement.

The make-good commitment is to ensure that existing groundwater users will obtain water from an alternative source at no additional cost to them. It is not envisaged to supply towns and neighbouring communities outside the mines zone of influence.

4.3.2.2 Air Quality

Comment – CM446

We note with concern that future predictions are based on conditions encountered between June the 7th 2010 and September the 13th 2010. From reading it appears that ongoing monitoring will occur, however in areas determined based on the findings of the report occurring during a 3 month period. We believe there needs to be further ongoing monitoring and call on the Coordinator General to impose a far more extensive continuous monitoring programme.

There is a requirement to understand the accumulative effects of all operations. While the Alpha Coal Project is the initial operation to present an EIS, we are aware of at least two (2) other major operations that will be looking at operations being established in nearby areas.

Response – CM446

The Air Quality Assessment was prepared between 7 June and 13 September 2010, and as such the impact assessment was based on the information available at that time. Dust deposition monitoring was detailed in EIS Volume 5, Appendix H, Section 2.2.2, and was collected from December 2008 through to January 2010. The assessment considered all years of operation of the mine, with the distribution of emissions predicted for years 5, 10, 15, 20, 25 and 30 modelled against the real meteorology that occurred in year 2009.

It is recognised that there will be development of other mines within the area (such as Waratah Coal Mine and Kevin's Corner Coal Mine). Currently there is insufficient available information regarding other proposed Projects in the area, as such an assessment of cumulative impacts would be required when more information is available in order to more accurately estimate the likely future air quality environment.

Predicted concentrations of ambient particulates and rates of dust deposition from dispersion modelling for the Alpha Coal project has been presented both as project-only i.e. incremental and project plus estimates of background levels. The total estimate for the ground-level concentration of pollutants has then been compared against ambient air criteria.

Refinement of the estimate of 'background' levels may be warranted should sufficient additional information such as site-specific monitoring data become available.

As a result of the predicted exceedences, an operational monitoring program (SEIS Volume 2 Appendix P, Section 7) will be used to assess the accuracy of these predictions by monitoring real time concentrations. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedences at off-site locations. Please refer to Submission Response CM64 above for more detail regarding the monitoring program.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality. Please also refer to Submission Response CM64 above for more detail regarding the monitoring program.

Comment – CM447

We also again note that the initial study occurred over a three (3) month period which doesn't allow enough information to present predictions with any degree of certainty. URS Australia indicate (page 42 of Air Quality Assessment report) they take no responsibilities for any inaccuracies or omissions. They also state that their work was based on generally accepted practices and standards at the time the report was presented.

While we reached an out of court agreement to have real time monitoring established around the community of Moranbah, this would not yet be seen by the Industry as generally accepted practices. We say, as industry stakeholders, that it should be and we will continue to seek this standard, at all times reserving our rights to utilise any means necessary to ensure the health, safety and wellbeing of our members and the communities potentially impacted on. We say that as an industry it is time we want certainty in ensuring the health, safety and wellbeing of all is ensured, not merely guessing what they are. We say that realtime monitoring as found in recommendation 1 is the only way to achieve certainty both now and in the future.

Response – CM447

The Air Quality Assessment was prepared between 7 June and 13 September 2010, and as such the impact assessment was based on the project information available at that time. Dust deposition monitoring was detailed in EIS Volume 5, Appendix H, Section 2.2.2, and was collected from December 2008 through to January 2010. The assessment considered all years of operation of the mine, with the distribution of emissions predicted for years 5, 10, 15, 20, 25 and 30 modelled against the real meteorology that occurred in year 2009.

URS Australia (URS) was commissioned to prepare the Air Quality Assessment for the Alpha Coal Project on behalf of the Proponent. The limitations presented in Section 8 of the report (EIS Volume 5, Appendix H) are standard professional practise and are used to limit URS's potential liability and apply only to the work undertaken by URS, not to the broader project being proposed by the Proponent. Statements regarding accepted practices and standards pertain to the method by which the air quality assessment was undertaken, and not to the Project being proposed by the Proponent.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program, and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

The Proponent is committed to the control of dust emissions and will consider further controls to minimise dust generation and dispersion if necessary. The installation of on-site real time monitoring is one of the options that would be considered if monitoring shows that further controls are necessary.

Comment – CM448

There is a requirement to have a response plan to ensure that if conditions reach an unacceptable level there is a process to deal with them. Coal companies are well versed on the principals of developing a Principal Hazard Management Plan and associated TARP's.

