

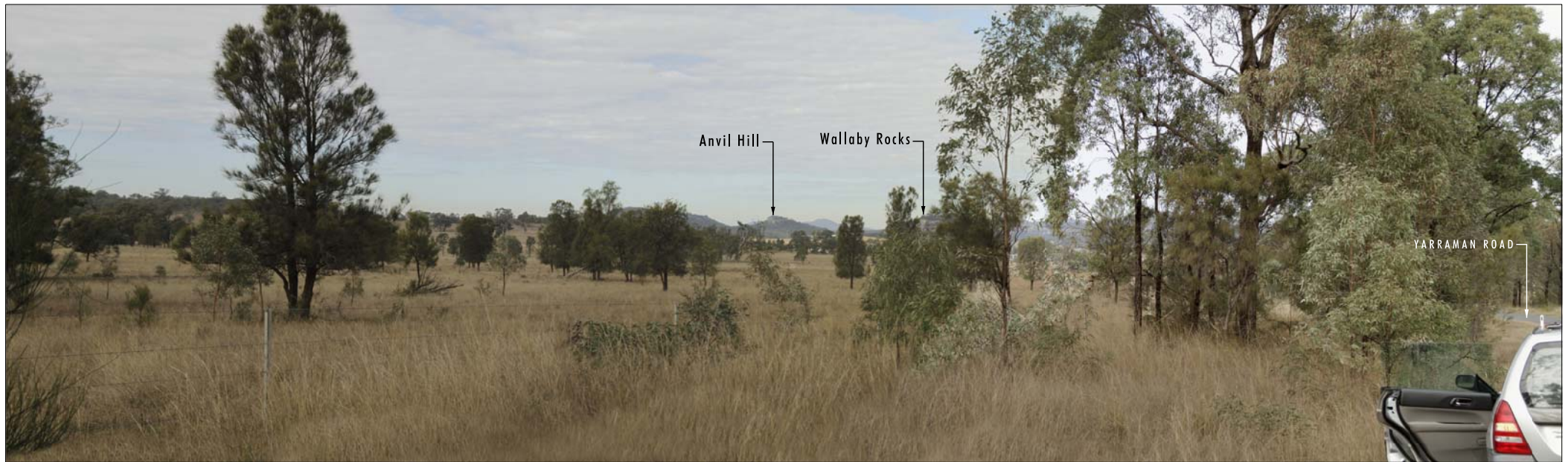


PLATE 4.2

View from Yarraman Road facing south-east



PLATE 4.3
View north along Yarraman Road
illustrating roadside vegetation



PLATE 4.4
View south along Yarraman Road
illustrating roadside vegetation

for the existing ETL will be relinquished and a new easement will be created over the route of the ETL relocation. The new easement will have a width of 70 metres along its length.

The visual amenity of the ETL relocation is discussed in Appendix B3 of the EA, and **Section 4.1** of this Response to Submissions provides and further visual impact assessment work has been completed as part of this Response to Submissions. This work included photomontages, radial analyses and photographs. Refer to previous responses to submissions in this section of the Response to Submissions report.

4.2 Ecology

4.2.1 Wildlife Corridors

Submission

The following submissions are related to the potential impacts on the Great Eastern Ranges Initiative and habitat/wildlife corridors within the proposed project area and surrounds

Removal of woodland in proposed wildlife corridor and loss of habitat

Proposed wildlife corridor should not be impeded by human infrastructure which stops migration of species; impacting on species death and reduction in numbers

Removal of more woodland, destruction of threatened woodland habitat, destruction of important native woodland and proposed wildlife corridor for species migration

Narrower proposed wildlife corridor

The Greater Eastern Ranges Project sponsored by the Department of Environment, Climate Change and Water is a visionary project connecting preserved and remnant woodland across New South Wales. The Hunter Valley is the most extensive “gap” in the project’s corridor. A cumulative assessment of the land use conflict between open cut coal mining and power generation (and attendant buffers and offsets) on the one hand, with preserved and remnant woodland on the other should be undertaken and a re-connectivity strategy developed in conjunction with the Hunter Central Rivers Catchment Management Authority and landholders.

Removal of woodland in a narrow section of the Great Eastern Ranges Initiative. Reduction of the area leading to a greater threat on a greater number of species

Threaten integrity of the Great Eastern Ranges Initiative

Response

Removal of Woodland/Natural Vegetation

It is acknowledged that the proposed ETL relocation will require the removal of native vegetation. The following four vegetation communities occur within the Assessment Areas for the proposed ETL relocation:

- Ironbark Woodland Complex (8.8 hectares);
- Slaty Box Woodland (1.0 hectares);
- Rough-barked Apple Woodland (0.5 hectares); and
- Disturbed Grassland (25.7 hectares).

Of the approximately 14.9 hectares of vegetation to be removed, 31 per cent comprises the Disturbed Grassland, where substantial clearing and existing disturbances have already reduced the biodiversity value of this community. The remaining 69 per cent of vegetation to be removed is higher quality woodland vegetation comprising three communities, each of which has legislative significance.

Approximately 8.8 hectares of Ironbark Woodland Complex and 1.0 hectare of the Slaty Box Woodland will be impacted as a result of the construction and maintenance of the ETL. Both of these communities are of conservation significance, as they are both consistent with listed TECs.

Approximately 0.5 hectares of the Rough-barked Apple Woodland will be impacted as a result of the construction and maintenance of the ETL. This community is consistent with the Hunter Floodplain Red Gum Woodland EEC.

Biodiversity Offset Strategy

In order to address residual impacts of the project on threatened species, endangered populations, TECs and their habitats, a Biodiversity Offset Strategy has been developed.

This Strategy focuses on the provision of a formal offset area within the former 'Nipol' property (referred to as the Additional Biodiversity Offset Area), which lies to the south of and adjoins the existing Mangoola Coal Mine Biodiversity Offset Area. The Biodiversity Offset Strategy provides for the protection of this Additional Biodiversity Offset Area, as well as ongoing management actions to ensure its ecological integrity in the long term.

The Additional Biodiversity Offset Area covers 30 hectares, which run along the western boundary of the former 'Nipol' property, thus providing a valuable corridor function within a generally fragmented landscape. The Additional Biodiversity Offset Area is primarily vegetated, and its protection will ensure existing vegetated connectivity from the heavily vegetated existing Conservation Offset Area in the north to the vegetated habitats of the Myambat Military Area. This will provide additional security to the existing corridor function of this area, which will assist in preserving movement corridors for flora and fauna in the local area. This improved security will in turn assist in securing this connectivity on a regional basis.

Cumulative Impacts with Mangoola Coal Project

It should also be noted that the Mangoola Coal Mine was approved on the basis of impacts to 2238 hectares of vegetation, comprising 1304 hectares of treed vegetation and 934 hectares of grassland. From this approved disturbance, came the requirement to provide an offset covering a total of 2950 hectares (comprising of 1904 hectares of existing approved Biodiversity Offset Areas and an additional area of 1046 hectares (an additional offsetting commitment from Project Approval (currently being finalised)).

The proposed Biodiversity Offset Areas have been formalised, and the additional 1046 hectares have been included within the corridors which have now been finalised. These additional corridor areas cover a total of 1164 hectares, comprising:

- one northern corridor (942 hectares in size); and
- one western corridor (222 hectares in size).

Table 4.1 identifies the cumulative impact of the approved Mangoola Coal Mine, as well as the proposed ETL relocation on the vegetation of the Project Area. This table also identifies the cumulative offsetting commitments from both of these projects.

This table illustrates that a total offset package of 3014 hectares has been offered (2800 hectares of which is currently a formal commitment) as a formal biodiversity offset to address the impacts of the Mangoola Coal Mine, and its associated requirements.

Table 4.1 – Cumulative Vegetation Impacts from Approved Mangoola Coal Project and Proposed ETL Relocation Project

Vegetation Community	Within Project Area (ha)	Subject to Approved Impact (ha)	Proposed for Impact as Result of Current Project (ha)	Cumulative Impact of Mangoola Coal Project and Current Project (ha)	Amount in Existing Approved Biodiversity Offset Areas (ha)	Additional Offsetting Commitment from Project Approval (Currently being Finalised) (ha)	Amount in Additional Biodiversity Offset Areas (ha)	Total Proposed Biodiversity Offsetting (ha)
Woodland Formation	2125	1251	9.8	1260.8	874	522	51.7	1447.7
Slaty Box Woodland	527	245	1	246	282	0	30.7	312.7
Ironbark Woodland Complex	1393	886	8.8	894.8	507	0	21	528
Bulloak Woodland	100	100	0	100	0.4	0	0	0.4
Sheltered Grey Gum Woodland	79	0	0	0	79	0	0	79
Red Ash Sheltered Forest	0.7	0	0	0	0.7	0	0	0.7
Drooping Sheoak Woodland	2	0.8	0	0.8	1	0	0	1
Mixed Species Revegetation/Plantation	0.8	0	0	0	0.8	0	0	0.8
Paperbark Woodland	23	19	0	19	3	0	0	3
Riparian and Floodplain Formation	84	53	0.5	53.5	31	0	1.2	32.2
Exotic Rushland	0.2	0	0	0	0.2	0	0	0.2
Swamp Oak Riparian Forest	21	1	0	1	20	0	0	20
River Oak Riparian Forest	0.6	0	0	0	0.6	0	0	0.6
Rough-barked Apple Woodland	11	0.3	0.5	0.8	11	0	0	11
Forest Red Gum Riparian Woodland	51	51	0	51	0		1.2	1.2
Shrubland Formation	127	0.2	0	0.2	127	0	0	127
Tall Mixed Shrubland Complex	52	0	0	0	52	0	0	52
Weeping Myall Woodland	1	0.1	0	0.1	0.9	0	0	0.9
Coast Myall Exposed Woodland	74	0.2	0	0.2	74	0	0	74
Grassland Formation	1806	934	4.6	938.6	872	524	11.1	1407.1
Disturbed Grassland	1806	934	4.6	938.6	872	524	11.1	1407.1
TOTAL (ha)	4142	2238	14.9	2252.9	1904.0	1046.0	64.0	3014.0

Great Eastern Ranges Initiative/Corridors

The Great Eastern Ranges Initiative (the Initiative) is a concept developed by the OEH to maintain and improve long-term connectivity conservation of mountain ecosystems running the length of eastern Australia. The primary goal of the Initiative is 'A connected NSW conservation corridor contributing to healthy ecosystems and healthy people'. There is currently no requirement to assess a project against the concept area relating to this initiative.

The approved Mangoola Coal Mine lies within the Initiative corridor boundary (with the exception of approximately 32 hectares), and impacts on approximately 2251 hectares of the nominal boundary for this conceptual corridor. The proposed ETL relocation impacts on an additional 14.9 hectares of vegetation within the corridor (a total of 26.6 hectares impacted by ETL relocation plus 11.7 hectares mine plan modifications). The Biodiversity Offset Strategy proposed for the currently proposed modifications and existing approved Mangoola Coal Mine projects has provided for the offsetting of a total of 3132 hectares⁷ in response to impacting a total of approximately 2265 hectares⁸. The offset areas surround the vast majority of the impacted areas, and also provide for the immediate protection and pending revegetation of substantial corridors from the Mangoola Coal Mine to conserved areas to the north and west.

In addition, Xstrata Coal NSW has pledged \$1.5 million over the next three years to help The Wybong Catchment Health Improvement Project address priority natural resource management issues in the Wybong catchment.

The Hunter Central Rivers Catchment Management Authority Catchment Action Plan (HCRCA CAP) views the Wybong Catchment as a priority saline catchment area and has identified several important areas requiring programs to ensure the health and sustainability of the catchment.

Corridor Value

The Additional Biodiversity Offset Area proposed as part of the EA for the mine plan modifications and ETL relocation provides valuable corridor function within a generally fragmented landscape. The Additional Biodiversity Offset Area is primarily vegetated, and its protection will ensure existing vegetated connectivity from the heavily vegetated existing Conservation Offset Area in the north to the vegetated habitats of the Myambat Military Area. This will provide additional security to the existing corridor function of this area, which will assist in preserving movement corridors for flora and fauna in the local area. This improved security will, in turn assist in guaranteeing this connectivity on a regional basis and add to the long term value of the Initiative, meeting the primary goal of the Initiative.

On a larger scale, the Additional Biodiversity Offset Area will integrate with the existing Biodiversity Offset Area by way of adding to the existing corridor value of these offsets. The Project Approval for the Mangoola Coal Mine requires that two external corridors (one to the north and one to the west of the Ecological Assessment Study Area), be established as part of the Biodiversity Offset Strategy. In order to address this requirement, a number of corridor options were investigated, and issues such as location, strategic connectivity, existing vegetation, land ownership and corridor width were considered in identifying the preferred options.

⁷ Includes 1904 hectares existing approved Biodiversity Offset Areas, 64 hectares Additional Biodiversity Offset Areas, 222 hectares Western Corridor Offsets, 942 hectares Northern Corridor Offsets.

⁸ Impacts from ETL relocation 14.9 hectares, 11.7 hectares mine plan modifications, 2238 hectares approved mine.

These corridors are to form part of the Biodiversity Offset Areas for the Mangoola Coal Mine, by way of providing vegetated egress from the approved project disturbance area in front of the advancing mine, as well as to provide a recolonisation pathway following rehabilitation of the post-mining landscape. To this end, the two external corridors will connect the project area with nearby secure habitats within either the conservation or Crown lands systems.

The locations of these external corridors are currently proposed as part of the ROMP (Umwelt 2011), and they will be subject to revegetation works (where necessary) to provide a continuous vegetated connectivity throughout the local area in the long term. The location of the proposed Additional Biodiversity Offset Area will complement this corridor package in the local area, by way of securing existing vegetated cover in a southern direction from the bottom of the existing Biodiversity Offset Areas into the Myambat Military Area. This will add to the security of flora and fauna passage throughout the local area in the long term.

In addition, progressively and at the completion of mining, those areas impacted will be rehabilitated, therefore contributing to the corridor of protected and managed land, flora and fauna.

The alternative to the proposed offset and corridor measures planned by Mangoola Coal, is the proposed offset land that would have remained privately owned, would likely have been continued to be used for grazing purposes and the potential to create in the long term a total area of 1034 hectares of vegetation connected to the established corridor areas, would have been lost.

Submission

ETL route chosen to avoid Wollemi National Park, what about OUR National Park?

Response

The nearest national park, Wollemi National Park (World Heritage Property), is approximately 10 kilometres to the south of the assessment areas for the ETL relocation and will not be impacted. Nevertheless, it should be noted that ETLs are located in National Parks where such routes cannot be avoided in order to service the electricity supply needs of the community.

The impact of the ETL on the general locality has been thoroughly assessed in the EA and this Response to Submissions.

Submissions

The current ETL location and the associated easement required protects from any mining disturbance, the largest population of *Prasophyllum sp. Wybong* (C. Phelps ORG 5269) (a leek orchid) Critically Endangered species scheduled under the Federal Environmental Protection and Biodiversity Conservation Act (EPBC). The relocation of the ETL will allow Xstrata to disturb this population. There is no reference to this population in the EA even though Xstrata is well aware of its location nor has there been a referral to the Federal Minister for Environment to seek consent to destroy this population and its habitat.

Response

Prasophyllum sp. Wybong (C. Phelps ORG 5269) was not recorded within the proposed modification areas or the proposed disturbance areas for the ETL relocation, despite surveys being completed within the suitable flowering season and when nearby records were known to be flowering. Despite this, the Ecological Assessment, as part of the EA (Appendix B1 of the EA), acknowledged the potential habitat for this species present in these proposed

disturbance areas (as a result of the proximity of other records in similar habitats), and assessed the potential impacts on this species accordingly.

An EPBC referral was made for the Anvil Hill Project to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) in 2007 (2007/3228); submitted and assessed prior to the listing of the *Prasophyllum* sp. Wybong species (C. Phelps ORG 5269) (effective listing date of 13/11/2009⁹; conservation advice approved by Minister on 20 October 2009). This referral assessed the Proposed Disturbance Area which represents the proposed footprint for the Project. It noted that all land within this boundary (2238 hectares, including the existing ETL easement) may be directly impacted or disturbed in some way due to activities associated with the operations, such as mining, infrastructure or construction, at some time during the 21 year approval period. Notification stated that the referred project is 'not a controlled action'.

An EPBC Referral for the proposed mine plan modification and ETL relocation was made by Xstrata Mangoola Pty Limited and TransGrid to the Department of Sustainability, Environment, Water, Population and Communities on 4 August 2010 (2010/5607). The referral included reference to, and assessment of, the occurrence of *Prasophyllum* sp. Wybong (C. Phelps ORG 5269).

This referral did not include the approved project area as it had previously been deemed to 'not be a controlled action'. The areas assessed include those outside the approved disturbance area, that had previously been deemed not a controlled action, and as such the referral related to:

ETL relocation easement to north (1.9 kilometres) and south (3.4 kilometres) located outside the approved disturbance area, and associated access tracks; and

- increases to the approved project disturbance boundary of the Mangoola Coal Mine for the purposes of:
 - mining the coal resource (8.4 hectares to the north-east of the approved disturbance area);
 - a raw water dam which will inundate land at full supply (1.7 hectares to the east of the approved disturbance area); and
 - four small areas with a total area of 1.6 hectares (to the south-east of the approved disturbance area) where rail loop drainage designs have a minor effect on the overall footprint of the rail loop.

The referral states 'The proposed action will not impact upon any known records of the leek orchid (*Prasophyllum* sp. Wybong (C. Phelps ORG 5269)) (Critically Endangered). This species has been recorded within the approved project disturbance area, and has the potential to occur within the habitats of the ETL Assessment Areas and Proposed Modification Areas. Surveys completed during its flowering period (coinciding with that of tricolour diuris (*Diuris tricolor*)) have not identified the presence of this species within the ETL Assessment Areas or Proposed Modification Areas'.

The DSEWPC provided notification on 20 September 2010 that the referred project is 'not a controlled action'.

⁹ As per DSEWPC website.

4.2.2 Endangered Species

Submissions

The Xstrata proposed route of the ETL also takes it in proximity to another Federal Environmental Protection and Biodiversity Conservation Act scheduled species *Commersonia rosea* (Endangered EPBC). The EA also does not mention this species nor does it clearly indicate whether the ETL relocation and resulting required clearing of the 70 metre easement will impact on this species.

The relocation of the ETL will also destroy the largest known population of *Pomaderris Queenslandica* which is scheduled Endangered under the Threatened Species and Conservations Act NSW. Again the EA has missed this relevant information. This population is inside the existing area of disturbance and will disappear with the current mine plan approval, but we seek the Minister take this opportunity modify the mine disturbance area to protect the *Pomaderris Queenslandica* population.

Response

This species was not recorded during field surveys completed as part of the proposed project. Despite this, *Commersonia rosea* was addressed in the Ecological Assessment for the proposed project. This species was recognised as having been recorded in the Biodiversity Offset Areas as part of the Anvil Hill Project (Umwelt 2006a), and this single location of the species as replicated in Figure 3.2 of the Ecological Assessment as part of the EA for the ETL relocation. Initial impact assessment completed for this species (Appendix C of Umwelt 2010b) stated:

This species typically is found in skeletal soils in escarpment areas. There is very limited potential for this species to occur in the Assessment Areas as it does not encompass the nearby escarpment habitats. There is no potential for the project to have a significant impact on this species.