Response – CM448

As a result of the predicted exceedences from the updated dispersion modelling in the SEIS, an operational monitoring program will be used to assess the accuracy of these predictions by monitoring real time concentrations. If these prove that the dispersion model predictions are correct, further operational and or engineering controls will be considered to prevent exceedances at off-site locations.

The Environmental Management Plan for the Alpha Coal Project has been updated and is attached as SEIS Volume 2, Appendix V. The updates include the ambient monitoring program, and measurable indicators linked to this program to assist in protecting or enhancing each of the environmental values associated with the impacts on air quality.

The Proponent is committed to the control of dust emissions and will consider further controls including the use of TARPs and a Principal Hazard Management Plan to manage and minimise dust generation and dispersion if necessary. The installation of on-site real time monitoring is one of the options that would be considered if monitoring shows that further controls are necessary.

Comment – CM449

Methodology of assessment for air quality needs to be finalised and approval should be subject to an agreed assessment. In essence this would be a conditional approval that became unconditional upon the implementation of a system.

Response – CM449

This submission is noted by the Proponent.

4.3.2.3 Greenhouse Gas Emissions and Climate Change**Comment – CM450**

Greenhouse Gas Emissions and Climate Change is an important area our industry must consider to ensure the long term viability. The impacts that will be felt in the industry as well as the Queensland and Australian economies dictates a need for a combined effort to find alternative processes to keep coal as a viable resource. We call on the Coordinator General to impose a levy to be used for clean coal research based on the output of the mine(s).

Response – CM450

This is a decision for the Coordinator General.

Comment – CM451

We call on the Coordinator General to impose a levy based on total production to go into a fund to research based on clean coal technology. We say that this levy should also be matched by the Federal and State Governments.

Response – CM451

This is a decision for the Coordinator General.

4.3.2.4 Noise and Vibration**Comment – CM452**

While the EIS finds that noise levels will not be an impact due to heavily vegetated landscape and proximity of communities to the proposed mine, the report does acknowledge that there needs to be consideration given for the proposed accommodation centre. We call on the Coordinator General to place monitoring requirements in all areas of the proposed accommodation centres as well as an appeal mechanism to allow communities and/or homesteads who believe they are suffering from unacceptable noise levels. The appeal mechanism needs to have the ability for a binding decision from a third party should the need arise.

Response – CM452

The assessment found that with appropriate mitigation measures in place, satisfactory internal noise levels are achievable within the accommodation village buildings. As set out in the EM Plan (SEIS Volume 2, Appendix V, Section 3.5) a noise monitoring program will be developed, and the monitoring locations to be determined would be expected to include the representative locations at accommodation village. The EM Plan also states that the Proponent will develop a complaints handling protocol to respond to any complaints in relation to noise, vibration or overpressure and investigate these, where necessary.

Comment – CM453

The EIS has proposed some limitation on undertaking blasting activities as a way to limit noise and vibration from these activities. We also note that due to the current use of the proposed mine site, there was no background vibration monitoring undertaken to determine current levels as they were believed to be non-existent. We therefore call on the Coordinator General to determine an appropriate appeal mechanism to deal with vibration issues that may arise as a result of mine site activities.

Response – CM453

It is understood that no background vibration monitoring has been carried out in the vicinity of the subject site. It would be of limited use to monitor vibration levels in rural areas in the absence of any significant vibration generating sources.

Notwithstanding this, based calculations derived from empirical formulae, with consideration to the proposed maximum capacity blasts, peak particle velocity (PPV) is predicted to not exceed magnitudes in the order of 0.2 mm/s at the closest sensitive receptor locations beyond the mining lease boundary.

Vibrations of this magnitude are substantially lower than those set out in the recognised EPA blasting guideline.

Similarly based calculations derived from empirical formulae, with consideration to the proposed maximum capacity blasts, peak overpressure levels are predicted to not exceed the most stringent

overpressure criterion at the closest sensitive receptor locations beyond the mining lease boundary as set out in the EPA blasting guideline.

With respect to noise and vibration, the assessment has indicated that the proposed blasting schedule may be undertaken in full compliance with the established criteria, without risk of damage to the receptor properties or undue community annoyance.

4.3.2.5 Transport

Comment – CM454

We believe that all efforts need to occur to keep heavy machinery and equipment being transported on public roads. We call on the Coordinator General to impose a requirement to conduct risk assessments to ensure large and oversized loads being transported on public roadways are kept at a minimum to assist with the longevity of the roadways but more importantly the safety of all road users.

Response – CM454

Alternate methods of transport to site (i.e. rail) are being considered by the Proponent, however for the purposes of defining a worst-case scenario for traffic impacts, these movements are assumed to occur via road. It is agreed that further use of the rail network will reduce the traffic impacts - particularly of commercial vehicles.

Comment – CM455

We do not believe it would be appropriate to wait for further investigation and assessment before determining the infrastructure contributions required to offset the cost to the Queensland taxpayer for maintenance and establishment of Queensland roadways.

Response – CM455

The pavement assessment of the report has been reviewed and more detail and analysis is provided in the updated TIA document (SEIS Volume 2, Appendix U, Section 5).

Comment – CM456

The Alpha Coal EIS indicated that the company will look at rail options for the transportation of heavy equipment and machinery upon the rail line being commissioned and we applaud the company for looking at this as an option. While applauding the company we believe it is such an important issue there needs to be a transparent risk assessment to look at this issue and the safest possible option should then be utilised in transportation.

Response – CM456

Alternate methods of transport to site (i.e. rail) are being considered by the Proponent, however for the purposes of defining a worst-case scenario for traffic impacts, these movements are assumed to occur via road. It is agreed that further use of the rail network will reduce the traffic impacts - particularly of commercial vehicles. It should be noted that the utilisation of the rail for delivery of goods to the site is also dependent on the availability of infrastructure to allow for the handling of those goods at both the mine site and at Abbot Point.

Comment – CM457

There will be considerable costs to both the State Government and The Barcaldine Regional Council arising out of maintenance and new requirements in public roadways due to the proposed operation and we believe that these costs need to be determined as part of the approval.

Response – CM457

The pavement assessment of the report has been reviewed and more detail and analysis is provided in the updated TIA document (SEIS Volume 2, Appendix U, Section 5).

4.3.2.6 Social

Comment – CM458

With the community of Alpha 50 km away from the proposed mine, we believe there should be consideration given to family style accommodation. This EIS lacks any consideration for family style accommodation being an alternative to FIFO/DIDO camp accommodation and we call on the Coordinator General to ensure that employees are not denied the choice to live as a family unit.

Response – CM458

It is not the intention of the Proponent to develop any family style accommodation on the mine site. A FIFO/BIBO/DIDO service will be provided to mine personnel to transport them from their home communities to the mine site for their shift rotation. This strategy was developed as a result of the following factors:

- Location of the Project;
- Proximity of the Project to Alpha;
- Community safety from increased vehicle movements if the workforce was located in Alpha;
- Workforce safety commuting to and from the Project;
- Workforce trends:
 - Workforce desire to stay in home communities; and
 - Competition for workers allowing workers to stay in home communities.
- Population migration trend to larger centres and the coast; and
- Limited infrastructure, facilities and services in the area.

It is not the Proponent's preference to have the workforce on a FIFO/BIBO/DIDO rotation, but rather a reality of the current mining environment. It is less of a risk, and financially less expensive for the Proponent to relocate the workforce to the area. Current employment and migration trends suggest this is not a reasonable or possible accommodation strategy.

Personnel who choose to relocate to Alpha will be monitored to determine the level of impact to the community. This will be the case for the rest of the regional council as well. Stage 2 of the SIMP will examine benchmarks for population growth in the region in consultation with key stakeholders.

Comment – CM459

The community of Alpha does not have a full time doctor and it also has a hospital that has infrastructure to provide care for current population levels. We call on the Coordinator General to impose requirements for Hancock Coal to provide financial assistance to the Barcaldine Regional Council to assist in sourcing a resident doctor, and when required a locum.

Response – CM459

The provision of health care across Australia is the responsibility of the State. The Project will provide a 24-hour on-site clinic to service the needs of all mine personnel throughout the shift rotations limiting the potential impact of the Project on current health services. A commercial contract to provide

permanent emergency services in Alpha will also be considered by the Proponent in consultation with Queensland Ambulance Service (QAS).

The Proponent is currently developing the Stage 2 of the SIMP as identified in the EIS. This Stage will examine the details of social impact management. Developing benchmarks for population growth in the region will be included in Stage 2 of the SIMP. This will examine several issues including health.

In addition, it is anticipated that a community development fund will be established. This fund may be used to enhance social infrastructure and service development programs in a sustainable manner in the region.

Comment – CM460

Hancock Prospecting Pty Ltd make housing and infrastructure donations to upgrade and ensure sufficient accommodation for police, fire-fighters, ambulance, hospital and other medical facilities to cater for the increased call on their services. This is to take account of multiplier effects that is widely used within the industry.

Response – CM460

The Project will provide on-site accommodation for the entire workforce. This accommodation will be self-sufficient, providing recreational facilities and activities, social services, medical support and catering services. However, the Project will support personnel who choose to relocate to the local area and live. The Proponent will also consider providing incentives including lifestyle packages and subsidised accommodation in Alpha to encourage this.