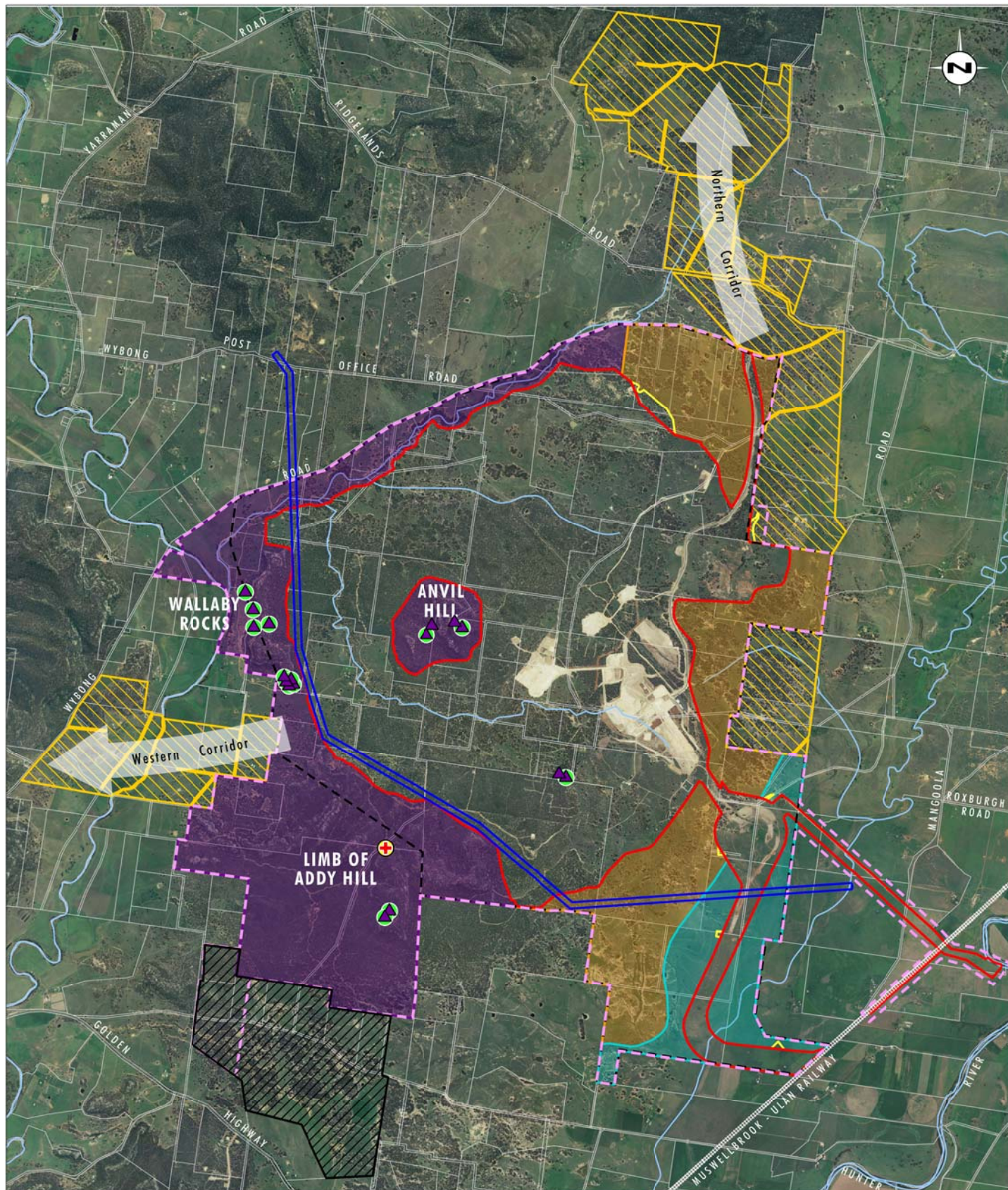
This was primarily because there was no potential for the ETL relocation to impact on the escarpment areas containing this known single record, throughout the construction or operational phases. As such, this species was not considered further by way of an Assessment of Significance (EPA Act) or an Assessment of Significance (EPBC Act).

Figure 4.8 illustrates the location of recorded findings of the *Commersonia rosea*.

Pomaderris queenslandica was not recorded during field surveys completed as part of the proposed ETL relocation or modifications. Despite this, *Pomaderris queenslandica* was, indeed addressed in the Ecological Assessment for the ETL relocation. Initial impact assessment completed for this species (Appendix C of Umwelt 2010b) stated:

This species was not recorded within the Assessment Areas, and the habitats present are not likely to support this species. There is no potential for the project to have a significant impact on this species.

Pomaderris queenslandica was identified on 13 occasions within the project area for the Anvil Hill Project (Umwelt 2006a). From these known records, 12 now fall within the Biodiversity Offset Areas for the Mangoola Coal Mine (refer Figure 3.2 of the Ecological Assessment for the Proposed Relocation of 500kV Electricity Transmission Line, Mangoola Coal (Umwelt 2010b), and thus will not be impacted as a result of the proposed modifications. The last record, lies within the approved project disturbance area for the Mangoola Coal Mine, thus is approved for removal. It will, however be subject to the same requirement from the ROMP that requires consideration of opportunities to salvage,



Source: Dept. of Lands (2003), Xstrata Mangoola (2010)

0 0.5 1.0 2.5 km

Legend

- | | | |
|--|---|--|
| Approved Project Disturbance Boundary | Mining Lease 1626 Boundary | Former Nipol Property |
| Modified Project Disturbance Boundary | Project Boundary | Proposed 500kV ETL Relocation |
| Habitat Enhancement Offset Area | Sustainable Agriculture Offset Area | + <i>Commersonia rosea</i> (2010) |
| Conservation Offset Area | Refined Proposed Corridor (12/03/2010) | ▲ <i>Pomaderris queenslandica</i> (2010) |
| | | ● <i>Commersonia rosea</i> (2006) |
| | | ● <i>Pomaderris queenslandica</i> (2006) |

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FIGURE 4.8

Occurrence of *Commersonia rosea*
and *Pomaderris queenslandica*

transplant and/or propagate threatened flora species from the approved project disturbance area.

As such, this species was not considered further by way of an Assessment of Significance (EPA Act).

Figure 4.8 illustrates the location of recorded findings of the *Pomaderris queenslandica*.

In addition to this lack of potential impact on known records for both of these species, the ROMP (Umwelt, 2011c) contains detailed requirements for the completion of pre-clearing surveys designed to minimise the impact of clearing activities on native species (both threatened and non-threatened). The detailed pre-clearing procedures and forms are designed to record all significant ecological features including (but not limited to) threatened flora species such as *Commersonia rosea* and *Pomaderris queenslandica*. This procedure will be implemented in all works required for the proposed modifications, and this will ensure that any threatened flora species will be appropriately surveyed for, prior to clearing (seasonally, if they have restricted identification potential). If threatened flora species are recorded within the ETL relocation corridor, it may be possible to retain these and protect them from impact by fencing and monitoring them. Smaller shrubs and low vegetation is able to be maintained underneath these areas, and, in such case, plants could be clearly marked, fenced and monitored to ensure their persistence beneath the ETL. Where such retention of threatened flora species is not possible (such as within the proposed modification areas) opportunities to salvage, transplant and/or propagate these species (as per the ROMP and current consent condition for the Mangoola Coal Mine) will be investigated. Such salvage and translocation of threatened flora species is already occurring as part of the implementation of the ROMP at Mangoola Coal Mine.

4.3 Traffic and Transport

Submission

Home is located on Wybong Road and the traffic flow has increased dramatically. Dangerous to enter and exit our property during times of peak flow especially in trucks and when towing trailers. This will increase during construction of ETL. Object to having to reconstruct property entrance to cater for circumstances beyond our control.

Response

As part of the EA for the ETL relocation, a traffic impact assessment was completed. Results indicate that for the relocation of the ETL, given the minor increase in traffic numbers and the implementation of the mitigation and management measures (outlined below), no significant impact on traffic is expected as a result of the construction phase of the ETL relocation. The traffic assessment also concluded that the increase in traffic volumes is unlikely to cause any change to the road network's performance or affect road safety.

Submission

Increased traffic and in turn increased noise has occurred along Wybong Rd - increased light vehicles, vehicles up to 6 tonne with escorts and over sized/wide loads. Wide loads come through the road in 'shut down' mode - results in having to wait for 20/30 mins to use the public road. Inconvenience will continue.

Response

As noted above, traffic assessment results indicate that for the ETL relocation no significant impact from traffic is expected. As part of the EA for the ETL relocation a Construction Noise Assessment was completed (Appendix B5 of the EA). The assessment takes into account all proposed construction plant, including heavy vehicles, with noise levels from ETL relocation daytime construction activities calculated and results compared to noise management levels derived from the NSW DECCW's Interim Construction Noise Guideline.

The noise assessment for the project outlines that the majority of noise emissions associated with the project occur close to the proposed ETL with predicted noise from construction exceeding criteria at some residences at either end of the ETL relocation when works are conducted outside standard construction hours. **Section 4.7** of this Response to Submissions report provides a response related to construction hours including proposed management measures.

Noise impact management strategies will be incorporated into an ETL CEMP.

With respect to road closures, some temporary short-term closures will impact on traffic along Wybong Road and Wybong Post Office Road during decommissioning of the existing ETL and construction of the ETL relocation. These closures are required to allow for the stringing and removal of the ETL cables across both these roads. The closures are expected to last for up to 20 minutes per cable run over a period of four days per road crossing (there are 26 cables on the ETL in total, 24 large 2 small). Hurdles of timber uprights/crossbeam configuration are intended to be utilised to ensure 6-8 metre clearance over roads for the stringing of cables, with traffic control and authority to stop traffic if required and reduced speeds. This also applies for dismantling, although hurdles are less effective when lowering conductors and each phase will be cut and removed from the road hurdle each time a phase is lowered so as much risk as possible is mitigated. Expected road closure during decommissioning of the existing ETL is for 15-20 minutes each time this occurs.

In addition to the movement of oversize/overmass vehicles used for deliveries (tower materials transport) and equipment being transported for clearing and earthmoving and tower construction.

The impact of these closures should be minimal with less than 10 vehicles being made to wait up to 20 minutes. The impact will be managed by:

- closing the road during off peak periods only;
- informing drivers in advance of closure; and
- minimising the number of closures.

As previously noted, in an attempt to ameliorate the inconvenience of road closures, Mangoola Coal advertises road closures or disruptions and distributes notifications, e.g. flyers, to the local community. Advertisements and notifications include dates and times, proposed works and what traffic controls will be in place during the disruption period.

Submission

Increased traffic increases risk of accidents due to fatigue, lack of patience and unstable road surface.

Response

Given the minor increase in traffic numbers for the ETL project and the implementation of the proposed mitigation measures (refer to **Section 4.7** of this Response to Submissions); the additional traffic assessment conducted (Parsons Brinkerhoff, 2011) concluded that no significant impact on traffic is expected as a result of the construction of the ETL relocation. The traffic assessment also concluded that the increase in traffic volumes is unlikely to cause any change to the road network's performance or affect road safety.

As part of the traffic assessment completed for the ETL relocation an assessment was completed against Australian road safety standards.

In addition, Mangoola Coal in accordance with their current Project Approval (06-0014) conditions, have upgraded a number of intersections in the project area and as discussed in **Section 3.2** of this Response to Submissions report have undertaken substantial upgrade works on Wybong Road. Implementation of these conditions (as outlined below), substantially improves the quality of roads in vicinity of the project area.

50. The Proponent shall upgrade:

- a) the Bengalla Link Road intersections with Wybong Road and Denman Road, to the satisfaction of the RTA and Council, in conjunction with the construction of the Bengalla Link Road extension and prior to carrying out any development on site apart from the defined early works;
- b) Wybong Road and its intersection with the mine access road to the satisfaction of Council, prior to carrying out any development on site apart from the defined early works;
- c) the Golden Highway/Wybong Road intersection to the satisfaction of the RTA, prior to carrying out any development on site apart from the defined early works, unless otherwise agreed by the Director-General;
- d) lighting and signposting of the relevant intersections to the satisfaction of the RTA/Council, in conjunction with the relevant intersection upgrades; and
- e) all bus stops affected by the proposal to the satisfaction of Council, prior to carrying out any development on site apart from the defined early works.

50A. The Proponent shall undertake the following in relation to the section of Wybong Road between the Golden Highway and the mine access road:

- a) undertake a road condition survey, in consultation with Council and to the satisfaction of the Director-General, prior to carrying out any development on site;
- b) maintain the road to the satisfaction of Council, from the commencement of project-related works until the Bengalla Link Road extension is commissioned;
- c) undertake a second road condition survey, in consultation with Council and to the satisfaction of the Director-General, following the completion and commissioning of the Bengalla Link Road extension; and
- d) following approval of the second road condition survey, repair the road to at least the condition determined by the initial survey, to the satisfaction of Council.

Submission

Assumption that Yarraman and Wybong Post Office Roads will act as detours for all traffic when Xstrata choose; no consultation with Wybong Community and road users on these matters or the capacity of Wybong Rd to handle increased traffic.

Response

No detours are proposed as part of the ETL relocation. Temporary, short-term closures will occur (refer previous response in this section of the Response to Submissions Report) which details road closures required. As part of the EA for the ETL relocation, a traffic impact assessment was completed (refer Appendix A5 of the EA). Results indicate that, given the minor increase in traffic numbers and the implementation of the mitigation and management measures (outlined below), no significant impact on traffic is expected as a result of the construction of the ETL relocation project.

With respect to road closures, the Mangoola Coal Project Construction Traffic Management Plan¹⁰ states 'Local communities will be kept informed about the proposed construction works and in particular the moving work zone on Wybong Road East and the proposed mine access route via the Mangoola Coal website'. The CTMP will be amended as per the revised Statement of Commitments for the ETL Relocation.

In addition, Mangoola Coal advertises road closures or disruptions and distributes notifications, e.g. flyers, to the local community. Advertisements and notifications include dates and times, proposed works and what traffic controls will be in place during the disruption period.

Submission

Inaccurate traffic modelling.

Response

The EA for the ETL relocation was completed as required by legislation in accordance with the DGRs and the relevant legislation, guidelines, policies. Modelling techniques applied are those which are accepted by the RTA.

Submission

It is unclear as to whether TransGrid will be working under the same guidelines as Xstrata Mangoola Project Approval Conditions, in relation to Traffic Management.

We would like to ascertain that under no conditions associated construction traffic will access the ETL area via Mangoola Rd, especially from the Denman end.

Response

An ETL CEMP will be developed and submitted to MSC and the NSW RTA for approval prior to the commencement of the ETL relocation (refer Section 9.2 of the EA, Statement of Commitments and **Section 2.1.2** of this Response to Submissions Report (submission from the NSW Roads and Traffic Authority)).

Traffic access for the construction of the ETL relocation will be as per the current Project Approval including:

52. No project related traffic shall use Reedy Creek Road, Mangoola Road (apart from that section forming part of Construction Route 1 during construction of the project pipeline), Roxburgh Road or Castlerock Road to get to or from the site, except in an emergency to avoid the loss of lives, property and/or to prevent environmental harm.

¹⁰ The Community Consultative Committee was consulted on the Construction Traffic Management Plan and MSC informed of the outcome.

Note: This condition does not apply to any employees that may reside on Reedy Creek Road, Mangoola Road, Roxburgh Road or Castlerock Road, or the infrequent use of the roads for consultation, environmental monitoring, and inspection and maintenance of nearby infrastructure.

4.4 Ecologically Sustainable Development

Submission

Concern regarding the way in which mining companies treat the land and local community with such contempt.

Concern over the future of the country and what we are leaving for our grandchildren and great grandchildren.

Response

Mangoola Coal is cognisant of the requirement to meet the principles of ESD and aim to meet these principles as part of project planning and development. The EP&A Act aims to encourage ESD within NSW. The Projects require approval from the Minister under Part 3A of the EP&A Act. As such, the Minister needs to be satisfied that Projects are consistent with the principles of ESD.

To justify the ETL relocation with regard to the ESD principles, the benefits of the project in an environmental and socio-economic context should outweigh any negative impacts, encompassing the following:

- the precautionary principle;
- inter-generational equity;
- conservation of biological diversity; and
- valuation and pricing of resources.

Therefore, as part of the EA for the ETL relocation, an assessment of the ETL relocation in relation to the principles of ESD was completed. Section 5.5 of the EA details how the principles of ecological sustainable development have been considered for the project.

On considering the balance of environment and community impacts and the manner in which they will be managed, it is considered that it would be reasonable for the Minister to conclude that the ETL relocation could be undertaken having a significant impact on the environment and community while maximising economic resource recovery and that the State, regional and local benefits of the project outweigh the impacts.

4.5 Electro Magnetic Fields

Submission

Failure to properly and fully evaluate the effect of EMF on bat metabolism and body temperature regulation.

The electromagnetic fields will disrupt locally nesting Bats (Endangered and Vulnerable EPBC Act and TSC Act) that nest in the rock caves on Wallaby Rock and Limb of Addy Ridgeline and in tree hollows in the mature >100 year old tress and under the bark of trees. The EA refers to studies that are not similar to this area and

have no reference to this location. The rock ledges and caves in this area are all shallow.

We strongly oppose the relocation of the 500kV ETL from the present site, six kilometres from our home, to the proposed location that will pass less than two kilometres from our residence. These 66 metre towers carrying up to 5200 amps pose a health risk.

Response

Refer to **Section 3.2.3** of this Response to Submissions regarding a response to a previously discussed submission related to EMF. Section 8.7 and Appendix B4 of the EA provide further detail.

4.6 ETL Size and Alignment

Submission

Why 550 kV not 300 kV?

Response

The existing transmission line from Bayswater to Mount Piper is 500 kV. The 9 kilometres of transmission line relocation is required to be 500 kV to maintain consistency in the line (ETL relocation is 11.1 kilometres in length). In addition, a change to the entire line would reduce the capacity to transport power throughout the region.

Submission

The proposed route of the Electricity Transmission Line (ETL) is the wrong route. The proposed route to the SW of the mine area – adjacent to Lim of Addy Hill and Wallaby Rocks – is highly environmentally sensitive, containing undisturbed habitat and rich Aboriginal sites. The route to the NW of the mine proposed by the local community is the preferred route as it passes over land that has been disturbed by farming for 150 years, is a shorter, cheaper deviation and is less intrusive.

The reasons given by Xstrata/Umwelt for dismissing the NE route are at best suspicious and misleading. Wybong residents made representations to Xstrata project staff from an early stage in community consultations to seriously consider the NE route. From the outset Xstrata were dismissive in my view and failed to properly brief the EIS researchers.

The route suggested by the Wybong Action Group traverses an area set aside as conservation offset area but has no significant ecological value as it has been heavily degraded by 150 years of clearing and farming and the construction of the Mangoola access road. Careful construction and management over already cleared areas to the east of the mine shall not significantly affect any 'Endangered Ecological Communities'. If it did the whole of the mine should not have been approved as the original EIS was obviously deficient.

That there are known coal reserves to the north of the current mine disturbance area is irrelevant to the current relocation. There is no approval or plan to mine this area. If there was a plan the SW route would impact the area as well. As with this ETL relocation, the ETL can be moved again if necessary.

Response

Refer to **Section 3.2.2** of this Response to Submissions which addresses the issues in relation to the alignment of the ETL relocation.

Mangoola Coal and TransGrid are cognisant of the risks and costs involved in the ETL relocation, both monetary and time related, in addition to associated risk to security of electricity supply. An estimated capital expenditure of \$25 million will be made and the total construction timeframe for the entire ETL relocation is approximately 11 months. In addition, there is a risk of disruption to a major power link through the area. Mangoola Coal and TransGrid have therefore thoroughly assessed the proposed relocation route as, given the input of resources into such a project; it is not a process that should prudently be repeated in the future. The ETL relocation is planned as permanent and therefore should be located so as to avoid potential need for a further relocation.

Submission

There is no current proposal, application or approval to extract coal from the area to the North East which has highly disturbed but highly re-generable VEC and EEC listed wooded open canopy and grassland vegetation and habitat, forms part of Big Flat Creek, is adjacent to the Northern Biodiversity Corridor, and such extraction is not part of the Project as described by Xstrata to the Dept of Planning, Federal Minister, Council or Community. Nor can such extraneous considerations as a vague concept of future extraction from any significant basis for a singular determination of the preferred, recommended and justified Route.

Xstrata have not adequately addressed a North Eastern Route or made any substantial attempt to do so beyond to their own significant advantage.

A North East Route is in every respect superior to the south western route. The matter must lawfully be referred to the Planning and Assessment Commission or Panel of Experts, such as the initial Independent Planning and Assessment Panel, for review and recommendation, prior to any determination.

Response

Refer to **Section 3.2.2** of this Response to Submissions which addresses the issues in relation to the alignment of the ETL relocation.

The referral or otherwise of EA to the Planning and Assessment Commission is a matter for the Minister of Planning to determine.

4.7 The Environmental Assessment

Submission

Who can possibly understand all the content of the EA?

Response

The EA is a complex document which includes the assessment of numerous issues. It has been completed in accordance with the requirements of the DGRs, relevant legislation, policies and guidelines.

The EA is written in a style which aims to be understood by the general public, but it is understood that it is a very large document. For this reason, throughout the development of the EA, there were numerous opportunities for community input and questions during the consultation process. A range of consultative and assessment mechanisms were used to engage the community in relation to the ETL relocation and mine plan modifications, including:

- Community Consultative Committee (CCC) – the Projects were initially raised with the Mangoola Coal CCC in 2008 and consultation has been ongoing with the CCC throughout the Project;
- Project Specific Community Information Sessions (CIS) – two project specific CIS were held in April 2009;
- Mangoola Coal Consultation – in addition to the specific CIS held for the Project, one further Mangoola Coal CIS, held on 22 July 2010, and two community newsletters developed by Mangoola Coal, which addressed various aspects of the Mangoola Coal Project, have also provided the community with updates on the proposed Projects;
- Individual Meetings – In addition to the consultation mechanisms outlined above, Mangoola Coal has commenced face-to-face consultation with specific residents affected or potentially affected by the proposed Projects; and
- Aboriginal Stakeholder Consultation – consultation with 33 Aboriginal stakeholder groups has also been undertaken during the Aboriginal Heritage Assessments for the Projects.

(Further details on the consultation undertaken are provided in Section 4 of the EA).

In addition to consultation outlined above, the general public have the opportunity to contact DP&I at any time; and project information flyers, advertisements and company website have provided contact numbers and names which can be contacted to discuss the project throughout the assessment process.

Submission

Does anyone in govt with the power to make a difference digest it all or do they merely tick a box once the EA is done?

Response

The NSW EA process is a legislative based process ensuring that relevant aspects and impacts are assessed on a project specific basis, which results in the development of a complex document.

In summary, the EA for the ETL relocation was developed to meet the DGRs following which it was subject to detailed adequacy review where relevant government agencies reviewed and assessed the document against the DGRs. Further review by government agencies was conducted during the public exhibition period. In addition to this process, the DP&I also completes their own assessment and produces a Director General's Report which would accompany any potential instrument of approval or project refusal. The process allows for a thorough assessment of issues by all relevant government agencies on a project by project basis.