The provision of housing for government employees is the responsibility of the State; however the Proponent will provide support to Barcaldine Regional Council efforts to prepare land for development and to obtain funding required to develop social infrastructure and supporting services. The Proponent will also maintain ongoing consultation with key stakeholders to discuss Project issues through the Hancock Consultative Committee (HCC) and the Community Liaison role.

In addition, Stage 2 of the SIMP will establish population benchmarks. Along with these benchmarks, management and mitigation strategies will be developed for the necessary support structures for the community.

Comment – CM461

We call on the Coordinator General to make it a provision that up to 50% of the workforce be given the opportunity to reside in the local region as a family unit should they chose to. We say that no one has the right to dictate that a family has no ability to live as a family unit.

Response – CM461

The Proponent will support workers who choose to reside locally and would consider providing incentives to do so, dependent on community considerations. This is a matter of personal choice for the workforce. The Proponent has developed the current accommodation strategy based on the realities of the current labour market and the regional area. The Proponent is not limiting relocation to the region; the Project has developed the current strategy based on the realities of current mining in Queensland.

The current limiting factors for Alpha identified in the EIS will reduce the likelihood that such a large proportion of workers will choose to do so. Further given the potential that there may be as many as

five projects located nearby, the cumulative impacts of such a high proportion of the workforce residing locally will be significant.

Comment – CM462

There is also a requirement to look at the ongoing social issues associated with commuting workers. Professor Kerry Carrington, Queensland University of Technology, has released a portion of the independent study into regional communities and the associated social problems that occur, with emphasis given to remote communities that are heavily involved in FIFO/BIBO commuting workforces. A number of the more damning findings into these practices include:

- Qld location: rate of violence more than twice state average.*
- A senior policeman responsible for the local command complained that when they had to close the camp's wet mess (bar facility in camps) due to social disorder, the violence then shifted to the town's pubs.*
- There is surprisingly very little independent research on the social impact of mining industry on communities (there is however many mining funded research quoted but hardly independent).*

Response – CM462

The report by Kerry Carrington does not actually identify the location of the communities studied however indicated that the primary one, named Pembleton (pseudonym) for the purpose of the study is in WA. The study balanced out the violence to some extent by highlighting that higher rates of anti-social behaviour, alcohol consumption and violence are common in rural communities, identifying a direct correlation between remoteness and levels of violence. This view considered that the reason behind much of the violence was a need to reconfirm social hierarchy in an environment where residents feel that the mine workers do not have true frontier masculinity, which residents value. Despite this, the high earning capacity of the non-resident workers was seen as a threat. The result of this is a disruption to the balance of power or hierarchy requiring violence as a remedy.

The GBESIS undertaken by Economic Associates on behalf of the Department of Employment, Economic Development and Innovation (DEEDI) indicated that based on the evidence available, the rates of violence, alcohol and other crimes was lower in the eastern part of the study region (which included a high number of non-resident workers) than in the western region where there were very few non-resident workers. The only exception was breaches of domestic violence orders which were higher in the east in 2 of the 5 study years; however there was no evidence of an upward trend. The study also found that the impact of non-resident workers on host communities was significantly reduced when the workers were housed in single person quarters (SPQ) on-site than in short-term accommodation in the community. These findings support the assertion that violence and anti-social behaviour is actually related more to the remoteness of the community and a need to reassert one's rural masculinity and reinforce social hierarchies rather than with non-resident worker populations.

The mine site is remotely located (~50 km) from Alpha township. There will be restrictions on worker movements off-site during shift rotations. There will also be a robust program of alcohol and drugs testing making it difficult for personnel to engage in anti-social behaviour.

Comment – CM463

Hancock Coal be required to provide initial financial assistance to ensure that communities of Alpha and Jericho (and others deemed appropriate in further deliberations) infrastructure in health (see 12 for doctor and hospital), emergency services, law and social welfare are able to adequately service the communities as well as the accommodation centre.

When providing a real choice we need to look at the assistance the infrastructure of the communities need. This infrastructure needs to be able to sustain the population of the community (including potential growth) as well as the surrounding homesteads. The proposed accommodation centre will have implications on the social infrastructure of the community in a similar way to the homesteads, however in far greater numbers.

Response – CM463

The EIS Project Description accommodates the workforce outside the community, and sufficient distance from Alpha to reduce the potential for adverse social impacts to very unlikely. As a result the EIS does not include upgrades to Alpha community infrastructure or services because they will not be directly impacted; however, the Stage 2 of the SIMP will examine benchmarks for population growth in the region and mitigation and management strategies for such growth.

The Proponent has indicated its commitment to making a contribution to the development of local communities, and has provided sponsorship to several initiatives throughout the EIS process. It is anticipated that a community development fund will be established for ongoing community development initiatives outside the SIMP, which manages impacts specifically.

The Proponent is also committed to providing ongoing support to local council efforts to obtain additional funding to support community infrastructure development as outlined in the EIS.

4.3.2.7 Health and Safety**Comment – CM464**

Consideration needs to be given to the auxiliary fire brigade's current capabilities and whether the State Operations Directorate and Greater Alarm Response System (GARS) fire fighting procedures were considered. We call on the Coordinator General to release the necessary details to ensure that fire fighting capabilities are sufficient to combat any outbreak which may threaten the proposed camp accommodation arrangements (or subsequent changes to allow for family style accommodation).

Response – CM464

It was determined that the Proponent will provide all resources, training and equipment for first response capability for foreseeable incidents. However the local rural fire brigade will be relied upon for a coordinated response to wild fire. In this case, the Proponent will supplement the existing resources, capability and equipment of the rural fire brigade.

The camp arrangements on site and the site emergency response plans will include the potential risk of wild fire impacting on the workers accommodation village.

4.3.2.8 Economics**Comment – CM465**

A project of this nature will have some major benefits to the Queensland and Australian economies however the Barcaldine Regional Council area, while gaining a number of benefits will largely miss out on the economic benefits through employees buying locally.

Response – CM465

The Proponent will develop a local procurement and recruitment policy in an effort to maximise the potential economic benefits to the Barcaldine Regional Council communities. The local procurement policy will provide opportunities for local businesses to service the mine – these opportunities may include camp management and support services, transportation (BIBO services and freight), provision of camp supplies, mine equipment servicing, and others. The local procurement policy will favour local businesses, providing them greater opportunity to service the mine and therefore share in the economic benefits.

Similarly, a local recruitment policy will also be developed favouring residents of the local and regional area over FIFO workers from further away. The Proponent will also consider providing support and/or incentives to personnel who choose to relocate to the Alpha area. These personnel will also have the benefit of being able to return to their home at the end of each day, rather than being away from their family throughout their shift rotation. These support/incentives may include the provision of a lifestyle package or other incentives.

Despite these efforts to ensure as much of the economic benefit can stay in the local area as possible, it is important to recognise that how and where people spend their money is based on personal choice. Consultations with the general public and businesses in Alpha, Jericho and Barcaldine have indicated that currently most Alpha and Jericho residents travel to a larger centre such as Emerald, Rockhampton or to a lesser extent Brisbane to do the bulk of their shopping. While Alpha has grocer and some smaller specialty stores, choice is limited and many products and merchandise are not available. Residents tend to combine their shopping in these larger centres with regular trips to access government and other services. As a result the majority of residents' purchases are made outside of the community already.

4.3.3 Environmental Defenders Office of Northern Queensland Inc. and Environmental Defenders Office (QLD) Inc. (Patrick Pearlman and Jo-Anne Bragg, respectively)

4.3.3.1 Geology

Comment – CM466

The relatively shallow surface depth to coal and near horizontal seam gradient (< 1°) of the deposit at the Project are ideal for open cut mining extraction techniques.

Underground mining was considered as a resource extraction methodology; however, the seam geometry and stripping ratio are not conducive to maximum resource recovery relative to the open cut mining method. Thus the option with the greatest resource recovery utilising proven techniques and technologies was chosen as the best long-term option for the proposed Project, enabling maximum input into the local economy and community.

Closer review of the EIS suggests that this statement is misleading.

Response – CM466

The details regarding the selection of the mining method were detailed in the Alpha Coal Project Pre-Feasibility Study (HPPL, 2009). Section 6.2 Mine Design, detailed the approach taken to determine the optimum mining method, this included:

- An assessment of the general physical characteristics of the deposit using a geology model;
- The adoption of production objectives and deposit characteristics to aid in determining the appropriate mining method;

- The development of a preliminary conceptual mining model of the deposit;
- An analysis of the underlying deposit economics; and
- The determination of an appropriate pit shell and scheduling sequence.