Submission

The expense involved in the computer modelling to determine unequivocally that dust and noise will stop at an imaginary line on the valley floor and dare not cross over it.

Response

The EA for the ETL relocation was completed in accordance with the DGRs and the relevant legislation, guidelines, policies. Modelling techniques applied are those which are accepted by government regulators.

Submission

The timing of the release of the EA needs to be mentioned. While the document was available at Council, Council closed from the 24/12/10 to 4/1/11. Insufficient time to engage an independent assessment of the noise component of the EA, which requires a longer lead time.

Putting Major Projects on public exhibition over the Christmas period is becoming a practise of DoP that limits the general public ability to have ample opportunity to review the EA and make quality submissions. The proponent has all the time they require to submit their documents.

Response

Under the EP&A Act it is necessary for the exhibition to run for a minimum period of 30 days. The public exhibition period for the subject EA was for a period of 7 weeks (49 days) (from 15 December 2010 to 7 February 2011) allowing for the fact that the period spanned the Christmas period.

The exhibition period was advertised in local, regional and State newspapers and clearly stated the locations at which the documentation was available for review. It was available in hard copy at both the MSC and Mangoola Coal Mine site. They were also available on the DP&I website.

Submission

Our residence, 132 is listed extensively throughout the EA, however we have two residences on our property, our main residence and a second residence is tenanted, (132B), yet we have only managed to find it referenced once in the entire EA (Appendix B-5 Table 3.3). We are aware that we could possibly have missed other references, as the EA is quite lengthy but are concerned that Xstrata Mangoola have deliberately omitted the reference to two residences on 132. We have raised the issue of them not recognising it in previous negotiations and it has been subsequently rectified, but is concerned about the failure to recognise it in this EA.

Response

The second residence at 132B was not identified in the main text of the EA, which is an oversight, not a deliberate omission. It was, however, specifically assessed in the noise assessment. In relation to 132B noise levels, residence 132 and 132B have different predicted noise levels as they are at different locations relative to nearby predicted construction equipment. The difference in predicted noise levels is 3 dB(A) during non-standard hours. Both residences 132 and 132B have current acquisition rights in accordance with the current project approval (06_0014).

Submission

The EA states "assuming alternative agreements with the owners of residences 81 & 132 cannot be reached, the installation of a 4m high localised noise barrier around construction activities at the relevant tower locations will be considered." There has been no consultation to date regarding this issue with us. It seems unclear as to the nature of these barriers and little or no modelling on the noise reduction they may provide. There appears to be no reference to a privately owned residence (34) which is in close proximity to the proposed work and is not listed as affected throughout the entire EA.

Response

As part of the EA for the ETL relocation a detailed Construction Noise Impact Assessment was completed (refer Appendix B5 of the EA) to determine the impacts associated with the construction of the ETL relocation. The purpose of the assessment has been to identify areas of risk so that can be managed appropriately.

The residences which have the most potential to be impacted as a result of the ETL construction are residences, 25, 81, 132 and 132B. (NB: Residences 25, 81, 132 and 132B are already in the acquisition zone for significant noise impacts associated with the Mangoola Coal Mine. It should also be noted that residence 25 is not permanently occupied and the construction phase is only approximately two weeks in duration at each tower location). The assessment has identified that the residences may be subjected to construction noise measures that have the potential to be ameliorated during the construction phase (should this be prior to acquisition).

Section 4.7 of this Response to Submissions provides further details on the management measures to be applied during construction. In addition, noise impact management strategies will be incorporated into an ETL CEMP.

In the case of residence 34, this residence is within the acquisition zone, and the owner has been approached by Mangoola Coal with regards to acquisition.

Submission

Our residence, 132, is predicted to have an exceedance of recommended noise criteria in both standard and outside standard hours. As we are one of three affected residents we believe it would have been prudent for Xstrata Mangoola to provide detailed information to us however there has been no consultation to date regarding this specific issue. There are multiple references to this throughout the EA however it seems unclear as to the nature of these barriers and little or no modelling on the noise reduction they may provide.

Past negotiations with Xstrata Mangoola in direct regard to construction noise mitigation arrangements resulted in a very unsatisfactory outcome for ourselves (132) and our tenants (132B). We were left substantially out of pocket financially due to loss of production and time spent trying to reach an agreement and endured a significant amount of emotional duress.

Xstrata Mangoola proved extremely frustrating in trying to reach an agreement, changing guidelines mid-way through drawing up contracts and at one stage used threatening tactics.

Response

As outlined in the previous response, residence 132 and 132B have been identified as requiring noise management during the construction of the ETL. Noise impact management strategies will be incorporated into an ETL CEMP.

Consultation will be undertaken with residents with respect to noise management measures during the construction phase, including noise barriers prior to works being undertaken. Information regarding noise mitigation measures will be circulated where relevant and all records of requests and responses maintained on site, with negotiations continuing until resolution is reached. This will be undertaken once a successful contractor has been engaged to conduct the work.

Submission

“...consultation with the affected residents will be undertaken to seek to establish alternative arrangements for mitigating these impacts ...” The EA fails to indicate what the alternative arrangements may be.

Response

Alternative arrangements will be presented to, and negotiated and agreed individually with affected residents prior to commencement of construction. Negotiated measures could include the provision of temporary alternative accommodation (refer **Appendix 1**, Revised Statement of Commitments for the ETL Relocation). Should the mitigation measures be required, they will be implemented.

4.8 Decommissioning and Removal of Existing ETL

Submission

We are concerned that report indicates that activities with the potential to cause impacts include “...stockpiling of decommissioned tower materials...” Xstrata Mangoola have been reticent about removing the amount of debris around their properties since acquisition, despite repeated ‘promises’ to facilitate removal. It would be prudent to have an assurance that the stockpiled materials are not stockpiled indefinitely and are in an area of no visual impact to adjacent landholders.

Response

Waste generated from the removal of the existing ETL, following the commissioning of the ETL relocation, will generally be limited to the steel associated with the towers and the transmission line wires and a small amount of concrete associated with the tower footings.

The concrete footings of towers located outside of the approved project disturbance boundary will be removed to approximately 0.5 metre below the ground surface and will remain in situ. Disposal of the existing ETL will be undertaken in accordance with TransGrid’s Waste Management Policy (GD EN G3 023) and the ETL CEMP, to be developed prior to relocating the ETL. Steel from the dismantled towers will be transported from the site for recycling within three months. Records will be kept of the waste transported off site and its destination.

4.9 Property Devaluation

Submission

Risk acknowledged by property valuers and is real in the minds of the community (Appx B4 EA). TransGrid's EA fails to acknowledge the property devaluation risk, stating that owner equity falls into of 'unlikely' and not a key issue. Ignores the adverse effect that the ETL relocation will have on property value acting as a deterrent for future buyers. Focus seems to be on protection of flora, fauna including bats and indigenous sites whilst property values are ignored.

We strongly oppose the relocation of the 500kV ETL from the present site, six kilometres from our home, to the proposed location that will pass less than two kilometres from our residence. These 66 metre towers carrying up to 5200 amps pose a health risk and are proven beyond doubt to devalue nearby properties. We object to the modification application by Xstrata to extend the project disturbance boundary.

The visual and actual proximity of the ETL will adversely impact on the value of our property spurred on by the overwhelming community perception that Electric and Magnetic Fields (EMF) from these lines can cause adverse health defects including cancer and childhood leukaemia. This risk is acknowledged by property valuers and is very real in the minds of the community as acknowledged by the 30 page Appendix B4 in TransGrid's EA. TransGrid's assessment fails to acknowledge this property devaluation risk. Socio-economic values (Appendix A4 Page 9), the category which this loss in owner equity falls into, are rates as 'unlikely' and not a key issue. This is appalling and completely ignores the adverse effect the ETL relocation will have on our property value acting as a deterrent for future buyers. In the mean time, risk studies are proposed for protection of flora; fauna – including bats; and indigenous sites. Once again, landowners who must live in proximity to this ETL and suffer decreased property values are ignored.

Response

It is important to note that the ETL relocation is located entirely on Mangoola Coal owned¹¹ or leased land and does not require any additional property acquisition. It is acknowledged that the relocated ETL will have a visual impact. However, the existing ETL is a prominent feature in the local area and has been in place for almost 30 years and is part of the existing landscape. It is one of a number of high voltage transmission lines in the area. Given that the project involves the relocation of this ETL within the same general locality and the relocation is entirely on Mangoola Coal owned land, it is considered that there will be no measurable change in property values caused by the ETL relocation. Visual impacts are discussed further in **Section 4.1** of this Response to Submissions.

In relation to valuation of the property in the acquisition process for current mining operations, Mangoola Coal is bound by project approval requirements. Current government policy, as expressed in the Project Approval, requires the acquisition and compensation process to be undertaken in accordance with the following:

Schedule 4, Procedure 10

Within three months of receiving a written request from the landowner with acquisition rights, the Proponent shall make a binding written offer to the landowner based on:

- a) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the project the subject of the project application, having regard to the:
 - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
 - presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the 'additional noise mitigation measures' in Condition 8 of Schedule 3;
- b) the reasonable costs associated with:
 - relocating within the Muswellbrook local government area, or to any other local government area determined by the Director-General;
 - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and

¹¹ Xstrata Mangoola Pty Limited.

- c) reasonable compensation for any disturbance caused by the land acquisition process.

However, if at the end of this period, the Proponent and landowner cannot agree on the acquisition price of the land, and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Director-General for resolution.

Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:

- d) consider submissions from both parties;
- e) determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (a)-(c) above;
- f) prepare a detailed report setting out the reasons for any determination; and
- g) provide a copy of the report to both parties.

Within 14 days of receiving the independent valuer's report, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.

However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Director-General for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Director-General shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (a)-(c) above, the independent valuer's report and the detailed report of the party that disputes the independent valuer's determination.

Within 14 days of the Director-General's determination, the Proponent shall make a binding written offer to the landowner to purchase the land at a price not less than the Director-General's determination.

If the landowner refuses to accept the Proponent's binding written offer under this condition within six months of the offer being made, then the Proponent's obligations to acquire the land shall cease, unless the Director-General determines otherwise.

Schedule 4, Procedure 11

The Proponent shall pay all reasonable costs associated with the land acquisition process described in condition 10 above.

Schedule 4, Procedure 12

If the Proponent and landowner agree that only part of the land shall be acquired, then the Proponent shall pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.

To date, Mangoola Coal has approached landholders in good faith with the expectation that any agreement should satisfactorily reflect a land purchase condition of approval similar to that quoted above. Individual landholders' situations have been a specific consideration in purchase and option agreement negotiations.

It should also be noted that compensation is paid to landowners whose properties are directly impacted by an ETL easement. The compensation is assessed in accordance with the requirements of the *NSW Land Acquisition (Just Terms Compensation) Act 1991*. This legislation does not allow compensation of landowners not directly impacted by the ETL development. In this case, all land directly affected by the ETL is owned by Mangoola Coal.

4.10 Multiple Impacts

Submission

Visual and actual proximity will adversely impact the value of the property based on community perception that EMF can cause adverse health defects.

Response

Similar submissions in relation to property values and EMF impacts are responded to in other sections of this Response to Submissions; **Section 4.5** in relation to EMF and **Section 4.9** in relation to property values. Please refer to these sections for a response to this submission, but in summary, no property is predicted to be affected by EMF above relevant health guidelines.

Submission

Extra disturbance from noise, dust, road closures and traffic flow generated during construction.

Response

A number of submissions have been made in relation to noise, road closures and traffic as part of this Response to Submissions report; please refer to **Section 4.3 and 4.7** for details regarding noise and traffic and road closure impacts and potential noise impacts from the ETL relocation.

With respect to air quality, there are no predicted exceedances of air quality guidelines. The ETL CEMP will include measures for the mitigation of potential dust impacts.

Submission

No shielding natural or man-made landforms on the south-west side of the mine between property and proposals to protect from EMFs, noise or dust.

Response

There are no privately owned properties to the south-west of the project area which do not have adequate shielding from landforms or vegetation.

Potential impacts from EMF associated with the ETL relocation were identified as a key environmental issue during consultation and in the environment and community risk assessment undertaken during the preliminary environmental assessment. Consequently, a detailed EMF assessment was prepared as part of the EA for the project, the findings of which indicate that EMF is likely to have no adverse impacts on either people or fauna. NB: The report also specifically addresses issues raised by the WAG regarding a proposed alternative route for the ETL relocation (the submission was made prior to the completion of the EA). **Section 3.2.3** of this Response to Submissions provides further details on the potential for impacts from EMF and the EMF assessment for the project is Appendix B4 of the EA.

With regards to any concerns about increased noise as a result of an increase in activities in the area associated with the construction of the ETL, the noise assessment for the project outlines that the majority of noise emissions associated with the project occur close to the ETL relocation. Noise impact management strategies will be incorporated into an ETL CEMP.

As noted above, with respect to air quality, there are no anticipated exceedances of air quality guidelines. The ETL CEMP will include measures for the mitigation of potential dust impacts.

4.11 Other

A number of community members have chosen to voice their concerns through supporting other groups who have made a submission:

- one community member supports the MSC submission; and
- four community members support the WAG submission.

These submissions are addressed in **Sections 2.3** and **3.2** respectively.

PART B

Mine Plan Modifications

PART B – MINE PLAN MODIFICATIONS

5.0 Response to Agency Submissions

5.1 Agencies with No Objections

5.1.1 Department of Industry and Investment

Submission

“Industry & Investment's (I&I NSW) technical officers have reviewed the Environmental Assessment (EA) dated December 2010 for the projects and have no objections.

I&I NSW require that Mangoola Coal submit and receive approval for an Amendment to the current Mining Operations Plan (MOP) for the Mangoola Mine prior to commencement of the activities identified in the EA”.

Response

Mangoola Coal will submit and seek approval for an Amendment to the current Mining Operations Plan (MOP) for the Mangoola Coal Mine prior to commencement of the modified activities identified in the EA.

I&I NSW are now known as NSW Department of Trade and Investment, Regional Infrastructure and Services (NSW DTIRIS).

5.1.2 NSW Roads and Traffic Authority

Submission

“The RTA has reviewed the information provided and has no objections for the proposed relocation of the electricity transmission line and modification to mine plans for the Mangoola Coal Project provided the following matters are addressed and included in the Minister's conditions of approval:

- All heavy vehicles associated with the construction of the subject project shall access the site via the intersection of Denman Road and Bengalla Link Road. Light vehicles shall use the intersections of either Denman Road and Bengalla Link Road or the Golden Highway and Wybong Road.
- A Construction Traffic Management Plan shall be prepared and submitted to the RTA and Council for approval, prior to any construction proceeding on site. The CTMP shall include, as a minimum, the following:
 - Measures to minimise identified impacts on school buses and local residents by vehicle movements.

Comment: The RTA would support the prohibition of heavy vehicles to and from the site during school times. This should be discussed further with Council and the relevant bus companies.

- Measures to minimise identified impacts caused by local road closures”.

Response

A commitment to a Construction Traffic Management Plan addressing the issues raised by the RTA has been included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2**. A commitment has also been included regarding heavy and light vehicle access (as per the RTA recommended conditions above).

5.1.3 Heritage Council of NSW**Submission**

“The Umwelt report includes recommendations that:

1. in the unlikely event significant historical archaeological remains are found, all works should stop and the Heritage Branch should be notified, and
2. the identified sites (windmill and fence) should be included in relevant Construction Environmental Management Plans.

The Heritage Branch supports these recommendations.

On this basis there are no heritage objections to the proposed modification of the Mangoola Coal Mine.”

Response

The abovementioned commitments have been included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2**.

5.2 Department of Environment, Climate Change and Water**5.2.1 Vegetation Clearing/Biodiversity Offsets****Submission**

Any tree hollows lost by felling hollow bearing trees (including stags) and hollow fallen timber must be reinstalled or replaced by nest boxes set in appropriate locations at appropriate heights for the target fauna species.

Response

This matter is addressed in the Rehabilitation and Offset Management Plan (ROMP) for the Mangoola Coal Mine (Umwelt, 2011c).

As part of the ROMP, a detailed pre-clearing survey and tree felling procedure has been designed to minimise the impact on native species (both threatened and non-threatened), as well as significant habitat features. The pre-clearing surveys and tree felling procedures aim to identify significant ecological features within areas to be cleared and aim to make all reasonable attempts to minimise the impact of the clearing. Significant ecological features may include:

- hollow-bearing trees;
- fallen timber; and
- hollow logs and stumps.

The ROMP also includes a process for habitat augmentation during rehabilitation of the post-mining disturbance area, where hollows lost during the clearing process will be replaced at a 1:1 basis. This will occur either as soon as the rehabilitation within post-mining areas is of a suitable age to support nest boxes and salvaged hollows, or on poles within areas of younger vegetation to provide nesting/denning habitat for key threatened species.

While all of the tree hollows lost from the approved disturbance areas will be replaced, this will be a gradual process governed by the staging of the clearing itself, as well as the staging of the rehabilitation of the post-mining areas. In some cases, there will be an unavoidable delay in replacing hollows (like for like), resulting in a short-term loss of hollows to the EA Study Area for the Ecological Assessment.

Nest boxes will be installed in the Biodiversity Offset Areas and proposed Corridors to ameliorate the short term loss of hollow-bearing trees from approved disturbance areas. The aim is to provide compensatory habitat for hollow-dependent fauna species (both threatened and non-threatened) and to achieve the EA (Umwelt 2006a) commitment of no net loss of hollows within the Study Area. This is intended to increase the existing carrying capacity of the vegetation in these areas and to allow for some additional habitat for displaced fauna.

The installation of suitably capped and treated hollows salvaged from felled vegetation will contribute towards achieving the 1:1 replacement of hollows cleared within the mine. This will also ensure maximum use of felled resources within the site and improve ecological outcomes.

The ROMP for Mangoola Coal Mine provides further details on procedures.

Many of the ROMP's management actions/requirements are already being implemented on the Mangoola Coal Mine site. Further planning and refinement of future actions to achieve critical commitments from the ROMP (such as revegetation and regeneration works within the Biodiversity Offset Areas and Corridors) are ongoing, in consultation with the relevant authorities, as required.

Submission

A biodiversity offset areas for the proposed modification must be provided as outlined in Appendix B1 Table 6.2 and Appendix C1 Table 6.2 of the Environmental Assessment. These offset areas must meet all of DECCW's Biodiversity offsetting principles as specified in the DECCW 2009, (Appendix 1) Lower Hunter Regional Conservation Plan, Department of Environment, Climate Change and Water NSW Plan or satisfy the requirements of DECCW's BioBanking scheme as specified in BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECCW, 2008). To qualify for a BioBanking Statement a proposal must meet, improve or maintain standard.

Response

A Biodiversity Offset Area for the proposed Mangoola Coal Mine modifications has been included as part of the proposed project. Mangoola Coal recognises the value in implementing the Office of the Environment and Heritage's (previously DECCW) 13 principles for biodiversity offsetting and has provided a detailed comparison of the performance of the impact mitigation and biodiversity offsetting measures proposed as part of the project against these principles within the Ecological Assessment completed as part of the EA (see Section 6.4 of Appendix B1 of the EA).

BioBanking will not be conducted as part of the project. It should also be noted that the OEH BioBanking Scheme is voluntary (DECCW, 30 November 2010).

Submission

The proponent must monitor the ongoing health of the *Diuris tricolor* plants in the Habitat Enhancement Area adjacent to Modification Area 1, and at least two (2) reference populations of *Diuris tricolor* elsewhere in the Habitat Enhancement Area for at least five (5) years. The reference populations must occur at least 200 m from the proposed maximum edge of the open pit. The monitoring program must record the number of plants that flower, the total number of flowers, total number of fruit formed, and the total number of fruit that develop to maturity in each population in each growing flowering season over the five year period.

Response

Mangoola Coal agrees with the recommended monitoring of the *Diuris tricolor* plants. This commitment to monitoring has been included in the Revised Statement of Commitments for the Mine Plan Modifications (refer **Appendix 2**) and will be included in the revised ROMP with baseline monitoring established prior to mining in the modifications areas and annual monitoring for at least five years following mining in the modifications areas.

Submission

If there is significant and sustained decline in vigour of the Pine Donkey Orchids immediately adjacent to the open pit in Modification Area 1 then the proponent, over a three (3) year period, must engage a suitably qualified ecologist to recommend actions to ensure the long-term survival of this population. These actions must be implemented.

Response

These provisions have been included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2** and will be included in the revised ROMP.

Submission

Prior to any vegetation clearing in any of the proposed modification areas and the new route proposed for the electricity transmission line, a survey for *Acacia pendula* plants must be done. In the event that any plants are found they are to be marked and protected from harm during any subsequent earthwork and construction work around them.

Response

This recommendation is already addressed in the ROMP for the Mangoola Coal Mine.