Deposit Assessment

The following observations can be made about the Alpha deposit based upon the characteristics of the deposit and its environment:

- The Alpha coal is large, containing an estimated 1.8 Bt of coal. It is also flat lying, geologically and structurally simple and situated within almost featureless topography;
- The main geographical challenges to mining on the planned scale appear to be surface water management and the provision of services sufficient to support the required large equipment and infrastructure facilities;
- The location of Lagoon Creek restricts the development around the sub-crop and limit the placement of infrastructure and the early development of steady-state dumping operations;
- Although the in situ strip ratios appear low (largely less than 7 bank cubic metres per tonne in the areas covered by resource drilling), the thick blanket of Tertiary material that covers the entire tenement area must be penetrated before any coal is reached regardless of where mining commences on the sub-crops;
- The planned scale of production demands the adoption of large scale mining equipment;
- In order to maintain production rates at the desired level, it will probably be necessary to develop mining faces along a substantial sub-crop length in order to fit the required number of mining fleets; and
- The targeted resource consists of a number of relatively thin coal plies which will need to be aggregated into workable mining sections thick enough to allow bulk mining for large scale equipment. Given the scale of production, a balance will need to be struck between equipment size and coal recovery to maintain productivity without introducing large coal losses or heavy dilution.

Technical Considerations

The main technical considerations were:

- The scale of production demands large equipment in both waste removal and coal mining;
- The physical geometry of the deposit is ideal for the application of draglines;
- The nature of most of the Tertiary overburden suggests that a major proportion may be amenable to excavation by BWE. However, there are geotechnical uncertainties regarding the distribution of the harder materials and their likely effect upon the capacity and reliability of these machines and also the handle ability of the clayey materials;
- Because of the scale of the operation, the mining footprint will be very large and activities will be widely spread. Haulage distances for coal mining will be substantial unless multiple ROM stations are established;
- However, the very flat dip means that overburden backfilling should present no problem from an early stage in the schedule and that haulage distances for waste are unlikely to be excessive once steady-state operations are reached. This favours the application of draglines and truck-shovel operations;

- The relatively thin coal seams suggest that the progress of the coal faces at a production rate of 30 Mtpa will be very rapid. This will require a large number of individual faces, which mitigates against the use of crusher-conveyors for ROM coal transport from the mining face.

Based on the deposit assessment and technical considerations, draglines with truck-shovel pre-strip have been selected for the removal of primary overburden because they provide a system which is well proven in this application and very robust with respect to the uncertainties of the deposit.

Comment – CM467

No discussion of mitigation measures is actually provided - only identification of the problems associated with acid and metalliferous drainage.

Response – CM467

It is assumed that this submission is related to EIS Volume 2, Section 16 based on the previous submissions by the same respondent (above).

The technical report compiled by SRK Consulting regarding the geochemical characterisation of the Alpha Coal Project (Mine) (SRK, 2010) included several recommendations regarding the management of potential acid generating units. These recommendations include:

- Segregation and isolation of the carbonaceous material, which may have a capacity to generate acid;
- Reduce water contact with these lithologies;
- Reduce the rate of oxidation;
- Coal tailings management to control formation and release of acid drainage; and
- Precautions to prevent water flow or ponding on the waste dumps.

In addition, it is considered that lime may be added to the coarse discard, when returned to the open voids. This is to increase the neutralising capacity and reduce formation of acid during backfill (A. Robertson, RGS Environmental Pty Ltd, pers. comm. 15.02.2011).

4.3.3.2 Groundwater

Comment – CM468

.....the aquifer associated with the proposed mine will be, essentially removed, and that large amounts of groundwater are expected to flow into the active mine works....

Such disturbance of the groundwater regime associated with the proposed mine is another factor that should be considered in approving the proposed Alpha Mine Project, or at the least the proposed method of mining sought for the project.

Response – CM468

Noted.

4.3.3.3 Greenhouse Gas Emissions and Climate Change

Comment – CM469

The EIS and related documents are wholly inadequate in relation to understanding and assessing the impacts of GHG emissions associated with the mining and burning of the huge amount of coal that the Alpha Mine is expected to produce. The EIS and related documents do not sufficiently identify the amount of the GHG emissions that the proposed project will produce overall, or the associated effects

of those emissions on the Great Barrier Reef and listed threatened species, communities and migratory species.

Response – CM469

Under the NGER legislation (Dept of Climate Change, 2009), boundaries have been established to assist in determining emissions attributable to a project. In terms of Emissions boundaries, three scopes have been identified:

- Scope 1 (also referred to as direct) emissions are greenhouse gas emissions which occur as a direct result of activities at a facility. They are emissions over which the entity has a high level of control.
- Scope 2 (also referred to as energy indirect) emissions cover greenhouse gas emissions from the generation of purchased electricity, steam, heating or cooling consumed by a facility. Scope 2 emissions are indirect emissions that entities can easily measure and significantly influence through energy efficiency measures.
- Scope 3 covers all indirect emissions that are not included in Scope 2. They are a consequence of the activities of the facility, but occur at sources or facilities not owned or controlled by the entity. NGER legislation does not cover reporting of scope 3 emissions.