The ROMP (Umwelt, 2011c) contains detailed requirements for the completion of pre-clearing surveys designed to minimise the impact of clearing activities on native species (both threatened and non-threatened). The detailed pre-clearing procedures and forms are designed to record all significant ecological features including (but not limited to) threatened flora species; threatened ecological communities (TECs); threatened fauna species (or signs thereof); signs of fauna breeding; seed sources; and significant habitat features (such as hollow-bearing trees, fallen timber and boulders) to be salvaged for later use. This procedure will be implemented in all works required for the proposed modifications, and this will ensure that any threatened flora species (including *Acacia pendula*) will be appropriately surveyed for, prior to clearing. Where retention of threatened flora species is not possible within the proposed modification areas, as opposed to within the ETL corridor where retention may be possible opportunities to salvage, transplant and/or propagate these species (as per the ROMP and current approved consent condition for the Mangoola Coal Mine) will be investigated. Such salvage and translocation of threatened flora species (primarily *Diuris tricolor*, *Prasophyllum* sp. Wybong (C. Phelps ORG 5269) Wybong and *Acacia pendula*) is already occurring where practicable as part of the implementation of the ROMP on

Mangoola Coal Mine with 176 *Diuris tricolour* and 200 *Prasophyllum* sp. Wybong being translocated within their flowering window in 2010¹². Translocation success will be monitored in spring 2011. Translocation was carried out in accordance with a strategy specifically developed for the translocation of orchids at the Mangoola Coal Mine site; (Eastcoast Flora Survey, 2010). Records of translocations are maintained on site. An individual *Acacia pendula* plant was also removed as part of the translocation trial process and sent to the NSW Forestry Nursery in Muswellbrook; however, it did not survive. An ongoing program is being developed for the management of translocation works.

The Mangoola Coal Mine ROMP (Umwelt, 2011b) provides further details on this issue.

Submission

The proponent must translocate *Diuris tricolor* plants from the area to be cleared to the new offset areas in accordance with the Australian Network for Plant Conservation 'Guidelines for the Translocation of Threatened Plants in Australia; Second Edition' by L. Vallee, T. Hogbin, L. Monks, B. Makinson, M. Matthes and M. Rossetto (2004) or must provide additional management for conservation and enhanced protection of the land with nominated population (s) to that required by the 2007 consent.

Response

There were 122 individuals of tricolour diuris (*Diuris tricolor*) species recorded within Proposed Modification Area 1, although only three individuals will be impacted as a result of the project due to the redesigning of this area to avoid this substantial population.

Translocation of *Diuris tricolor* from the approved disturbance area into suitable known habitats within the Biodiversity Offset Areas is already occurring (where practicable), as per the Project Approval for the Mangoola Coal Mine, and defined further in the ROMP (Umwelt, 2011c) (refer previous response for further details). This will be extended to include any records of this species identified (during seasonal surveys) in the proposed modification areas.

Umwelt does, however recommend that salvaged orchids are not translocated into the Additional Biodiversity Area, as detailed seasonal surveys of this area (by Stephen Bell (Umwelt)) failed to locate any records of this species in that property. Indeed, he identified it as lacking habitat for this species, based on the type of grasslands present in that area. Rather, it is recommended that this proposed condition of approval be revised to require these orchids to be translocated into suitable known habitats within the Biodiversity Offset Areas, as is currently occurring.

Translocation procedures comply with the relevant components of the guidelines in the text referenced above.

Submission

The proponent has not stated how the offset areas will be secured in perpetuity but instead notes in the draft 'Statement of Commitments' (Commitment 6.8.2) that the offset areas must be secured for conservation in perpetuity by one or more types of mechanism.

¹² It should be noted that the team from the University of Newcastle Centre for Sustainable Ecosystem Restoration took three *Diuris tricolor* and three *Prasophyllum* sp. Wybong as part of a seed harvesting trial being conducted as part of a research and development program for the Investigation of Soil and Plant Regeneration Methods at Mangoola, in collaboration with Mangoola Coal.

Response

The Additional Biodiversity Offset Area will be secured for long-term conservation, as will the Biodiversity Offset Areas and Corridors. The mechanism for securing these areas in the long-term continues to be investigated, and discussions with Department of Planning and Infrastructure (DP&I) (previously referred to as Department of Planning (DoP)) and OEH in relation to the preferred mechanism are ongoing.

5.2.2 Noise**Submission**

The Noise Impact Assessment uses the DEFRA reference curve to assess low frequency noise. DECCW considers the low frequency modification in the Industrial Noise Policy should be used for the assessment of low frequency noise. DECCW proposes that if any complaints about low frequency noise are received, the proponent should thoroughly investigate these and mitigate any confirmed impacts.

Response

Section 4 of the Industrial Noise Policy (INP) (EPA, 2000) outlines the correction factors to be applied to the source noise level at a receiver before comparison with the criteria when a noise source contains characteristics that can cause greater annoyance than another noise at the same level. The trigger for the application of a correction factor for the annoyance of low frequency noise occurs when the difference between the C-weighted noise level and A-weighted noise level over the same period is 15 dB or more.

The DEFRA reference curve presented in the noise impact assessment for the EA does not seek to replace the assessment process required by the INP but, as noted in the noise impact assessment, provides a trigger, that: *'if such noise is found to occur at levels similar to those referred to in Section 3.5, i.e. the DEFRA reference curve, the Environmental Management Plan for the proposal will specify methods of investigation to allow appropriate treatment methods to be devised.'*

The use of the DEFRA reference curve is as per the noise impact assessment methodology from the approved Anvil Hill Project EA and is provided as a trigger that can be used to initiate investigations in accordance with the INP. This would include any concerns regarding low frequency noise, their assessment and any required mitigation measures from such assessment.

Submission

Noise from the premises must not exceed the sound pressure level (noise) limits presented in the table below. Note that the limits apply to the operation of the project and represent the sound pressure level (noise) contribution, at the nominated receiver locations in the table.

Noise Limits (dB(A))

Land Number	Day	Evening	Night	
	LAeq, (15min)	LAeq, (15min)	LAeq, (15min)	LAeq, (1min)
66, 162	40	40	40	45
110, 111, 148, 164	39	39	39	45
125E, 130, 174A, 174B, 175, 192, 193 200	38	38	38	45
96A, 96B, 168, 184, 116A, 116B, 116C 116D, 116E, 116F, 116G, 125A, 125C 176	37	37	37	45
79, 103, 104, 114, 125B, 134A, 134B, 141, 178, 182, 183A, 183B, 183C, 185 187, 189, 190, 191, 198, 199, 241A, 241B, 241C, 251	36	36	36	45
Any other receiver	35	35	35	45

Note: Land identification numbers refer to Modification to Mangoola Coal Mine Plans and Relocation of 500 kV Electricity Transmission Line - Environmental Assessment, Umwelt (Australia) Pty Ltd, December 2010.

Response

The Noise Impact Assessment Criteria will be reflected in the Project Approval for the Mangoola Coal Mine. Mangoola Coal Mine will be operated in accordance with these conditions.

5.2.3 Aboriginal Heritage/Consultation**Submission**

The applicant must continue to consult with and involve all the registered local Aboriginal representatives for the project, in the ongoing management of the Aboriginal cultural heritage values. Evidence of this consultation must be collated and provided to the consent authority upon request.

Response

Mangoola Coal currently consults with the Registered Aboriginal Parties in accordance with relevant consultation requirements and the approved Anvil Hill Coal Mine Aboriginal Cultural Heritage Management Plan (known as the Mangoola Coal ACHMP (ACHMP) (Umwelt, 2008)), and will continue to do so to ensure the appropriate ongoing management of Aboriginal cultural heritage values.

Mangoola Coal maintains a detailed stakeholder consultation log which is available for review by OEH and DP&I upon request.

Submission

The proponent shall implement an Aboriginal Cultural Heritage Management Plan (ACHMP) for the project area. The ACHMP is to be implemented in consultation with the registered local Aboriginal stakeholders. The plan must include procedures for ongoing Aboriginal consultation and involvement, details of the responsibilities of all stakeholders, management of any recorded sites within the project area, surface collection and monitoring procedures, procedures for the identification and management of previously unrecorded sites (excluding human remains), identification and management of any proposed culturally appropriate offset/conservation area(s), and details of an appropriate keeping place agreement with local Aboriginal

community representatives for any Aboriginal objects salvaged through the development process, details of proposed mitigation and management strategies for sites identified to be impacted within the project area and compliance procedures in the unlikely event that non-compliance with the ACHMP is identified.

Response

Mangoola Coal operates in accordance with an approved ACHMP for the currently approved Mangoola Coal Mine which is due to be revised within the next 12 months. The revisions to the Mangoola Coal ACHMP will include additional information on all newly identified sites on land owned or managed by Mangoola Coal, including the sites identified within the areas affected by the Modifications to the Mangoola Mine Plan. Should the current modifications be approved, the revisions to the ACHMP will also address the matters outlined above, where they relate to sites and offsets within the Mangoola Coal approval area.

Submission

In the event that surface disturbance identifies a new Aboriginal site, all works must halt in the immediate area to prevent any further impacts to the object(s). A suitably qualified archaeologist and representatives of the local Aboriginal community must be contacted to determine the significance (cultural and scientific) of the object(s). The site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) (managed by DECCW) and the management outcome for the site included in the information provided to the AHIMS. The proponent will consult with the Aboriginal community representatives the archaeologist and DECCW to develop and implement management strategies for all objects/sites.

Response

The Mangoola Coal ACHMP (Umwelt, 2008) currently includes a procedure for management of previously unrecorded sites and this procedure will be updated during revision of the ACHMP to reflect the requirements outlined above.

Submission

The proponent is to provide fair and reasonable opportunities for the registered local Aboriginal stakeholders to monitor any initial ground disturbance works associated with the areas immediately adjacent to any Aboriginal site/object proposed to be salvaged within the project area. In the event that additional Aboriginal objects are uncovered during the monitoring program, the objects are to be recorded and managed in accordance with the requirements of sections 85A and 89A of the *National Parks and Wildlife Act 1974*, as amended.

Response

Surface collection and analysis of objects from sites subject to harm as a result of the proposed modifications to the Mangoola Coal Mine Plan (SC03, SC58 and SC59) will be conducted in accordance with the methodology approved by the relevant Aboriginal stakeholders and OEH as part of the Mangoola Coal ACHMP (Umwelt, 2008).

The provision of opportunity to monitor initial ground disturbance works associated with these sites is not justifiable on archaeological grounds. As discussed in Section 9.2 of Appendix C2 of the EA, the sites that are subject to salvage are all located in an environmental context within which there is a low likelihood of subsurface deposits that are extensive in either artefact numbers or areal extent. It follows that there is also a low likelihood that monitoring will result in the identification and additional salvage of artefacts in sufficient quantities to justify this activity.

It is also noted that the Mangoola Coal ACHMP provides procedures for unexpected finds and that all employees and contractors will receive an induction to make them aware of these procedures.

Submission

If human remains are located following any surface disturbance, all works must halt in the immediate area to prevent any further impacts to the remains. The NSW Police are contacted immediately. No action is to be undertaken until police provide written notification to the proponent. If the skeletal remains are identified as Aboriginal, the proponent must contact DECCW's Enviroline on 131555 and representatives of the local Aboriginal community. No works are to continue until DECCW provide written notification to the proponent.

Response

This requirement has been addressed in the management measures in recommendations of the Aboriginal Heritage Assessment for the EA for the proposed modifications to the Mangoola Coal Mine Plan (refer Appendix C2 of the EA). These requirements will be retained in the revision to the Mangoola Coal ACHMP. In addition, this requirement is included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2**.

Submission

All reasonable efforts must be made to avoid impacts to Aboriginal cultural heritage at all stages of the development works. If impacts are unavoidable, mitigation measures are to be negotiated with the local Aboriginal community and DECCW. All sites impacted must have a DECCW Aboriginal Site Impact Recording (ASIR) form completed and submitted to DECCW AHIMS unit within 3 months of completion of these works.

Response

As discussed in the Aboriginal Heritage Assessment (refer Appendix C2 of the EA), impacts to Aboriginal cultural heritage have been avoided where possible. The assessment evaluated the possible management measures for unavoidable impacts and provided detailed management recommendations and methodologies (refer to Sections 11, 12 and 13 respectively). These documents were developed in consultation with the registered Aboriginal parties. Following approval, the relevant mitigation measures will be incorporated into the revisions to the Mangoola Coal ACHMP (Umwelt, 2008). The requirement for submission of ASIR cards following salvage will also be incorporated into these documents.

Submission

An Aboriginal Cultural Education Program must be developed for the induction of all personnel and contractors involved in the construction activities on site. Records are to be kept of which staff/contractors were inducted and when for the duration of the project. The program should be developed and implemented in collaboration with the local Aboriginal community.

Response

An Aboriginal Cultural Education Program has been developed for the Mangoola Coal Mine and is implemented at the mine site as part of the induction process for all employees and contractors. It is mandatory to complete an induction prior to commencing activities on site, including construction.

The program is in DVD format and associated questionnaire for full time employees and site contractors. Development of the program commenced in 2009 in collaboration with Registered Aboriginal Parties commencing in 2009 through the six monthly consultation meeting process, with feedback forms collected on who wished to be interviewed. Further consultation was conducted with interview participants, including the finalisation of interview questions. The DVD was produced in June 2010, with copies also being circulated to participants. The program is actively implemented on site.

All induction records are maintained both on site in the Mangoola Coal Management System and by the contractor who conducts the inductions.

Submission

Aboriginal Cultural Heritage Management Plan

DECCW acknowledges that the proponent is committed to managing the Aboriginal heritage within the project area in accordance with the existing Xstrata's ACHMP. DECCW supports this proposal and recommend that the existing ACHMP is amended to incorporate the additional details of the identified Aboriginal heritage, associated management strategies and community involvement within the additional project area subject to the modification as well as the ETL relocation areas. DECCW also recommends that these details are incorporated into any Construction Environmental Management Plans. Further, evidence of consultation and any community support, comment or otherwise for an amended ACHMP, should be appended to the ACHMP in its final iteration.

Response

Mangoola Coal operates in accordance with an approved ACHMP for the currently approved Mangoola Coal Mine. The revisions to the Mangoola Coal ACHMP will include additional information on all newly identified sites on land owned or managed by Mangoola Coal, including the sites identified within the areas affected by the proposed modifications to mine plans. Should the proposed modifications be approved, the revisions to the ACHMP will also address the matters outlined above, where they relate to sites and offsets within the Mangoola Coal Mine approval area.

Submission

Long-term care of recovered Aboriginal objects:

The proponent must ensure that if Aboriginal objects are to be salvaged or uncovered due to development activities any custodial arrangements proposed must comply with the provisions of section 85A of the NPW Act. In addition, the proponent must provide evidence of the support or otherwise, from all registered Aboriginal stakeholders, of any decisions regarding short term and/or final custodial arrangements.

Response

The proposed revision to the Mangoola Coal ACHMP will include this recommendation and any proposed custodial arrangements will comply with Section 85/85A of the *National Parks and Wildlife Act 1974* (NPW Act). It should be noted that during the development of these documents every opportunity will be afforded to Registered Aboriginal Parties to provide input into decisions regarding short and long-term and/or final custodial arrangements for salvaged artefacts; however, it cannot be guaranteed that all such parties will wish to provide input. This commitment is included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2**.

Submission***Culturally appropriate offset area:***

DECCW acknowledges that the proponent has committed to developing a culturally appropriate offset area to alleviate the associated impacts on Aboriginal cultural heritage by the project application. However, we note that this process is yet to be finalised. DECCW strongly recommends that prior to the determination of the major project application, the proponent is required to provide details pertaining to a final decision regarding this matter. It is also strongly recommended that any final decision is supported with evidence from the registered local Aboriginal stakeholders.

Response

As identified in the Aboriginal Heritage Assessment for the EA, further consultation was undertaken with Registered Aboriginal Parties as part of the 6 monthly consultation meeting process in an effort to determine culturally appropriate offsets. At the most recent meeting, an identified potential offset area was presented to the Registered Aboriginal Parties, the majority of whom indicated that they wish to inspect the area to consider its Aboriginal cultural values. This inspection will be arranged as part of upcoming cultural heritage work at Mangoola Coal Mine and the outcomes reported to DP&I and OEH.

An alternative offset package related to employment and training was also suggested by some representatives. It was determined that the nature of the offset would be finalised following inspection of the proposed offset area and additional consultation between Mangoola Coal and the Registered Aboriginal Parties.

Both Xstrata Coal NSW (XCN) and Mangoola Coal are already in the process of developing programs with a focus on indigenous training and employment. Should the offset package suggested, in relation to employment and training be a viable option it would be in line with existing programs.

XCN is in the process of developing a Reconciliation Action Plan (RAP) to initially be rolled out in the Hunter Region, following which it would be rolled out state-wide. Projects and strategies in the RAP include:

- establishment of baseline Aboriginal employment information across the business and systems for monitoring Aboriginal employment;
- identification and evaluation of Aboriginal traineeship and employment opportunities;
- collaboration with Aboriginal communities, labour hire companies, and relevant agencies (Department of Aboriginal Affairs, Aboriginal Education Services, etc.) to establish requirements for recruitment, mentoring and support; and
- increasing cultural awareness and support mechanisms within the business to ensure the success of training and employment strategies.

In addition to the RAP, Mangoola Coal is in the process of further developing an indigenous training and employment plan. In conjunction with local labour hire and indigenous employment groups Mangoola Coal will promote employment of local unskilled/semi skilled indigenous people in roles that will assist them to gain mining related skills and experience; for example, driving light earth moving equipment such as bobcats, diggers and articulated trucks. This experience would make them competitive applicants for future operator positions at Mangoola Coal Mine and other regional mining operations and other regional mining operations.

Submission***Recent amendments to the NPW Act:***

The requirement of the NPW Act have recently been amended and the proponent should familiarise itself with the new requirements during the development and any subsequent assessment/development works processes.

Response

The relevant amendments to the NPW Act will be addressed in the update to the Mangoola Coal ACHMP.

5.3 NSW Office of Water**Submission*****Mining footprint***

The modification of mining will integrate the approved four stage pit sequence into a single mine plan. This will avoid mining encroachment to the conjoined Wybong Creek and Big Flat Creek alluvium, which alleviates NOW's concern that mining depressurisation of the alluvium could influence low to moderate flows in Wybong Creek.

The approved encroachment to Big Flat Creek is maintained for the modification application. This requires a precautionary approach to the risk of river capture or significant inflows from Big Flat Creek and its alluvium into the expanded mine pit. Xstrata Mangoola should be required to submit its plans for isolation of the mining excavation from Big Flat Creek at least six months prior to operations extending to within 150 metres of Big Flat Creek.

All extraction and/or interception of water constitutes 'take' under the *Water Management Act 2000* (WMA). The footprint to extraction for the existing approval extends into the limit of the Wybong Creek alluvium. NOW has requested further information on groundwater mitigation through the alluvial apron conjoined between Big Flat Creek and Wybong Creek. This application retracts the mining limit to approximately 400 metres east of the existing limit, and thereby provides a protective buffer to Wybong Creek alluvium. NOW regards this as an appropriate precautionary response to the uncertainty involved in potential drainage from the Wybong Creek alluvium and displacement of flow from Wybong Creek toward the mining pit.

Response

Mangoola Coal has confirmed that mining within 150 metres of Big Flat Creek will occur in 2014 when mining commences in the Main Pit on the south side of the existing location of the ETL. The requested plans for isolation of mine excavation from alluviums and/or flows from Big Flat Creek will be submitted 6 months prior to operations extending to within 150 metres of Big Flat Creek. The Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2** incorporates this commitment. We also note that the Mangoola Coal Mine Project Approval, Condition 36 includes a requirement for the Surface and Groundwater Response Plan to include:

- a) a protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria;
- b) measures to mitigate and/or compensate potentially affected landowners with privately owned groundwater bores within the predicted drawdown impact zone identified in the EA, including provision of alternative supply of water to the affected landowner that is equivalent to the loss attributed to the project;

- c) measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Sandy Creek, Big Flat Creek and Wybong Creek downstream of the project;
- d) measures to minimise, prevent or offset groundwater leakage from the Big Flat Creek alluvial aquifer;
- e) measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Big Flat Creek alluvium if the potential for adverse impacts is detected;
- f) a contingency plan for isolating the Big Flat Creek alluvium from Anvil Creek alluvium and mining areas in the event that it is required; and
- g) the procedures that would be followed if any unforeseen impacts are detected during the project.

The current Mangoola Water Management Plan (Umwelt, 2010b) addresses these requirements.

Within the floodplain of Big Flat Creek, the proposed modifications to the mine plan is generally consistent with the approved mine plans. Consequently, it is considered that there is little appreciable change in the risk of inundation of the open cut mine pit area by flooding within Big Flat Creek from that approved previously.

The proposed modification to the approved mine plans for the Mangoola Coal Project results in minimal potential impact to the alluvial sediments that accompany Big Flat Creek, which will in turn minimise the potential impacts to the low and medium flows in Big Flat Creek. The excavations proposed within this modification in the vicinity of Big Flat Creek are therefore considered to have limited potential to experience active groundwater interactions that would impact on the flows within Big Flat Creek, however as stated in Section 12.5.2.3 of the EA and reiterated in the Draft Statement of Commitments (refer Section 14.0 of the EA):

If monitoring indicates it is required, a barrier cut off wall within the alluvium associated with Big Flat Creek will be constructed to limit groundwater seepage into the mine.

It is therefore considered that whilst likelihood of potential impacts to the alluvium of Big Flat Creek is minimal, a monitoring program and response plan is already in place under the approved plans that provide an appropriate response.

Submission

Water balance

The EA generally predicts on-site storage capacity will be sufficient to maintain supply with augmentation from the regulated Hunter River, to which Xstrata Mangoola possesses a number of water access licences (WAL). The expansion of on-site storage capacity combined with increased groundwater and surface runoff interception is predicted to reduce the periods to which external supply from the regulated Hunter River is required. This outcome should be considered against Xstrata Mangoola's schedule of regulated river WALs and Condition 29 of the current approval to the project, which prohibits the use of water access licences sourced from the Wybong Creek water source to mining activity.

The increase in security to water supply for the project is predicated on increased runoff capture and presumably increased capture of groundwater to the main pit. This must be accounted for within the water balance for the site, and accounted for in water licences.

NOW recommends that a condition be included to the effect that:

The applicant shall ensure it has adequate water supply for all stages of the project, and in the event that insufficient water is available, the applicant must scale down mining operations commensurate with its water supply.

Response

The proposed increase in the storage capacity of the Raw Water Dam provides additional flexibility in the water supply for the Mangoola Coal Mine. As discussed in the Surface Water Assessment there is no predicted increase in groundwater make associated with the modifications to the approved mine plan. The predictive water balance was amended as part of the proposed modifications to reflect the plan changes, which showed a general reduction in the mine water deficit, largely as a result of the increase in mine water make associated with surface runoff interception. The increased storage capacity combined with the increased water make during the mining operations, mean that the reliance on river abstractions is likely to be reduced.

Mining operations depend on a consistent supply of water for dust suppression, production, etc. Without a water supply, mining operations may not be able to meet the consent conditions to which they are subject, including dust control. The operations at the Mangoola Coal Mine are therefore governed by the reliability of water supplies; both in terms of environmental protection, e.g. dust suppression, and production, coal washery. The provision of adequate water supplies is therefore inherent in many of the operational requirements that are typically applied to operations of this type and scale.

Mangoola Coal has no objection to the imposition of NOW's recommended condition for the Part 3A Project Approval.

Submission

Groundwater Management

Although Mackie Environmental Services reports minimal change for the groundwater interception and management system for Mangoola mine, the rapid ramping up to maximum production by Year 3 will intercept and extract groundwater at a greater rate than predicted in the EA. This may alter site water balance inputs and storage. NOW requests Xstrata Mangoola accelerate the installation of piezometers and present its initial compilation of groundwater data by the end of water year at the end of June 2011.

Response

Mangoola Coal has established selected boreholes on site and currently conduct required Annual Speciation Monitoring of those bores in accordance with Section 3.3.3 of the Xstrata Mangoola Groundwater Monitoring Plan (Umwelt, 2010a).

Mangoola Coal will install piezometers in accordance with the Xstrata Mangoola Groundwater Monitoring Program by the end of 2011. Piezometers are for the monitoring of regional water movements across the coal seams across the entire mine area. Information from dataloggers will be downloaded on a monthly basis (commencing within a month of the installation of each individual piezometer). Monitoring of piezometers will become part of the site's monitoring schedule for the ongoing collection of data and reported in accordance with current Mangoola Coal Mine Project Approval Condition 35 of Schedule 3.

In addition to the aforementioned piezometers, and in accordance with Section 3.4 of the Xstrata Mangoola Groundwater Monitoring Plan, piezometers will be installed along transects across the creek near the junctions with Anvil Creek and Clarks Gully, in order to delineate the Big Flat Creek alluvium. It is currently unknown as to how many holes will be drilled

along each transect; this will be resolved in the field at the time of drilling. Approximately 30 piezometers will be established; each expected to be between 3 and 10 metres deep. It is planned that the drilling will be conducted in the 2011-2012 financial year.

5.4 Muswellbrook Shire Council

Muswellbrook Shire Council (MSC) provided their submission by way of numbered paragraphs. For ease of reference, the following summation is in order of issues and response provided in accordance with MSC's numbered paragraphs.

Council at a special meeting held on 7 February 2011 resolved not to support the proposed modification application based upon the matters listed in their submission.

Submission

- 1. By Application lodged 23 December 2009 (the Application), Xstrata Mangoola Pty Limited (the Proponent) seeks, pursuant to s75W of the *Environmental Planning and Assessment Act 1979* (the Act) to modify a development consent granted to it pursuant to Part 3A of the Act on 7 June 2007.**

Response

Paragraph is a statement of fact in relation to lodgement of the project application and therefore no response is warranted.

5.4.1 Conditions

Submission

- 2. It is not clear from the Application (or the supporting material) which conditions the Proponent applies to have revoked or varied or whether the Applicant seeks a further condition.**

Response

It is for the Minister for Planning to determine the Project Approval Conditions, and not a legal requirement for this Response to Submissions report.

Submission

- 3. The Proponent sets out its modification in Part 5 of its Application as follows:
The proposed modifications include:**

- [(a)] re-design of the mine plan and staging associated with the relocation of the 500KV [electricity transmission line (ETL)];**
- [(b)] water management and other ancillary changes resulting from the re-designed mine plans;**
- [(c)] temporary [Run of Mine (ROM)] coal stockpile;**
- [(d)] construction of a noise wall in the rail loop area; and**
- [(e)] minor changes to the approved project disturbance boundary including:
 - [(i)] an area of approx. 2 ha where the raw water dam will inundate land at full supply;****

- [(ii)] an area of approx. 9 ha where drilling has established that the coal crop line extends beyond the approved project disturbance boundary; and**
 - [(iii)] four small areas (totalling approx 1.6ha) around the rail loop for drainage.**
- [lettering added for ease of reference]**

4. There is a great deal of uncertainty about whether or not the Proponent also makes an application for the further modifications set out below – or matters consequential upon the matters set out below. The matters do not form part of the Application but are disclosed in supporting material:

- (a) construction of a rail re-fuelling facility;**
- (b) transportation of the fuel associated with the rail re-fuelling facility by road;**
- (c) a substantial increase in the extraction rate;**
- (d) a substantial increase in train movements;**
- (e) a substantial increase in employee numbers;**
- (f) a substantial increase in road traffic associated with the development; and**
- (g) a variation to the noise management zone.**

Response

The proponent makes applications for the following as stated in the EA:

(a) construction of a rail re-fuelling facility

Section 1.2.1 of the EA states that Mangoola Coal is proposing to 'construct and operate a rail re-fuelling facility approved rail loop'. It is also noted in the Executive Summary and included in Table 11.1 Key Features of Proposed Mangoola Coal Mine Modifications. Section 11.7 describes the facility in more detail.

(b) transportation of the fuel associated with the rail re-fuelling facility by road

This is a consequential activity of the re-fuelling facility assessed as part of the EA.

The re-fuelling initiative is aimed at improving efficiency by enabling trains to be refuelled as part of loading operations. It is proposed that two additional fuel tankers per day would travel to and from the Mangoola Coal Mine, using the route from the New England Highway, via Thomas Mitchell Drive, Bengalla Link Road and Wybong Road to the Mangoola Coal Mine.

(c) a substantial increase in the extraction rate

'The modification does not seek to increase the production rate as a result of the alterations to the mine plan or to alter the original consent period of 21 years' (Section 11.1 of the EA). The approved limit of extraction is 10.5 million tonne per annum (Mtpa). As a result of the modifications to the mine plans a more efficient mining sequence can be implemented at the site resulting in a shorter overall life of mine, despite no change in the maximum approved extraction rate. This is achieved through a quicker ramping up of operations to the maximum annual production rate.

As part of the EA for proposed modifications to approved mine plans, assessments have been undertaken for aspects which have the potential to be impacted by the change to the mining schedule, in particular air and noise and these are presented in the EA.

(d) a substantial increase in train movements

The Executive Summary, and Sections 1.2.1, 11.1 (Table 11.1) and 11.6 of the EA discuss the proposed increase in train movements. Mangoola Coal proposes to increase train movements from the approved average of four trains per day to a peak of ten trains per day. This proposed increase has resulted from a detailed review of train capacity, rail loading capacity and consideration of the potential fluctuation in daily train movements, required to

achieve the required product delivery, considering coal chain logistics. Further rail traffic details are detailed in Section 11.6 of the EA. **Section 5.4.4** of this Response to Submission Report details the rail noise assessment associated with the increase in train movements.

(e) a substantial increase in employee numbers

Sections 11.1 (Table 11.1) and 11.10 of the EA discuss the increase in both construction and operational workforce numbers; increases are stated as being from 200 to 350 for construction and from 240 to 300 for operations. These numbers are now reduced as the construction of the mine is substantially complete with the construction workforce no longer required on site as part of the mine plan modifications. The maximum numbers of staff will now be during the construction of the ETL relocation (autumn 2012), being mine operational staff plus ETL relocation staff only.

(f) a substantial increase in road traffic associated with the development

As part of the ETL Relocation construction there will be minimal increase to traffic, refer Section 8.14.2 and Appendix A5 of the EA.

Section 12.14.1.2 of the EA discusses the increases to traffic associated with the proposed mine plans modifications, taking into account the existing traffic generated by the current approved project. It concludes that the impact on traffic is expected to be minimal. As noted above, the construction of the mine is substantially complete therefore there will be no impacts on roads during this phase and minimal impacts during the construction phase.

The results of this assessment have been reiterated by the further traffic assessment completed as part of this response to submissions report (Parsons Brinkerhoff, 2011).

(g) a variation to the noise management zone

This is a consequential change based on the proposed modifications. Section 12.8.1.4 and Appendix C7 of the EA detail the noise impacts assessed for the proposed modification to the approved project. This includes a comparison against the current approved project which takes into account changes to the number of properties that are included in both the acquisition and noise management zones; no residences move into the acquisition zone, 10 residences move out of the noise management zone and five residences move into the noise management zone.

Those residences identified as having rights for noise mitigation and management in accordance with the original Project Approval (06_0014) will still have those rights available to them, irrespective of whether the modification results in their property no longer being predicted to receive the level of noise impacts above the relevant trigger level that is noted in this condition. This commitment is included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2**.

Submission

- 5. It is possible that the Proponent seeks a variation to condition 2 of its present consent (and its reliance on the original EA) insofar as the subject matter of paragraph 3 (and perhaps paragraph 4) is concerned – although that is also not clear.**

Response

The modifications application was supported by a comprehensive EA and it is expected (as is normal practice) that DP&I will modify Condition 2 of the Mangoola Coal Mine Project Approval (06_0014) to include reference to the Umwelt (2010) EA and indeed this Response to Submissions Report.

Submission

6. Unhelpfully, the original EA is not one of the documents being exhibited despite the reliance on it to understand the apparent nature of the Application.

Response

The EA for the proposed modifications includes sufficient information from the original EA for the approved project to provide context for the aspects and issues associated with the project. The original EA is available on the DP&I website (Xstrata Mangoola website also provides a link to the DP&I website).

The EA met DP&I's adequacy requirements for public exhibition. The original EA was publically exhibited and widely circulated during the original project approval process, including many copies being provided to MSC.

5.4.2 Submissions in Summary Form

7. Council makes the following submissions in summary:

Submission

- a) The consent authority is without jurisdiction to assess the matter in the absence of the Proponent's specification of the relief sought by its s75W Application;**
- b) It is not reasonably open to the consent authority to determine that the Application falls within the jurisdictional power of section 75W;**

Response

DP&I confirmed the approval path for the EA (by correspondence to Xstrata Mangoola on 30 January 2008). The modification application was made in accordance with the requirements of s 75W. The Director-General's Requirements (DGRs) were issued and are included in Appendix A1 of the EA (DGRs Date of Issue: 8 February 2010). The s 75W application clearly sets out the modification proposal. It is for the consent authority to decide the appropriate approval mechanism for the proposal.

There is no doubt that it is within the Minister's power under s 75W to approve the proposed modifications to the Mangoola Coal Mine.

Submission

c) Council does not support the Application and notes that:

(i) it would be unable to adequately maintain the road network impacted upon by the modified project at a safe and appropriate standard and has no reasonable prospect of ever being able to do so. In that regard it is noted that:

- A. The Proponent has not complied with its present conditions to construct Wybong Road to a satisfactory standard and there is no material before the consent authority from which it could be accepted that the Proponent will do so;**

- B. The existing design standard in respect of Wybong Road is not appropriate for the proposed intensified traffic;**
- C. The intensification of extraction, the increased workforce, the haulage of rail fuel, the marked difference between projected (original EA) and actual (prevailing) traffic generation, the lack of rigour in the Proponent's traffic modelling in the present EA (particularly the use of historical projections as against actual traffic generation), the intensification of coal related traffic generally in the Shire and a range of other matters, in combination, ensure that Council will not have the capacity to safely maintain the consequential road network associated with the proposed development. Any approval is certain, therefore, to compromise the safety of mine workers and other road users;**

Response

- A. MSC provided Mangoola Coal with a Notice of Practical Completion (PC)¹³ for the Wybong Road Upgrade Construction with MSC determining PC was achieved 20 July 2010. The notification also included a list of minor defects and minor omissions to be rectified by a prescribed date.

In February 2011 MSC withdrew PC of the upgrade works due to numerous failures of the road surface. Since this time, Mangoola Coal have been in discussion with MSC regarding the potential causes of the failures with tests being carried out on the road late 2010 and early 2011 to gather data from the pavement to assist in determining the cause of the failures. Based on information from these tests, Parsons Brinkerhoff produced an independent assessment on the likely causes of failure which was sent to MSC for review on 20 April 2011. To date no feedback on this report has been received.

In parallel with the process of determining the cause of failures, Mangoola Coal undertook to repair the failed sections of road which was completed on 19 April 2011. Following this Mangoola Coal have requested MSC re-issue PC for the road upgrade works.

Mangoola Coal have also undertaken to review the pavement failure report with MSC and, if required, undertake further work if an agreement can be reached with MSC on the scope of this.

- B. The TPK and Associates Traffic Study completed in 2006 for the approved Anvill Hill Project reported:

- a total AM peak hour traffic generation of 125 vehicles from 240 operational staff; and
- a total PM peak hour traffic generation of 106 vehicles from 240 operational staff.

This compares with the following vehicle generation now forecast in the additional traffic impact assessment completed as part of this response to submissions report (refer **Appendix 3**):

- AM peak hour traffic of 156 vehicles from 300 mine operations staff and 26 vehicles for the construction of the ETL relocation; and
- PM peak hour traffic of 135 vehicles from 300 mine operations staff and 29 vehicles for the construction of the ETL relocation.

The maximum cumulative daily traffic including existing traffic, traffic generated by the proposed Mangoola Coal Mine modifications to mine plans and ETL relocation, has the potential at its peak to reach: AM peak hour traffic volume of approximately 241 vehicles, and PM peak hour traffic volume of 231 vehicles.

¹³ Dated 13 October 2010.

This is based on the following assumptions:

- the mine is fully operational, generating approximately 600 vehicle trips per day; and
- the weeks of maximum daily traffic of 360 vehicles per day for the construction of the ETL relocation (weeks 17 to 20 of the construction program) occur whilst the mine is fully operational (i.e. the mine plan modifications are approved).

The existing design for Wybong Road is appropriate for the proposed intensified traffic. The Level of Service (LoS) defined in the NSW Roads and Traffic Authority's (RTA) *Guide to Traffic Generating Developments* (RTA, 2002) for Wybong Road and Wybong Post Office Road is LoS A which equates to approximately 300 vehicles per hour for a single lane each way road, and Bengalla Link Road is LoS B. LoS A is classed as good and F, the lowest ranking, being unacceptable). LoS ranking for this assessment is based on a cumulative traffic assessment.

Based on the EA traffic figures and estimates, it is not deemed necessary to change the classification of the road.

C. The EA for the proposed modifications was completed as required by legislation in accordance with the DGRs and the relevant legislation, guidelines, policies. However, based on the content of the traffic related submissions received from MSC, Interest Groups and the Community for the proposed modifications, Mangoola Coal commissioned an additional traffic impact assessment for the project area. The assessment is included in **Appendix 3** and includes:

- updated traffic counts conducted at key intersections in the road network surrounding the approved Mangoola Coal Mine (counts will include both volume and classification);
- manual traffic assignment to the surrounding road network based on the traffic count results, proposed traffic distribution, calculated traffic growth based on the traffic count at the mid-block count stations;
- additional SIDRA modelling for all key intersections, considering two scenarios:
 - do-nothing;
 - future year with applied additional cumulative traffic, generated by the ETL relocation (both ETL removal and construction) and mine development and modifications (including assessment of vehicle types such as oversized and heavy vehicles); and
- on the basis of this additional information, the impact assessment will be updated and any necessary additional remedial work/improvements will be determined.

The additional traffic assessment has also further considered any impacts of the addition of two fuel tankers travelling to and from the Mangoola Coal Mine on a daily basis.

The assessment documents updated traffic findings including an updated cumulative traffic impact assessment taking into account the Mangoola Coal Mine and other approved projects and industries in the area.

Submission

(ii) The intensification of extraction, the increased workforce, and the intensification of coal extraction in the Shire more generally would have the consequence that Council's capacity to appropriately maintain community services would be unsatisfactorily compromised;

Response

Mangoola Coal appreciates that community services will continue to be placed under pressure due to the cumulative impact of both mining and other industries in the region. In recognition of this a Planning Agreement, for the original Planning Approval, was entered into by Mangoola Coal, XCN and MSC in accordance with section 93F of the EP&A Act and specifically in relation to the Mangoola Coal Project.

Contributions committed to, and the status of their payment to MSC, include:

- a contribution of \$500,000 over five years for the Wybong Uplands Land Management Strategy – partial payment of \$200,000 (\$100,000 on both 06/02/09 and 01/02/10);
- a contribution of \$1.2 million to Council's Recreation Assets Renewal Fund - initial payment of \$220,000 on 27/05/11;
- a contribution of \$2.2 million to Council for Denman Area Recreation Enhancements – initial payment of \$600,000 on 27/05/11; and
- a commitment of \$600,000 over six years to contribute to local employment through an Education and Training Strategy – payment to date of \$200,000 (\$100,000 on both 06/02/09 and 01/02/10).

In addition, since purchase of the site by Xstrata in 2008, Mangoola Coal has established an Annual Community Support Program through which they have made numerous contributions on a local level. **Table 5.1** presents the recipients and contribution amounts.

Each year XCN find and fund partner organisations and initiatives throughout New South Wales and Queensland. XCN and Xstrata Coal's (XC) Corporate Social Involvement (CSI) provide the ideas, foundations and support necessary to affect positive change across the areas of health, education, community, environment and the arts. In 2010 more than \$12 million was committed to assist over 50 CSI partners to achieve their goals, a number of which are within the Hunter Region. Regional initiatives/programs and contributions from XC and XCN for 2010/2011 are listed in detail in **Appendix 5**, and summarised in **Table 5.2**.

In addition to the contributions to the community outlined above, the project will also make a significant contribution to maintaining services in the community through the direct and flow on effects of employee and operational expenditure.

A comprehensive assessment of socio-economic factors was completed as part of the Anvil Hill Project EA (Umwelt, 2006a). As part of the assessment, the issues of the local community and the wider Muswellbrook Shire community were identified by a thorough consultation process. The issues raised by the community have been considered and addressed where possible, through the development of appropriate mitigation, amelioration and enhancement strategies.

The assessment acknowledged that a development of the scale and size of the approved Mangoola Coal operations brings significant advantages to particular stakeholders and disadvantages to others. The population impacts, associated with the approved project, on service provision within the local government area (LGA) can be adequately managed, and indeed will have considerable economic benefits for the local community.

The approved project will make significant positive economic contributions at local, regional and state levels. On a regional basis, the Anvil Hill Project EA (Umwelt, 2006a) estimated that construction of the approved project would contribute between \$19M and \$21M in annual direct and indirect regional output or business turnover; between \$9M and \$10M in annual direct and indirect regional value added; between \$5M and \$6M in annual direct and indirect household income; and indirect and direct employment of approximately 121 to 143 people, as an annual average during the construction period.

In the operational phase, it was estimated in the Anvil Hill Project EA (Umwelt, 2006a) that the approved project would contribute to the regional economy between \$212M and \$224M in annual direct and indirect regional output or business turnover; between \$115M and \$121M in annual direct and indirect regional value added; between \$25M and \$28M in annual household income; and indirect and direct employment of between 343 and 449 people. Royalties for the life of the approved project were estimated to be approximately \$380M.