NGER legislation does not require the Alpha Coal Project to report its Scope 3 emissions for several reasons. In the legislation, the emissions generated by burning the coal to produce electricity (the Projects Scope 3 emissions) are assigned to the end user and become their Scope 2 emissions. As such, the use of the coal within Australia will be captured by the national greenhouse gas accounting system. If the annual Scope 3 emissions as a result of the mine were to be calculated and reported against the national greenhouse accounting system, it would effectively be double counting because these emissions are already represented.

Regarding the request for assessment of climate change impacts as a result of the greenhouse gas emissions from this Project, the TOR for the Alpha Project requires an inventory to be prepared of projected annual emissions in CO₂ equivalent terms, an estimate of emissions resulting from proposed Project activities, and for greenhouse gas abatement measures to be proposed and assessed. Since public display of the EIS, the Project Description has been modified, with an updated assessment of greenhouse gas emissions provided in SEIS Volume 2, Appendix Q. A greenhouse gas section of the EM Plan (Section V.3.3.4 and commitments in Section V.3.3.9) has been prepared detailing the measures the Proponent will implement to manage their greenhouse gas emissions on the Alpha Coal Project.

4.3.4 Mackay Conservation Group (Patricia Julien)

4.3.4.1 Soils, Topography and Land Disturbance

Comment – CM470

Twelve regional ecosystems will be disturbed by the Alpha coal mine. DERM describes threatening processes that include clearing; risk of salinity, scalding and erosion; difficulty in successful rehabilitation; and inappropriate burning regimes (Table 5). Five REs to be cleared are in alluvial plains, alluvial fans or wetlands indicating that they flood regularly. Six REs are very vulnerable to erosion. One of those RE 10.3.28 will have a disturbance area of 7,534.5 ha and RE 10.7.7 has a disturbance area of 1,011 ha. The Hancock Alpha mines will be located in the flood plain of the headwaters of the Belyando River. Some 22,000 ha of regional ecosystems and 9,017.2 ha of non-remnant grassland will be disturbed for the Alpha Mine project alone. Clearing/disturbing such a huge

area will inevitably substantially increase downstream flows and erosion especially when levees and water holding capacities of wastewater impoundments are breached and overtopped.

Response – CM470

The most appropriate site specific erosion and sediment controls and surface water management strategy will be implemented to reduce downstream impact. The EM Plan in EIS Volume 5, Appendix P, Section P.3.7.6.1 (page 116 – Erosion and Sediment Control) states that “A detailed ESCP (Erosion & Sediment Control Plan) will be developed prior to the commencement of construction works”. This EM Plan section outlines the principle objectives of the proposed ESCP and states that the ESC activities will be carried out over the life of the Project, including construction, operations and during rehabilitation and closure phases.

4.3.4.2 Surface Water

Comment – CM471

The huge scale and high risk location of the mine, and its susceptibility to significant erosion practically ensures that there will be failures of the creek diversion and levee systems built to control flood waters and that there will be a high risk of downstream contamination from the Alpha coal mine over its expected lifetime of 30 years.

Response – CM471

The Alpha Coal Project site is comparable in proposed disturbance area to other sites already in existence in other Queensland coal basins. Appropriate engineering methodology will enable the creek diversions and associated levees to be safe and robust and will stand up to the elements for the life of mine and beyond.

All diversion works will be designed in accordance with the requirements of the Queensland Department of Environment and Resource Management (DERM), Central West Water Management and Use Regional Guideline for Watercourse Diversions. Each of the individual diversions will include a low flow channel, high flow channel and flood levy as part of its design. The flood levy will be designed to contain an event with a return period of 3,000 years. This is considered conservative and is in accordance with engineering best practice standards.

A thorough assessment of the hydraulic parameters for each of the diversions has been undertaken and will be revised as part of the Supplementary EIS. Any areas that are identified as being outside acceptable levels will receive mitigation measures such as rock armouring or the like.

There will be an ongoing monitoring program set up which will assess the state of the diversions and waterways within the mine lease area in accordance with the specified DERM guidelines. This will include but not be limited to, annual assessments of diversions including bank condition, bed condition, stability of structures, and vegetation condition. If any weakness in the system is identified measures will be taken to rectify the situation immediately.

This process is in accordance with the current DERM guidelines and is considered current engineering base practice. It is considered very unlikely under these criteria for the system to fail and cause downstream contamination.

It should however be noted that, similar to the current natural scenario, there will be seasonal erosion, movement of sediment and silt deposition within the system, which will also take place in the diversions. This process contributes to the natural equilibrium of the creek system and should not be discouraged.