Table 5.1 - Mangoola Coal Initiatives – Annual Community Support Program Contributions

Category	Recipient	Project	Value		TOTAL contribution 2008 to 2011
			2008 to 2010	2011	
Health	Westpac Rescue Helicopter	Black Coal Cup Ball	\$20,000 (over 4 years)		\$20,000
		Black Coal Cup Golf Day	\$2,000 (over 4 years)		\$2,000
	Cancer Council	Relay for Life	\$20,000 (over 4 years)		\$20,000
	Denman Hospital Auxiliary	Meals on Wheels Kitchen Equipment	\$5,000		\$5,000
	Denman Hospital Auxiliary	CPR Belt	\$600		\$600
	NSW Minerals Council	NSW Dept Health Dust Brochure	Sent out with every newsletter		
Arts and Culture	Denman District Development Association	Upper Hunter Wine and Food Affair	\$20,000 (over 4 years)		\$20,000
	Denman Historical Society	Denman Historic		\$2,000	\$2,000
Enterprise and Job Creation	Community	Sponsored Apprentices	\$26,000 per year for 5 years		\$130,000
Education	Bursting With Energy Expo Committee	Bursting With Energy Expo	\$15,000 (over 4 years)		\$15,000
	NAIDOC	Support for outstanding student of the year in science	\$1,000 yearly		\$4,000
	Local Schools	Muswellbrook and Upper Hunter Eisteddfod	\$500 yearly		\$2,000
	Local Schools	Local School Donations		\$1,000	\$1,000
	Denman, St Josephs, Martindale and Sandy Hollow Public Schools	Bus Trip Vouchers		\$35,000	\$35,000
		Provision of music teacher 1 day per week for 1 term per year			
Environment		Solar Boat Challenge		\$2,000	\$2,000
	Wildlife Aid	Support for Service	\$2,000 per year		\$6,000
	Wildlife Aid	Resource Provision	\$2,000	\$2,000	\$4,000
	Community	National Tree Planting Day	\$500 yearly per school (4 schools - \$2,000/year)		\$8,000

Table 5.1 - Mangoola Coal Initiatives – Annual Community Support Program Contributions (cont)

Category	Recipient	Project	Value		TOTAL contribution 2008 to 2011
			2008 to 2010	2011	
Communities	Wybong Hall Committee	Insurances	\$3,000 yearly		\$12,000
	Community	Women and Children's Refuge	\$70,000 per year		\$280,000
	Clean Up Australia Day	Clean Up Australia Day Challenge		\$200 plus employee volunteers	\$200
	Denman Pony Club	Support for purchase of resources		\$15,000	\$15,000
		Provision of slashing to prepare pony club ground		\$6,000	\$6000
	Wybong Hall	Support for purchase and installation of solar panels		\$10,000	\$10,000
TOTAL					\$604,800

Table 5.2 - XCN/XC Initiatives – Contributions Relevant to the Hunter Region

Category	Initiative	Value		Total Contribution 2010/2011
		2010	2011	
Health	Humpty Dumpty Foundation (XC initiative)	\$73,000	\$73,000	\$146,000
	Hunter Medical Research Institute – Asthma Fellowship	\$300,000		\$300,000
	Hunter Medical Research Institute – Depression Fellowship	\$100,000 as part of a \$300,000 3 year commitment	\$100,000 as part of a \$300,000 3 year commitment	\$200,000
	John Hunter Children's Hospital Neonatal Unit	\$200,000	\$200,000	\$400,000
	Westpac Rescue Helicopter Service	\$120,000	\$130,000	\$250,000
	John Hunter Hospital Trauma Unit	\$200,000	\$200,000	\$400,000
	HIMH's Foundations Magazine	\$55,000	\$100,000	\$155,000
	Starlight Children's Foundation		\$250,000	\$250,000
Arts and Culture	Newcastle Regional Museum	\$325,000 as part of its \$1 million sponsorship		\$650,000
	The Power of Music Program	\$100,000	\$115,000	\$215,000
	Minimbah Teaching Place	\$300,000 as part of a two year commitment		\$300,000
	Sydney Symphony Regional Tour (XC initiative)	\$30,000	\$30,000	\$60,000
	The Song Room (XC initiative)	\$105,000 as part of a new and expanded 3 year partnership	\$115,000	\$220,000
Enterprise and Job Creation	Hunter Valley Training Company	\$298,000	\$320,000	\$618,000

Table 5.2 - XCN/XC Initiatives – Contributions Relevant to the Hunter Region (cont)

Category	Initiative	Value		Total Contribution 2010/2011
Education	NSW Premiers Teachers Scholarships	\$62,500	\$62,500	\$125,000
	University of Newcastle – Indigenous Scholarships	\$20,000	\$30,000	\$50,000
	University of Newcastle Scholarship Program	\$270,000	\$270,000	\$540,000
	University of New South Wales – Scholarship Program	\$180,000	\$200,000	\$380,000
	University of Sydney – Scholarship Program	\$30,000	\$30,000	\$60,000
	Galuwa – A Pathway Program for Aboriginal Youth	\$180,000	\$270,000 as part of a \$1.26 million five year pledge	\$450,000
	KIDS Foundation – School Injury Prevention Program		\$350,000 over three years	\$125,000
Environment	Myriver Hunter	\$50,000		\$50,000
	Singleton Indigenous Regeneration Support Team	\$150,000	\$150,000	\$300,000
	Hunter Central Rivers Catchment Management Authority		\$1.5 million For 2011-2013	\$500,000
Communities	Singleton and Mudgee Dad's Take Home Reading Program	\$105,000 as the final instalment of a \$300,000 four year partnership		\$105,000
	Maitland Neighbourhood Centre	\$70,000	\$80,000	\$150,000
	Wesley Newcastle Youth Services	\$60,000	\$135,000	\$195,000
	Carrie's Place	\$150,000	\$125,000	\$275,000
	Hunter Support Program, Lifeline (Newcastle and Hunter)	\$80,000	\$150,000	\$230,000
	Crisis Intervention Response Service, Lifeline	\$75,000		\$75,000
	Young Driver Awareness Program	\$120,000		\$120,000
	Muswellbrook Women's and Children's Refuge	\$70,000	\$80,000	\$150,000
	All Abilities Playgrounds – Singleton and Tahmoor	\$200,000		\$200,000

Table 5.2 - XCN/XC Initiatives – Contributions Relevant to the Hunter Region (cont)

Category	Initiative	Value		Total Contribution 2010/2011
	Community Links Wollondily		\$200,000 over two years	\$100,000
	Dads in Distress Support Services		\$40,000	\$40,000
	Hunter Prelude Early Intervention Centre		\$180,000	\$180,000
TOTAL				\$8,564,000

Submission

(iii) The intensification of extraction, the increased workforce, and the intensification of coal extraction in the Shire more generally would have the consequence that local markets for health services, community services, skilled labour, water, accommodation and productive land would be unsatisfactorily compromised.

Response

The increase in the workforce associated with the proposed modifications is associated with both construction and operational phases.

The workforce during the construction phase for the ETL relocation is estimated to be 50 employees on site at any one time (for the approximate 11 month construction timeframe). The employees on site will be a combination of personnel with specialised expertise in the construction of electricity transmission lines who will generally be in the area for a short time during the construction work phase for the ETL relocation. Due to the short term nature of construction, these workers will not be accompanied by their families and will stay in temporary accommodation in close proximity to the project during the construction period. The remainder of employees will be sourced from local contractors (e.g. crane and machinery operators) who are not expected to require accommodation during the construction phase.

There is no permanent workforce associated with the operational phase of the ETL.

The timing of the construction of the ETL relocation will overlap with the operational phase of the Mangoola Coal Mine, meaning that the influx of construction workers to meet the demands of the project will be dispersed over at least a one year period.

Proposed changes to the workforce at Mangoola Coal Mine originally predicted an increase to the construction workforce up to an average of 350 personnel compared with the previous estimation of a peak of 200 personnel. As of May 2011, mine plan construction is substantially complete therefore reducing any pressure on the accommodation market. The maximum numbers of staff will now be during the construction of the ETL relocation (autumn 2012), being mine operational staff plus ETL relocation staff only. Due to the specialised nature of construction, it is assumed that approximately 20 per cent of construction contractors will be sourced locally, while the remaining 80 per cent will be sourced from outside the region. As with the construction of the ETL it is also assumed that due to the temporary nature of construction, these workers will not be accompanied by their families and will stay in short term accommodation in close proximity to the Project during the construction period.

The major population impact associated with the construction phase is therefore expected to be demand for short term accommodation. Based on the occupancy rates of existing facilities, there is expected to be sufficient short term accommodation available to house the construction workforce.

Given the extent of fluctuation of the cumulative workforce in the Muswellbrook LGA and surrounding areas, it is anticipated that the proposed increase of an average of approximately 60 operational employees associated with the mine plan modifications can be catered for within the existing capacity. It is also estimated that the operational workforce will increase by a further 60 personnel to an estimated average of 300 personnel. Despite an increase in operational staff, the large reduction in construction staff numbers, outlined above, will reduce any residual stress on accommodation supply.

The shortage of skilled labour is a challenge for the entire mining industry and for this reason XCN makes substantial contribution to regional education and enterprise as noted in **Table 5.2** above.

As discussed in Section 12.5.1.3 of the EA, the modification is not expected to require additional water supply.

The proposed modification relates to an approved mine and results in comparatively minor additional land disturbance, all of which is located on Mangoola Coal¹⁴ owned land. This modification will have no significant impact on available productive land.

With respect to health and community services refer to response to MSC submission 7(c)(ii) above.

Submission

(iv) it considers the sterilisation of land development resulting from a combination of the proposed intensification of extraction, the proposed increase in rail movements, and the operation of clause 87 of the SEPP (Infrastructure) 2007 to be unreasonable insofar as the future growth of the town of Muswellbrook is concerned;

Response

As discussed in the EA, the proposed modifications and increase in intensification up to year 14 of mining do not result in any significant change to the area affected by predicted noise or air quality emissions nor is there any additional land acquisition required for the ETL or proposed modifications. In addition, the project impacts do not cause additional land sterilisation. Consequently there are minimal changes and little to no sterilisation of land associated with the ETL relocation or mine plan modifications.

Submission

(v) it considers that the proposed intensification of coal extraction associated with the project (both assessed in isolation and cumulatively with other open-cut coal operations) without conditions requiring the monitoring and regulation of PM_{2.5} particulate matter, at locations reasonably assessed by Council to be suitable, to be unreasonable;

Response

The National Environmental Protection Council (NEPC) has developed 'Advisory Reporting Standards' as a National Environmental Protection Measure (NEPM) for PM_{2.5}. The numerical values for the NEPM are:

- a maximum 24-hour average PM_{2.5} concentration of 25 mg/m³, and
- an annual average PM_{2.5} concentration of 8 mg/m³.

The goal for the NEPM is to gather sufficient data nationally to facilitate a review of the Advisory Reporting Standards, so that air quality goals can be developed and adopted by state regulatory authorities.

At present, the only standards for assessing PM_{2.5} monitoring data are the NEPM PM_{2.5} standards which are intended for 'regional' monitoring sites, not for the monitoring of project specific sources. The NEPM standards do not provide any particular health guideline value although they are a reference for State Government to report to the NEPC.

¹⁴ Xstrata Mangoola Pty Limited.

While no PM_{2.5} predictions have been made specifically for the proposed modifications, predictions for the approved mine (as presented in the Independent Hearing and Assessment Panel Anvil Hill Coal Project - Report to the Director-General Department of Planning, January 2007) showed that the impact zone of PM_{2.5}, defined by comparing annual PM_{2.5} predictions with the NEPM standard, was found to be very similar to the impact zone of PM₁₀. It is therefore inferred that areas around Mangoola Coal Mine where compliance with the PM₁₀ criteria has been predicted would also be predicted to comply with the NEPM advisory standards for PM_{2.5}.

It is useful to note the OEH health based assessment criteria, such as those for PM₁₀, have generally been developed from epidemiological studies undertaken in urban areas where the main air pollutants are due to emissions from combustion sources, such as motor vehicles. In these areas, the airborne particulate matter contains a higher fraction of smaller particles (for example PM_{2.5} and PM₁) than that found in areas where emissions are from a crustal origin. Particles generated through mining in the Hunter Valley are predominantly due to the crushing or abrasion of rock, and in the case of mining, most of the emissions will be larger than PM_{2.5}. The difference in PM_{2.5} fractions in urban and rural areas is supported by the State Pollution Control Commission (SPCC, 1986) study which provided data on the distribution of particle sizes near mining dust sources. This study showed that PM_{2.5} was less than 5 per cent of total dust (TSP) emissions.

Finally, monitoring undertaken in Muswellbrook has shown that PM_{2.5} concentrations have generally complied with the NEPM standards and the only exceptions were when bushfire smoke was affecting air quality. The annual average PM_{2.5} concentrations for 2006-07, 2007-08 and 2008-09 were 7, 6 and 5 µg/m³ respectively (Muswellbrook Shire Council, 2009). These levels are below the NEPM's 8 µg/m³ standard and would include the effects of emissions from all existing mines including Mt Arthur, Bengalla, Muswellbrook Coal, Drayton and others further away.

Should the NSW Government introduce the requirement to measure fine particulate matter, i.e. PM_{2.5}, in the future on a project specific basis, Mangoola Coal would implement the appropriate monitoring program in consultation with the relevant authorities and the local community. The closest OEH operated PM_{2.5} monitoring site, which forms part of the Upper Hunter Regional Air Quality Network, is located in Bowman Park, Muswellbrook, approximately 15.5 kilometres east of the Mangoola Coal Mine Infrastructure Area and approximately 16.2 kilometres to the north-east of the mine's rail loop. Based on monitoring results for previous years in Muswellbrook there would appear to be compliance with a NEMP standard of 8 µg/m² should this be introduced (noting that this is a generalisation).

Despite the monitoring of PM_{2.5} not being a legislative requirement, Mangoola Coal plan to implement two PM_{2.5} monitors. The exact locations of the monitors are yet to be determined; however, they are likely to be located north-west and south-east of the mine site to capture the prevailing wind conditions.

Submission

(vi) it considers that the proposed intensification and proposed modified layout would have an unacceptable impact on woodland connectivity, the preservation of remnant woodland and undisturbed habitat (against a background of extensive cumulative Shire-wide disturbance);

Response

As discussed in **Section 7.13** of this Response to Submissions, the proposed modifications do not cause a significant impact on woodland connectivity, the preservation of remnant woodland and undisturbed habitat.

Submission

(vii) it considers that, for the reasons set out in (i) to (vi) herein, any extension of the project should be applied for under section 75J of the Act.

Response

DP&I confirmed the approval path for the EA (correspondence received by Xstrata Mangoola, 30 January 2008). A modification application was made in accordance with the requirements of s 75W. The DGRs were issued and are included in Appendix A1 of the EA (DGRs Date of Issue: 8 February 2010). The s 75W application and subsequent EA clearly sets out the mine plan modifications proposal. It is for the consent authority to decide the appropriate approval mechanism for the proposal.

Further, there is no doubt that it is within the Minister's power under s 75W to approve the proposed modifications to the Mangoola Coal Mine.

Submission

d) Council submits that ad hoc extensions by s75W variation, in circumstances of such rapid local industry growth, would effect a complete disengagement of the community from important considerations about the extent and cumulative impact of mining and is therefore contrary to the public interest;

Response

The proposed modifications are as a result of the optimisation of the current approved project; it is not a major extension and there is no proposed increase to the maximum extraction rate. A comprehensive EA has been completed for the proposed modifications including consultation and public exhibition as required by legislative requirements to ensure that the community and regulators are informed throughout the EA process. Consultation for the project included numerous opportunities for community involvement and has included a range of consultative and assessment mechanisms to engage the community in relation to the projects, including:

- Community Consultative Committee (CCC) – the Projects were initially raised with the Mangoola Coal CCC in 2008 and consultation has been ongoing with the CCC throughout the Project;
- Project Specific Community Information Sessions (CIS) – two project specific CIS were held in April 2009;
- Mangoola Coal Consultation – in addition to the specific CIS held for the Project, one further Mangoola Coal CIS, held on 22 July 2010, and two community newsletters developed by Mangoola Coal, which addressed various aspects of the Mangoola Coal Project, have also provided the community with updates on the proposed Projects;
- Individual Meetings – in addition to the consultation mechanisms outlined above, Mangoola Coal has commenced face-to-face consultation with specific residents affected or potentially affected by the proposed Projects; and
- Aboriginal Stakeholder Consultation – consultation with 33 Aboriginal stakeholder groups has also been undertaken during the Aboriginal Heritage Assessments for the Projects.

Meetings held with Council have also been an integral part of the consultation process. Meetings attended by Council, in relation to Mangoola Coal Mine are listed in **Table 5.3** below.

Table 5.3 - Meetings Attended by Council

Meeting	Date	Council Attendees
EOM of Council – 500 kV presentation – Umwelt and MC	20.04.09	All Council including Mayor Martin Rush
CCC	20.05.09	No Council Representatives
Environment Committee – MSC	03.06.09	Environment Committee including Mayor Martin Rush
CCC	19.08.09	Stephen Ward and Jennifer Lecky
CCC	18.11.09	Martin Rush and Chris Gidney
CCC	17.02.10	Stephen Ward, Martin Rush and Chris Gidney
CCC	19.05.10	No Council Representatives
CCC	18.08.10	Stephen Ward and Chris Gidney
CCC	23.02.11	Stephen Ward, Chris Gidney and Ray Butchard (Martin Rush's replacement)

In addition to consultation, Mangoola Coal have engaged with the community and Council on numerous socio-economic issues including commitments made in the EA and commitments made through Mangoola Coal's Community Support Programs and XCN/XC's CSI Program, as outlined in response to MSC submission 7(c)(ii).

All consultation and community involvement has ensured that the community are cognisant of all changes and activities associated with the Mangoola Coal Mine and proposed modifications.

Submission

- e) Council submits that, in circumstances of such rapid and intensive local mining industry growth the public interest is best served by extensions supported by full environmental impact statements of the type contemplated by s75J of the Act;**

Response

The EA for the proposed mine plan modifications represents a comprehensive EA prepared in accordance with DGRs and relevant legislation, policies and guidelines.

Submission

- (a) If, notwithstanding the submissions made by Council, the Department is nonetheless minded to grant the approval, Council submits that, as a condition of the variation, the Department impose conditions in the form set out in the Schedule.**

Response

It is understood that if the Minister approves the proposed modifications DP&I will determine the approval conditions taking into consideration the recommendations of MSC.

5.4.3 The Terms of the Application and the Exhibition of Documents

Submission

- 8. As noted above, it is not clear from the Application which conditions the Proponent applies to have revoked or varied or whether the Proponent seeks a further condition. The original EA did not form part of the public exhibition of documents.**

Response

See responses above.

9. The following is noted:**Submission**

(a) The EA for the proposed modification sets out a production schedule over a 15 year period. 12 of the 15 proposed project years involve the maximum (10.5MtPA) rate of ROM coal extraction. This differs markedly from the 20 year graduated production schedule proposed by the original application (which had very few years involving maximum rates of extraction). Proposed production would result in a 100% increase in excavation intensity during the first three years of the project and a 30% increase during the final three years;

Response

The approved limit of extraction is 10.5 Mtpa. As discussed in the EA as a result of the modifications to the mine plans a more efficient mining sequence can be implemented at the site resulting in a shorter overall life of mine (15 years), despite no change in the maximum approved extraction rate. This means that the length of time that impacts are experienced by surrounding residents is reduced by five years.

The EA addresses the potential impacts which may result from mine plan optimisation, including modelling of air and noise impacts associated with the optimised production schedule, which result in no significant changes to the impacts from the operation.

Consequently full production for a few years does not result in more adverse impacts. However, mine optimisation; including full production for a few years results in a shorter mine life of 15 years.

Submission

(b) The proposed modified intensity of production, length of mine life, rail movements, workforce, water management and offset management would require a wholesale variation to almost every aspect of the project;

Response

The impact assessment included in the EA for the modification considers all of these aspects.

Submission

(c) If the project is approved in the manner sought by the Proponent the consolidated consent would be internally inconsistent because of the tension between condition 2 (and the associated EA), and the shorter time frame and intensified production schedule of the varied project.

Response

It is expected that DP&I will modify Condition 2 of the current Project Approval (06_0014) to reflect the EA for mine plan modifications and make clear that in the event of any inconsistency, the latter EA prevails.

Submission

10. The Proponent has not stated the specific conditions of consent sought to be modified, deleted or additional conditions imposed. The necessity to actually set out the specific revocations, variations or new conditions sought derives from the wording of s75W. The failure to specifically identify those matters may render the consent authority without jurisdiction to determine the matter. The NSW Court of Appeal has held that a request for modification of an approval under Part 3A of the Act within the terms of s75W is a precondition to the exercise of the power under s75W.

Response

The modification application was made in accordance with s 75W and clearly identified the proposed modifications. A comprehensive EA was prepared to respond to the DGRs issued in respect of the proposal. There is nothing contained in s 75W, which requires that a request under s 75W(2) 'set out the specific revocations, variations or new conditions sought'. A request under s 75W(2) may make reference to a particular condition, alternatively the request could refer to an aspect of the project which forms the subject of the approval. It is for the Minister for Planning to determine the Project Approval Conditions, and not a legal requirement for this Response to Submissions report.

5.4.4 The Proposed Modified Development within the Local Context**Submission**

11. As noted, the Proponent proposes, by its Application, to intensify production and rail movements. Further consequential increases in the Proponent's workforce are also proposed. Council submits that the resulting development would have an unacceptable cumulative social and economic impact.

Response

The approved maximum limit of extraction is 10.5 Mtpa. As discussed in the EA, as a result of the modifications, including full extraction for a few years together with more efficient mining, will result in a shorter overall life of mine (15 years), despite no change in the maximum approved extraction rate. This means that the length of time that impacts are experienced by surrounding residents is reduced.

Mangoola Coal also proposes to increase train movements from the approved average of four trains per day to a maximum of ten trains per day. This proposed increase has resulted from a detailed review of train capacity, rail loading capacity and consideration of the potential fluctuation in daily train movements, necessary to achieve the required product delivery, considering coal chain logistics. An updated noise impact assessment has been undertaken to include the proposed increase to train movements at Mangoola Coal.

The noise impact was assessed for the proposed peak of ten train trips per day, averaging five during the daytime period and five during the night time period on the Muswellbrook to Ulan Railway. The rail noise was reassessed in relation to these revised train movements based on a review of train movements associated with other developments using the Ulan to Muswellbrook line and taking into account certain parameters such as train lengths.

The maximum increase in distance from the track to meet the ARTC criteria as a result of proposed Mangoola Coal freight movements on any part of the Muswellbrook to Ulan line is 5 metres for daytime peak operations and 20 metres for peak operations at night. For each section of track under consideration, the noise footprint for daytime $L_{Aeq15hr}$ and maximum passby noise for proposed operations are wholly contained within the existing night time noise footprint. As such the only relevant time period for assessment of future additional

exceedances is the night time period. The proposed night time freight movements result in one additional residence having noise levels that exceed the relevant criteria.

Consequential predicted increases to the workforce were as follows:

- Construction – from 200 to 350; and
- Operations – from 240 to 300.

As of May 2011, mine plan construction is substantially complete with no construction staff required on site for the mine plan modifications (a change from the previous prediction in the EA).

Socio-economic impacts associated with the proposed mine plan modifications, including the assessment of cumulative socio-economic impacts, are addressed in Section 12.13 of the EA. Results indicate:

- the major workforce impact associated with the construction phase is expected to be demand for short term accommodation;
- it is anticipated that the proposed increase of approximately 60 permanent operational employees associated with the mine plan modifications can be catered for within the existing accommodation capacity of the region; and
- the potential cumulative services impacts on the local region are likely to include:
 - likely increased use of health services, in particular hospitals;
 - increased contribution to strains on the existing childcare services; and
 - potential pressures on existing primary education services.

Response to the issue of impacts on socio-economic aspects of the community and region is provided previously in this report. Refer to the response to MSC submission 7(c)(ii).

Based on the reduction of construction staff on site at present, any residual stress on services and accommodation is substantially reduced.

Submission

12. An illustration depicting National Parks and Reserves, Mining and Exploration Licence (EL) grants, EL Applications and Mine owned land in the Muswellbrook Local Government Area (the Illustration) is annexed.

13. Much of the mining footprint in the Singleton local government area (not depicted) is directly adjacent to the southern boundary of Muswellbrook Shire and is closer to the Muswellbrook urban centre than to Singleton.

14. The Minister administering the planning legislation approved, in concept, a third coal/gas fired power station in the Shire on 12 January 2010. Coal extracted from Muswellbrook Shire is projected to double over the next 12 to 18 months. Further developments are in various stages of exploration (Drayton South, Rose Hill, Ridgeland, Ferndale, Spur Hill, Muswellbrook Coal's south-eastern expansion, Dartbrook and Dartbrook Open Cut).

15. Muswellbrook is the only town of its size in Australia to be completely encircled by coal mines except for the road, rail and river corridors.

Response

The concerns outlined in these submissions appear to be of a regional mining context and not specifically related to the proposed project. Mangoola Coal Mine is an approved project; proposed mine plan modifications are relatively minor and not of a regionally significant nature. However, the detailed assessment in the EA considered the cumulative impacts of the proposed modifications in the context of other approved mining operations.

5.4.5 Local Roads**Submission**

- 16. Each of the coal mining developments in the Shire is accessed by local roads. Those roads include: Thomas Mitchell Drive, Bengalla Link Road, Wybong Road, Coal Road, and Muscle Creek Road. Some of those roads were purpose built and others evolved from former rural roads.**
- 17. In addition, there is increasing coal related traffic on local roads not used for primary access to coal mines. Edderton Road, which links coal mining developments in the Shire with the Golden Highway and the Mount Thorley Industrial Estate, is one such road. The Bell and Market Street over-dimensional vehicle bypass of the National highway is another.**
- 18. Despite the proposed doubling of coal excavation over the next few years, Council's revenue being applied to roads will be static – 'pegged' by operation of s509 of the *Local Government Act* 1993 to an approximation of its real value.**
- 19. Some contribution to local roads by the proponents of mining developments has been required as a condition of development consent but the incremental nature of the consent process has affected a shortfall in local road funding over time.**
- 20. Council's road budget for renewals and replacements for the last five financial years has been static at approximately \$1.5M each year. Often the projected quantum of traffic generated by a mining development creates a requirement to increase the standard of a road (a step issue). Council's budget has not been able to bankroll the difference between the total cost of the necessary upgrade and the contribution made by the coal mine proponent as a proportion of its projected traffic generation. To make the situation worse, traffic generation projections have often differed markedly from actual generation.**

Response

With respect to agreements regarding road upgrades, Mangoola Coal is committed by their Project Approval to the following:

50. The Proponent shall upgrade:

- a) the Bengalla Link Road intersections with Wybong Road and Denman Road, to the satisfaction of the RTA and Council, in conjunction with the construction of the Bengalla Link Road extension and prior to carrying out any development on site apart from the defined early works;
- b) Wybong Road and its intersection with the mine access road to the satisfaction of Council, prior to carrying out any development on site apart from the defined early works;
- c) the Golden Highway/Wybong Road intersection to the satisfaction of the RTA, prior to carrying out any development on site apart from the defined early works, unless otherwise agreed by the Director-General;

- d) lighting and signposting of the relevant intersections to the satisfaction of the RTA/Council, in conjunction with the relevant intersection upgrades; and
- e) all bus stops affected by the proposal to the satisfaction of Council, prior to carrying out any development on site apart from the defined early works.

50A. The Proponent shall undertake the following in relation to the section of Wybong Road between the Golden Highway and the mine access road:

- a) undertake a road condition survey, in consultation with Council and to the satisfaction of the Director-General, prior to carrying out any development on site;
- b) maintain the road to the satisfaction of Council, from the commencement of project-related works until the Bengalla Link Road extension is commissioned;
- c) undertake a second road condition survey, in consultation with Council and to the satisfaction of the Director-General, following the completion and commissioning of the Bengalla Link Road extension; and
- d) following approval of the second road condition survey, repair the road to at least the condition determined by the initial survey, to the satisfaction of Council.

The road condition surveys shall be undertaken by a suitably qualified expert/s whose appointment/s has been approved by the Director-General.

With respect to funding provided for road upgrades, Mangoola Coal has made contributions for all roads which service the Mangoola Coal Mine. Contributions from Mangoola Coal total approximately \$11.8 million and include:

- Wybong Road West Safety Works- \$520,000;
- Wybong Road East Upgrade- \$7,830,000;
- Wybong Road/Mangoola Coal Mine Northern Access Road Intersection- \$880,000;
- Golden Highway/Wybong Road Intersection- \$1,280,000;
- Bengalla Road/Denman Road Intersection- \$870,000; and
- Wybong Road West Maintenance- \$420,000.

All road upgrades have been to a standard agreed with MSC which is based on Austroads standards.

MSC provided Mangoola Coal with a Notice of Practical Completion (PC)¹⁵ for the Wybong Road Upgrade Construction with MSC determining PC was achieved 20 July 2010. The notification also included a list of minor defects and minor omissions to be rectified by a prescribed date.

In February 2011 MSC withdrew PC of the upgrade works due to numerous failures of the road surface. Since this time, Mangoola Coal have been in discussion with MSC regarding the potential causes of the failures with tests being carried out on the road late 2010 and early 2011 to gather data from the pavement to assist in determining the cause of the failures. Based on information from these tests, Parsons Brinkerhoff produced an independent assessment on the likely causes of failure which was sent to MSC for review on 20 April 2011. To date no feedback on this report has been received.

¹⁵ Dated 13 October 2010.

In parallel with the process of determining the cause of failures, Mangoola Coal undertook to repair the failed sections of road which was completed on 19 April 2011. Following this Mangoola Coal have requested MSC re-issue PC for the road upgrade works.

Mangoola Coal have also undertaken to review the pavement failure report with MSC and, if required, undertake further work if an agreement can be reached with MSC on the scope of this.

The matters raised by Council in relation to the broader road network are not matters that relate specifically and only to Mangoola Coal's proposed modifications. Indeed, many of the roads noted in Council's submission are primary access roads for other businesses, agriculture, tourism and other mines. Ongoing management and maintenance of the general road network is the responsibility of MSC which will be funded by rates payments.

In addition, Mangoola Coal commissioned an additional traffic assessment as part of this Response to Submissions (refer to response to MSC submission 7(c)(i)), the results of which will be discussed with MSC to determine whether any further works are required.

5.4.6 The Present Application

Submission

- 21. The original approval required road and intersection upgrades (marginal improvements) to Wybong Road. It did not require the construction of a new road. The marginal upgrades were designed on the basis of then projected capacity and no additional capacity was contemplated. As previously noted, actual traffic generation has already exceeded projections and design capacity. The extent to which Wybong Road (east) requires further upgrades to adequately cater for the present proposed modification requires detailed assessment. It is noted that Council does not have the resources to undertake that assessment, or any construction, or any on-going maintenance of the resulting constructed road beyond that already committed to by Council in its budget (there is already a shortfall). The reason for those matters is set out at paragraphs 18 and 20 above.**
- 22. Prior to practical completion of the Proponent's upgrades to Wybong Road, in accordance with the existing consolidated approval, pre-opening audits were carried out by Parsons Brinckerhoff (for the Proponent) and GHD (for Council). Residual issues remain related to compromised clear zones in some locations due to the constraint of improving the road within the existing road reserve.**
- 23. Other issues – such as the Proponent's compliance with its present consent conditions – also remain. Wybong Road, for example, is and continues to remain in an unsatisfactory state and is inappropriate for use as an access road for the Proponent's operation in its present condition. The use by the Proponent of sub-standard road pavement base material and sub-standard sealing application during construction has caused substantial road failures. The Road is now likely to require either reconstruction or stabilisation.**

Response

Mangoola Coal is currently in negotiations with MSC with respect to the amelioration of the condition of Wybong Road (refer response to MSC submissions 7(c)(i) and 16-20). In addition, based on the content of the traffic related submissions received from MSC, Interest Groups and the Community for the proposed modifications, Mangoola Coal commissioned an additional traffic assessment for the project area which included cumulative impact assessment and any additional remedial work/improvements that may be required. Further details of the assessment are included in response to MSC submission 7(c)(i).

Submission

24. Following the grant of the original consent, it had been agreed that the road would be upgraded as much as possible within the existing road reserve. However, with intensification of traffic under the current proposal, Council is no longer of the view that that classification is appropriate (without further assessment) or that the upgrade of the existing road (as opposed to the reconstruction of the road) is an appropriate treatment.

Response

As part of the EA for the proposed ETL relocation, a traffic assessment was completed which concluded that minimal impacts would arise from the construction traffic involved in the project. NB: There is no operational traffic associated with the ETL project other than occasional single inspection or vegetation maintenance vehicle by TransGrid. An additional traffic impact assessment was commissioned as part of this Response to Submissions report, results of which reflect these findings (Parsons Brinkerhoff, 2011) (refer **Appendix 3**).

The future traffic demand associated with the ETL relocation project is based on 50 staff making 2 vehicle trips per day with a maximum daily traffic of 360 vehicles per day during the busiest weeks of the ETL relocation schedule (weeks 17 to 20) whilst the mine is fully operational.

The Level of Service (LoS) defined in the NSW Roads and Traffic Authority's (RTA) *Guide to Traffic Generating Developments* (RTA, 2002) for Wybong Road and Wybong Post Office Road is LoS A, which equates to approximately 300 vehicles per hour for single lane each way road, and Bengalla Link Road is LoS B (with A being good and F, the lowest ranking, being unacceptable).

When compared to the traffic study undertaken for the approved Anvil Hill Project (TPK and Associates, 2006), the AM peak hour traffic volume will increase from 125 vehicles for 240 employees to 156 vehicles for 300 mine operations employees and 26 vehicles for the construction of the ETL relocation construction, and the PM peak hour traffic volume will increase from 106 vehicles for 240 employees to 135 vehicles for 300 employees and 29 vehicles for the construction of the ETL relocation.

The LoS for Wybong Road is LoS A which equates to approximately 300 vehicles per hour and Bengalla Link Road is LoS B which equates to approximately 350 vehicles per hour. The operational Mangoola Coal Mine traffic numbers, including mine plan modifications, when combined with the ETL relocation project construction traffic numbers, is estimated to result in a maximum of approximately 960 vehicle movements per day. This comprises 600 vehicle movements per day associated with the operation of the Mangoola Coal Mine, and a peak of 360 vehicle movements per day associated with the ETL construction¹⁶.

Traffic volumes as a result of the mine plan modifications results in an increase in operational staff traffic only, an estimated increase of 120 vehicles per day on Wybong Road.

Based on the EA traffic figures and estimates, and the additional traffic assessment, it is not deemed necessary to change the classification of the road.

As noted above, Mangoola Coal is currently in discussion with MSC regarding the upgrade of Wybong Road. Refer Section 2.4.5 of this Response to Submissions for further detail.

¹⁶ Maximum likely to occur in weeks 17 to 20 of the ETL relocation program.

Submission

25. The EA for the proposed modification provides a traffic assessment but fails to provide the requested traffic modelling information regarding traffic impact that Council requested in its adequacy submission. Council is not in a position to recommend a suitable standard and to comment on the appropriateness of the existing intersections on Wybong Road in the absence of that modelling except to note that the standard of the existing road within the context of its proposed usage is inadequate and approval in the absence of proper assessment would be to unreasonably compromise the safety of road users. No modelling has been provided for the project's impact on Thomas Mitchell Drive and other local roads – although it is certain that the project will have such an impact.
26. Council does not accept the modelled figures contained in the EA and notes that the figures do not incorporate actual traffic generation, background traffic, or model equivalent axle loadings. Council submits that the Proponent makes inappropriate assumptions about the effect of the intensification of the project on overall traffic generation.
27. The vertical and horizontal alignment of Wybong Road offers very few passing opportunities on Wybong Road. As mining activity fully develops and intensifies in the precinct, together with background growth, Council expect that delays will become more frequent. This can lead to driver frustration and attenuate road safety risks. It also affects route efficiency and adds to transport costs. It is considered likely that some properly investigated combination of overtaking lanes, climbing lanes and slow vehicle turnouts should be incorporated into the road upgrades. There is also the issue of a fair contribution to the Thomas Mitchell Drive upgrades. The exact extent of the Proponent's contribution to upgrades beyond the junction with Bengalla Link Road is impossible to determine from the information available. The quantum of this contribution should be proportional to other mine's contributions.
28. It is also noted that the Application proposes to close Wybong Road as a safety measure during blasting within 500m of the road. This may increase traffic on Yarraman Road, Post Office Road and Ridglands Road. These roads are inappropriately designed, constructed and maintained to take any resultant traffic.

Response

Refer response to MSC submissions 21-23. In summary, the proposed mine plan modifications will slightly increase traffic numbers on nearby roads which are generally lightly trafficked and able to accommodate such traffic increase without changing the LoS.

5.4.7 Road Closures**Submission**

29. Alarmed by the closure of vast segments of Council's capillary local road network for mining purposes in the last 5 years and the consequential long term sterilisation of land denuded of road infrastructure, Council introduced a Closure of Public Roads Policy in 2009.
30. The present Application would affect the permanent closure of Limvardy Road and other Council local roads on the mine lease.
31. While a consent under section 138 of the *Roads Act 1993* (the Roads Act) must be applied consistently with any s75J and s75W approval, an Application under Part 4 of the Roads Act (a road closure) does not. It is the subject of a separate consultative process.

Response

The proposed modification does not seek or require additional public road closures. As part of the currently approved Mangoola Coal Mine, Mangoola Coal originally made an application to MSC in September 2008 to close the entire length of Limvardy Road. It was later agreed by Mangoola Coal to only close Limvardy Road after the access point to the travelling stock reserve.

The matter has been referred to several Council meetings and Council resolved at the June meeting that the matter be held over until the August meeting of the MSC during which time discussions will be undertaken between Mangoola Coal and MSC.

Mangoola Coal has been informed by MSC (18 July 2011) that plans have been submitted by a surveyor and a valuation ordered for Limvardy Road.

Submission

32. Council is concerned about the affect of the proposed road closure on access to the only known population of *Prasophilum Wybong* (a critically endangered native wildflower) and Anvil Rock (a significant heritage item). It would be premature for Council to arrive at a view about the closure of that road without undertaking the consultation required by the statute. In those circumstances it should not be assumed that Council would support the closure of Limvardy Road and the Proponent would be well advised to deal with any Part 4 Application concurrently with this Application given that the mining operation seeks to disturb significant lengths of that road.

Response

The area through which access is being sought is an approved mining area and not suitable for unescorted public access. Both Anvil Rock and the referred to population of *Prasophilum Wybong* are on private property, within a mine site with rigorous occupational health and safety standards. Mangoola Coal is not required to provide public access. However, Mangoola Coal are willing to escort people on the site should legitimate access be required. Refer previous response with respect to the status of the closure of Limvardy Road.

Anvil Rock

Should access be requested, Section 7.3.12 of the current Mangoola Coal ACHMP (Umwelt, 2008) states:

‘Xstrata Mangoola will provide supervised access for Aboriginal stakeholder groups and other community interest groups/individuals to visit sites outside the project impact area for teaching purposes. Visitors will be supervised by a representative of Xstrata Mangoola (an inducted person appointed by Xstrata Mangoola)’.

Access to some areas will be restricted during periods when construction or mining is in progress.

In addition, Mangoola Coal undertakes annual monitoring of all rockshelter sites within their offsets and at least two stakeholder representatives are involved in this work. These individuals have access to Anvil Rock during these surveys.

***Prasophyllum* sp. Wybong**

Should good reason warrant access to the known area of *Prasophyllum* sp. Wybong, for example audits, research and/or monitoring, Mangoola Coal could arrange conditional access.

5.4.8 Community Services**Submission**

33. The Proponent concedes that:

The potential cumulative impacts on the local region are likely to include:

[(a)] likely significant strains on health services, in particular hospitals;

[(b)] contribution to strains on the existing childcare services; and

[(c)] potential pressures on existing primary education services.

34. Council submits that the health services strain will, in addition, be on general medical practitioner services, midwifery and other allied health services including ambulance services. Council also notes that the Proponent's concession is supported by the findings in the Mt Arthur consolidation assessment report and notes that it is not reasonably open on the material before the consent authority to conclude that the Hunter New England Area Health Service has any intention of improving health services locally and notes that the Area Health Service has expressed the view that there will be no improvement in capital or operational expenditure in Muswellbrook in the foreseeable future.

35. Council submits that any development which has a deleterious effect on human health (whether by direct health impact or impact on health services) should be refused and impacts on human health should be treated as matters of zero tolerance.

36. Council submits that the Proponent's assessed impact on childcare and early and primary education services is correct and also notes that the High School is nearing capacity – and has reached capacity insofar as maintenance of its capital infrastructure is concerned.

37. Council further notes that the ambulance and other emergency services (the Fire Brigade, rural fire services, and the State Emergency Service) are also at capacity.

38. Council submits that the Proponent's offer to mitigate health and educational impacts by way of making community contributions to lifestyle matters (recreation) and the ecological environment is:

(a) improper;

(b) contrary to a proper construction of planning principles; and

(c) contrary to Government policy and to the public interest in relation to health and education (particularly in relation to the ensuring of human health);

Council submits that the attempt to mitigate health and educational impacts in the manner sought by the Proponent is a relevant matter for the purpose of the assessment.

39. Council submits that the only conclusion reasonably open to the consent authority is that the mine will have an unacceptable impact on community services – in particular human health, and that development consent should, accordingly, be refused.

Response

Provision of health, education and community services is primarily the responsibility of the public sector, although some aspects of all of these services are also provided by the non-government sector. The driving force for the provision of all these services is demand which is primarily a response to population changes.

Public sector provision of health and school facilities is fundamentally driven by population levels. The Hunter New England Health Service Strategic Plan (NSW Health, 2007) recognises that in some parts of the region there is rapid population growth while other parts are stable or declining. One of the strategic initiatives of the Plan is to 'expand community services in areas expected to have significant population growth'. Similar responses will be undertaken by the NSW Department of Education as the population school age children grows. Potential expansion responses by the NSW Department of Education include use of demountables, operating a network with other schools in the region (so students do not all have to be located in the larger schools to access curriculum), development of new schools or permanent expansion of existing schools if demand is forecast to be more permanent.

Non-government sectors in both education and health care will also respond to identified growth in demand through the relocation or expansion of private health care practices and education facilities in the region. Already 25 per cent of infants/primary students and 41 per cent of secondary students in Muswellbrook attend non-government schools.

In other regions where mining has resulted in rapid population growth the general view has been that increasing child aged population has had positive education benefits such as more teachers, reduced class sizes and broader curriculum. It is recognised that there may be a lag between population growth and the provision of additional health services resulting in temporary health care access issues but ultimately increased populations result in the provision of more health facilities for the community (Gillespie Economics, 2009).

In this respect it should be noted that the mine plan modifications will result in an additional operational workforce of 60 which, if accompanied by family and all locate in the Muswellbrook LGA, will increase the population by 1 per cent. In reality the increase to the Muswellbrook LGA will be less.