4.3.4.3 Greenhouse Gas Emissions and Climate Change

Comment – CM472

Mega coal mines should not proceed in the Galilee Basin until their greenhouse gas emissions can be managed.

Response – CM472

The Coordinator-General manages the environmental assessment of large infrastructure projects on behalf of the Queensland Government. As per that process, a greenhouse gas section of the EM Plan (SEIS Volume 2, Appendix V, Section 3.3.4) has been prepared detailing the measures the Proponent will implement to manage their greenhouse gas emissions on the Alpha Coal Project.

4.3.5 Walsh Accounting (Lionel Walsh)

4.3.5.1 Introduction

Comment – CM473

The project is wholly located within Barcaldine Regional Council area and will be assessed against the Jericho Shire Planning Scheme. The Project will require significant community infrastructure to be built within the Council area.

Response – CM473

The Project is proposing an on-site accommodation village to accommodate its workforce and does not intend to house workers in neighbouring communities, including Alpha; however, the Proponent will support personnel who choose to relocate to the area to be closer to their place of employment. Fatigue management is a serious issue for the Project due to the proximity to the community of Alpha (~50 km). The Proponent will likely adopt an industry standard 14 hour working day including travel time. Therefore as each day shift will be 12-hours, only personnel who live within one hour drive (~100 km) of the mine site will be permitted to return to home each day. This will be assessed on a case-by-case basis as indicated in the SIA.

The SIMP Stage 2 will document established benchmarks around population growth in local communities. These benchmarks will be accompanied with a mitigation/management strategy and agreed responsibilities to enable proactive and targeted responses to the potential impact on social infrastructure of population growth in the local area.

The on-site accommodation village will provide the necessary facilities and support services to ensure the worker population does not impact negatively on accessibility of community infrastructure by increasing demand.

The Proponent is committed to providing ongoing support to community development in the host region. It is anticipated that a fund will be established by the Proponent for this purpose. This fund will be administered through a working group consisting of key stakeholders including Barcaldine Regional Council and community representatives who will meet to assess where the money is best spent as well as to monitor the impact of this spending on community infrastructure and services. Consideration will be given to whether this fund will be better funded by the Proponent and associated purely with the Alpha Coal Project, or if moneys donated by this Project should be combined with funds from other proponents into one Alpha Development Fund or similar. The Proponent will explore these opportunities with key stakeholders. The development fund is a value-add initiative and not a mitigation and management strategy and was therefore not included in the SIA, which examines impacts and management.

4.3.5.2 Climate

Comment – CM474

The EIS states that "the Proponent is working closely with the Barcaldine Regional Council to ensure the needs of the local community are met through the provision of housing and infrastructure developments in the region". We suggest that there is some monetary contribution from Hancock Prospecting Pty Ltd to ensure that the necessary infrastructure is provided. Necessary infrastructure includes essential infrastructure such as roads, water, power etc. but also includes social infrastructure such as parks, cultural facilities etc.'

Response – CM474

A community development fund will be considered by the Project as a means of corporate social responsibility outside the need to mitigate impacts. The SIMP will assist in the management of social impacts and the community development fund is a value-add strategy not an element of the Project Description.

As the Project will provide onsite accommodation for mine personnel and contractors, it is not anticipated to have a significant impact on community infrastructure, and the SIMP will be developed to identify population benchmarks and required actions to support and manage the associated impacts on Alpha and other BRC communities.

4.3.5.3 Social

Comment – CM475

The EIS assumes that 15% of the workforce will be sourced from Barcaldine Regional Council area (with only 1% from the Alpha area). This assumes that 14% will originate from other communities in the BRC area. This implies that there will be significant infrastructure and social requirements for other communities as well as Alpha. We suggest that the Social impact Management Plan incorporate the whole Barcaldine Regional Council area to determine the requirements to meet the employment demand across the whole council area.

Response – CM475

This assumption is incorrect, and was identified in the SIA as a PIFU assumption which was not fully qualified and therefore not fully assessed. Discussions with PIFU indicated they had examined the likelihood of population growth associated with the development of all four proposed projects around the Alpha community in the Galilee Basin. The SIA based the assessment on the Project Description, which indicated approximately 10% of the workforce could potentially be sourced from the region, which included BRC, IRC and CHRC (and also regions to the south and west though not directly identified).

The SIMP will examine BRC as a whole, though the primary focus will be on the Alpha area. This is because of likely migration changes as well as traffic and logistics requirements coming from the east. Alpha is the furthest east community within BRC and is also situated on the Capricorn Highway between Emerald and Barcaldine.