Planning for the region by MSC should include the development of a community needs plan to identify requirements and help coordinate the provision of services and housing with other levels of government. This is consistent with the role of local government and objectives of town planning which include to 'encourage the provision and co-ordination of community services and facilities' and 'encourage the provision and maintenance of affordable housing' (EPA Act 1979).

5.4.9 Economic Impact

Submission

40. Although no cumulative assessment of the impact of mining on the labour force has been undertaken, there is anecdotal evidence that the endogenous labour pool has not been able to satisfactorily meet the needs of intensive mining in the sub-region. Limited labour supply and high demand for labour has increased the price of labour which, in turn, appears to have flowed into prices more generally.

41. The unpopular reality is that the labour market is probably over heated in the sub region – something which is every bit as burdensome as a labour market which suffers a lack of demand. Labour is an important input in production. A high labour price contributes to higher prices more generally. This is problematic in a community with a 50% higher proportion of people on fixed incomes – many of

whom rent from the Department of Housing. The unemployment rate in the Upper Hunter (which for statistical reasons includes Gloucester, Dungog, and Upper Hunter LGAs – all of which have comparatively little mining) is 2.5 percentage points lower than the State unemployment average. The real figure for Muswellbrook and Singleton is probably much lower – and lower again when the skew for the disproportionate number of persons presenting with barriers to entry (largely from areas of social disadvantage) is removed.

42. The price of labour has been constrained in real terms – unable to outstrip the local cost index. That may be one contributing factor in why Muswellbrook's position on the relative wealth index has dropped relative to local government areas without significant mining over the last fifteen years.

43. There are other consequences that flow in an economy denuded of sufficient labour. The depletion of trade qualified persons providing domestic trade services is one such consequence.

Response

Umwelt engaged Gillespie Economics to consider these comments from MSC. Their expert opinion on this matter is provided below.

The idea put forward by Council that the labour market 'probably' being over heated in the sub region is every bit as burdensome as a labour market which suffers a lack of demand is questionable. A goal of all governments is to reduce the level of unemployment in the economy, as it is recognises that unemployment is associated with a range of personal and social costs including 'severe financial hardship and poverty, debt, homelessness and housing stress, family tensions and breakdown, boredom, alienation, shame and stigma, increased social isolation, crime, erosion of confidence and self-esteem, the atrophying of work skills and ill health' (McClelland and Macdonald, 1998). Low unemployment levels in Muswellbrook, which are partly a result of mining activity, is therefore a major benefit rather than a negative.

The 'burden' according to MSC is that labour is an important input to production and that a high labour price contributes to higher prices more generally. This cost push perspective on regional prices is considered unlikely since higher wages would largely be limited to the mining sector which under the cost push theory feeds through into the prices charged for coal, not prices for general goods and services consumed in the region. It is unlikely that high labour prices for mining labour flow through to labour costs in other unrelated sectors but even if they did most goods and services consumed within Muswellbrook are produced outside Muswellbrook and hence local labour conditions are unlikely to flow through into higher general prices.

It is true that demand for mining labour can result in skilled labour being bid away from other professions e.g. domestic trade services. However, far from being a local phenomena Australia is experiencing a national skills shortage, with builders, engineers and trades people in high demand. This causes of skill shortages are complex but include skilled baby boomers reaching retirement age, negative perceptions of careers in the traditional trades and the difficulties in attracting people, particularly young people, to work in some industries, large infrastructure spending by governments and the mining boom. However, the solution does not lie in constraining economic growth that utilises trade, building and engineering skills but rather in adjustments to traditional training and education approaches. In this respect the Federal Governments National Skills Shortages Strategy identified the need for greater flexibility in traditional trade training including shorter apprenticeships and specialises apprenticeship pathways.

Section 5.2.3 of this Response to Submissions report provides further detail on indigenous training and employments initiatives/programs developed and implemented by both XCN and Mangoola Coal.

In addition, XCN have made a significant contribution to the Hunter Valley Training Company (refer details in response to previous submission from MSC 7(c)(ii)). XCN has a strong commitment to reducing skills shortages in areas related to the mining sector.

Submission

44. Relative inelasticity of supply is true of a number of other local markets as well. The supply of irrigable water from the Hunter is perfectly inelastic – a result of the deregulation of water licences and the full allocation of the Hunter supply.

Response

The site water balance indicates a reduced water deficit for the life of the modified project. This reduction is typically of the order of 500 ML per year, however by Year 15 the deficit is reduced by an estimated 2000 ML per year. Mine water deficits will be met by licensed water extractions from the Hunter River, and therefore any reduction in the mine water deficit will directly reduce the requirement for extractions from the Hunter River.

Further, the proposed increase to the storage capacity of the Raw Water Dam will allow for greater flexibility in water management for the Mangoola Coal mine, potentially allowing Hunter River abstractions to be delayed until periods of high flows in the Hunter River, as the greater storage volume may meet the needs of site for a longer period, potentially allowing for more sensitive river abstractions.

The overall reduced dependence of the Mangoola Coal Mine on licensed Hunter River extractions, due to reduced deficits and increased storage capacities, has the potential to increase the water available for other users of the Hunter River supply compared to the approved Mangoola Coal Mine.

Submission

45. Except for some minor incremental (marginal) further land use, the supply of land is also perfectly inelastic and the market for accommodation is relatively inelastic – constrained by the availability of land for urban release, the SEPP (infrastructure) and its effect on residential development on the rail corridors, and construction timetabling. House prices and the cost of living in Muswellbrook, Denman, Aberdeen and Scone have risen markedly in the last few years and the supply of rented properties approximates mere turnover.

Response

Increased demand for land and accommodation can increase prices. However, it is both demand and supply that influences prices. It is incorrect to suggest that the supply of land for housing and supply of short term accommodation is inelastic. This is only the case in the short term. In the medium to longer term, supply can be increased through rezoning of other land for residential development, rezoning of rural land to allow rural subdivisions, intensification of existing residential zonings etc. Higher prices provide a signal to the market for land to be provided by less profitable uses. Local government, through the planning system, has a key role to play in ensuring that the market can respond appropriately to price signals.

Mangoola Coal, and XCN/XC at a corporate level, recognises that those who are directly employed by the mining industry, and those employed in closely related industries, are better able to deal with increased cost of living as a result of mining in the region. Based on this understanding, and other socio-economic factors which result from the influence of the mining industry, XCN/XC have developed a CSI Program where each year XC finds and fund partner organisations and initiatives throughout New South Wales and Queensland. XCN/XC's CSI provide the ideas, foundations and support necessary to affect positive change across the areas of health, education and enterprise, communities, environment and the arts and culture. This program supports the whole community. The response to MSC submission 7(c)(ii) provides further details of the contributions made by both Mangoola Coal and XCN in relation to community support and the amelioration of impacts on the cost of living.

With respect to rail corridors refer to the response to MSC submissions 57-66 below.

MSC has a critical role in relation to the availability of land and accommodation, in terms of planning for and facilitating the availability of sufficient land for urban release. This is an issue that has been emerging and intensifying for almost two decades, and is certainly not a matter that is specific to the current application for project modifications.

Submission

46. Any pressure on demand against such relatively inelastic supply has effected price shocks. The price shocks created by those demand spikes have been pronounced and have given rise to sharp increases in the cost of living. The ability of the sub-region's economy to absorb its 30 state significant developments at equilibrium, insofar as individual local markets are concerned, is very limited indeed and, as noted, the face value of labour has increased at a rate less than the increase in the cost of living – wages growth therefore declining in real terms.

Response

Refer above to response to submission 45 from MSC.

Submission

47. The EA accompanying the Proponent's Application notes:

"The approved project will make significant positive contributions at local, regional and state levels."

The input/output calculations underpinning the Proponent's statement assumes that the local, regional and state economies (constituted by various discrete markets) will be able to absorb the increased demand (particularly jobs) at equilibrium. That may be true (or partially true) of the region and state economies but the assumption is false insofar as the local economy is concerned. The local economy has exhibited clear signs of overheat and a deterioration in relative economic well-being. The Proponent's statement makes no proper or sufficient calculation of the supply side of the market calculations. Council submits that an intensification of mining (such as that proposed in the present Application) would bring about deterioration in the purchasing power of wages and wealth.

Response

An increase in economic activity to the region as a result of the proposed modifications will actually increase demand for a range of goods and services demanded by the mine and its employees. This demand has the potential to increase the wealth and prosperity of those businesses (and employees) that are able to supply the goods and services demanded. To the extent that the local region is unable to supply these goods and services there will be economic leakages to surrounding regions that are able to provide them, with wealth and prosperity accruing these regions.

5.4.10 Economic Diversity**Submission**

- 48. Price shocks have impacted upon other industries which compete for land, water and labour. Quite apart from the uncertainty created by buffer, offset, and attenuation acquisition attaching to mining consents, price shocks have undermined the certainty necessary for capital investment in industries which compete in affected markets.**
- 49. Muswellbrook Shire is home to the largest supply of thoroughbred horses for sale to the international market of any local government area in Australia.**
- 50. In what might be described as the closest thing to judicial comment on the looming conflict between the thoroughbred and mining land uses, the commissioners in the Bickham decision found that “the available evidence supports the view that open-cut coal mining and a viable international-scale thoroughbred breeding enterprise are incompatible land uses”.**
- 51. The viticulture industry is also under substantial pressure (principally from oversupply). The viticulture industry has ‘sandbagged’ its decline by pegging itself to the tourism market. That tourism market relies on critical mass. The expansion of the mining industry has claimed a number of wineries which have significantly reduced that critical mass.**

Response

The Minister for Planning approved the Mangoola Coal Mine in 2007, following a period of extensive consultation and intensive scrutiny, including an Independent Hearing and Assessment Panel (January, 2007), chaired by Dr Andrew Refshauge (the former Minister for Planning, Health and other portfolios). The matters raised by MSC in relation to the recent Bickham decision are not directly relevant to this proposed modification because:

- the Mangoola Coal Mine was approved in 2007 and the current application only relates to optimisation of the mining operations permitted by the existing approval, does not cause any significant variation in predicted environmental impacts, and does not increase the extent of land affected;
- the Bickham decision is in relation to a greenfields site; the proposed modifications are not on a greenfields site;
- Muswellbrook is already an established mining area, whereas the Bickham decision is related to an area that has no other coal mining in close proximity; and
- the nearest large scale thoroughbred enterprise is located 3.35 kilometres to the south-east of the Mangoola site and there are no viticulture enterprises within proximity of the site. There are no predicted impacts from the proposed modifications on these industries as discussed in the Response to Submissions for the Anvil Hill Project.

Submission

52. The urban land use conflict with coal mining also needs further examination. As noted earlier, Muswellbrook's residential growth is substantially constrained by coal mining development and associated rail infrastructure. Acquisition has also constrained the prospect for the further release of industrially zoned land.

Response

This is a regional planning issue and the proposed modification of an existing approved mine does not exacerbate the issue of land availability for urban release. Indeed, it could be argued that optimisation of an existing mining operation, including mining the coal reserve more efficiently and quicker, is a better regional outcome than this coal being supplied from an additional mine in the region.

5.4.11 Ecological Environment**Submission**

53. The Proponent applies to engage in further significant land disturbance. An offset strategy is proposed by way of mitigation.

Response

The proposed modification seeks to disturb an additional 26.6 hectares, which is very minor increase (1.19 per cent) in the context of the total approved mining disturbance area of 2238 hectares.

Submission

54. The following is noted:

(b) The mine is positioned in a critical part of the Shire's environmental (woodland connectivity and remnant woodland) corridor. Particularly, the mine will disturb land of significant ecological value and unquestionably some of the most intact local habitats outside of the Shire's national parks and state reserves;

(c) The Proponent seeks to remove a significant residual north south corridor (the existing ETL easement) as part of its Application;

Response

The Mangoola Coal Mine was approved in 2007 and the current application only relates to optimisation of the mining operations permitted by the existing approval and does not cause any significant variation in predicted environmental impacts.

Vegetation within the existing ETL easement is located within the approved project disturbance area for the approved Mangoola Coal Mine and therefore could be removed and certainly impacted in accordance with existing rights under the EP&A Act.

Submission

(d) The critically endangered Prasophilum Wybong (the only known location is on the Proponent's mining lease) has a population, amongst other locations, on the existing ETL easement and the disturbance of that easement or the relocation of the ETL would necessitate a Federal referral – it is not clear whether that referral has been undertaken or whether the Proponent is aware of the location of the Prasophilum Wybong (although Council has previously advised the Proponent of that matter).

Response

Prasophyllum sp. Wybong (C. Phelps ORG 5269) was not recorded within the proposed modification areas or the disturbance areas for the ETL relocation, despite surveys being completed within the suitable flowering season and when nearby records were known to be flowering. However, the Ecological Assessment completed for the EA acknowledged the potential habitat for this species present in these proposed disturbance areas (as a result of the proximity of other records in similar habitats), and assessed the potential impacts on this species accordingly.

An EPBC referral was made for the Anvil Hill Project to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) in 2007 (2007/3228); submitted and assessed prior to the listing of the *Prasophyllum* sp. Wybong species (C. Phelps ORG 5269) (effective listing date of 13/11/2009¹⁷; conservation advice approved by Minister on 20 October 2009). This referral assessed the Proposed Disturbance Area which represents the proposed footprint for the Project. It noted that all land within this boundary (2238 hectares, including the existing ETL easement) may be directly impacted or disturbed in some way due to activities associated with the operations, such as mining, infrastructure or construction, at some time during the 21 year approval period. Notification stated that the referred project is 'not a controlled action'.

This referral did not include the approved project area as it had previously been deemed to 'not be a controlled action'. The areas assessed include those outside the approved disturbance area, that had previously been deemed not a controlled action, and as such the referral related to:

- ETL relocation easement to north (1.9 kilometres) and south (3.4 kilometres) located outside the approved disturbance area, and associated access tracks; and
- increases to the approved project disturbance boundary of the Mangoola Coal Mine for the purposes of:
 - mining the coal resource (8.4 hectares to the north-east of the approved disturbance area);
 - a raw water dam which will inundate land at full supply (1.7 hectares to the east of the approved disturbance area); and
 - four small areas with a total area of 1.6 hectares (to the south-east of the approved disturbance area) where rail loop drainage designs have a minor effect on the overall footprint of the rail loop.

The referral states 'The proposed action will not impact upon any known records of the leek orchid (*Prasophyllum* sp. Wybong (C. Phelps ORG 5269)) (Critically Endangered). This species has been recorded within the approved project disturbance area, and has the potential to occur within the habitats of the ETL Assessment Areas and Proposed Modification Areas. Surveys completed during its flowering period (coinciding with that of tricolour diuris (*Diuris tricolor*)) have not identified the presence of this species within the ETL Assessment Areas or Proposed Modification Areas'.

The DSEWPC provided notification on 20 September 2010 that the referred project is 'not a controlled action'.

¹⁷ As per DSEWPC website

Submission

(e) The offset strategy proposes the sterilisation of land to the south of the project historically held for grazing;

Response

The Additional Biodiversity Offset Area has been provided as part of the proposed project, in order to address residual impacts of the project on threatened species, endangered populations, TECs and their habitats. As a result, it is necessary to exclude grazing from this area, in order to maintain and protect its current ecological value, as well as to allow future habitat augmentation and revegetation works, if required. This will exclude grazing from a total area of 64 hectares (34 hectares for the proposed modification project and 30 hectares for the proposed ETL relocation).

However, as part of the project approval for the Mangoola Coal Mine, a Sustainable Agriculture Offset Area has been established to the south-east of the existing mine. This Sustainable Agriculture Offset Area was proposed in order to achieve both biodiversity and agricultural outcomes, in character with many surrounding land uses and in recognition of its higher land capability. This covers an area of approximately 217 hectares, and will be managed for mixed uses, including grazing and other sustainable agricultural practices as appropriate for the area under strict management and documentation. Biodiversity outcomes for this area will be achieved via the establishment of approximately 45 hectares of treed vegetation over the long term through revegetation and natural regeneration. Such tree establishment will be in the form of tree lots (of targeted species composition) which will allow sustainable grazing in these areas, once trees are of sufficient age.

Submission

(f) It is further noted that there is little land left in the Shire for offset and mining proponents have increasingly sought to acquire land in neighbouring LGAs to satisfy offset requirements. Against that background, there is the very real potential for the extinction of local ecological species. This is particularly true of Muswellbrook's native orchids which are apparent for only short periods each year. The proper and sufficient management of offset plans to preserve habitats and species is increasingly problematic when half the rateable area of the Shire is subject to potential disturbance.

Response

This is a very generalised submission that is not relevant to this project. However, in relation to this matter, the following is important to note:

- The land-based offsetting of ecological impact is a requirement of OEH and DP&I, and as per the *Principles for the Use of Biodiversity Offsets in NSW* (DECCW, 2008);
- All of the land proposed for offsetting for the Mangoola Coal Mine as part of the proposed modifications is on Mangoola Coal owned¹⁸ land within the Muswellbrook LGA;
- The proposed Biodiversity Offset Areas and Wildlife Corridors contain known large populations of 'Muswellbrook's native orchids which are apparent for only short periods each year'. Surveys within the approved project disturbance area are conducted on an annual basis during the flowering periods of *Diuris tricolor* and *Prasophyllum* sp. Wybong (C. Phelps ORG 5269) for the purpose of documenting the number of plants to be disturbed (to inform the offset strategy), and for translocation purposes. To date, considerable numbers of *Diuris tricolor* have been translocated from the approved project disturbance area into comparable habitat within the secure Biodiversity Offset Areas

¹⁸ Xstrata Mangoola Pty Limited

(refer **Section 5.2.1** of this Response to Submissions report for further detail on translocation of *Diuris tricolor* and *Prasophyllum* sp. Wybong). The project Environmental Impact assessments or due diligence assessments for all works with the potential to impact on terrestrial orchids or their habitats, have ecological surveys carried out during their flowering periods; and

- The ROMP for the Mangoola Coal Mine provides detailed information relating to the protection and management of known orchid habitat within the secured Biodiversity Offset Areas and Corridors, as well as potential habitat for these species.

Submission

55. Council does not support the offset strategy in the absence of evidence of the final landscape management plan (and the rehabilitation and offset management plan) and its integration with the offset strategy proposed by the Application. Particularly, Council notes that the utility of the offset management plan will ultimately depend in no small measure on the success of the final landscape management plan. The final landscape plan should include routes for internal access to significant ecological colonies to ensure the perpetual preservation and endogenous recolonisation (sustainability) of the offset enhancement areas and the undisturbed habitats.

Response

The Landscape Management Plan was submitted to NSW DTIRIS NSW and the Director General of DP&I, with final approval required by the Director General. The Draft ROMP, which forms part of the Landscape Management Plan, was submitted to DP&I for review and comment on 17 August 2010 prior to commencement of mining. Following provision of comments from the relevant authorities, the ROMP was revised and re-issued as Final on 21 December 2010. An additional revision was submitted on 7 April 2011 to address questions raised by DP&I. Further planning and refinement of 'on the ground' actions to achieve critical commitments from the ROMP (Umwelt, 2011c) (such as revegetation and regeneration works within the Biodiversity Offset Areas and Corridors as well as security measures for long term security of the offset areas) are ongoing, in consultation with the relevant authorities, as required. As part of this process, further work is currently being undertaken to identify targeted objectives for revegetation/regeneration works as well as define the approach to such works required to ensure appropriate consideration of archaeological matters. The revegetation/regeneration works to be completed within the Biodiversity Offset and Corridor Areas will be confirmed subject to further assessment and a detailed plan will be submitted early 2012 as part of an addendum to the ROMP.

In relation to the land to be mined within the existing ETL easement and the area between the Main and South Pits, this area was assessed and approved for disturbance as part of Approved Project Disturbance Area for the existing project approval. It was acknowledged as part of this process that there was potential for disturbance of such areas and therefore this was included in the original assessment and offsetting process.

With respect to the inclusion, in the Landscape Management Plan, of 'routes for internal access to significant ecological colonies to ensure the perpetual preservation and endogenous recolonisation (sustainability) of the offset enhancement areas and the undisturbed habitats' the ROMP, which forms part of the Landscape Management Plan, states the following with regards to access control:

'Areas of retained vegetation within the Biodiversity Offset Areas and proposed Corridors and pre-mining Approved Project Disturbance Area will be fenced to protect them from unauthorised access and disturbance. Fencing will be used to demarcate the Biodiversity Offset Areas from the Approved Project Disturbance Area, as well as between the

Conservation Offset, Habitat Enhancement and Sustainable Agriculture EMDs. All fences will be suitably signposted to identify the value of these areas as Biodiversity Offset Areas and proposed Corridors, where no disturbance is to occur.

Fencing will be used to protect existing vegetation from accidental disturbance and will clearly identify areas of vegetation to be retained. Any fencing used within, or on the boundary of the Biodiversity Offset Areas and proposed Corridors will use only plain wire (not barbed wire), to ensure minimal impact on native fauna species. As part of the ongoing monitoring program, if plain wire fencing to exclude stock is found to be inadequate, additional measures that pose minimal impact to native fauna will be investigated and implemented.

Appropriate signage will be used throughout the Biodiversity Offset Areas, proposed Corridors and Approved Project Disturbance Area to identify areas of high ecological significance, such as areas of regeneration and fenced areas containing threatened species, endangered populations or TECs. Signage will be used to identify these significant areas.

In particular, fencing will be established around the recorded *Acacia pendula* endangered population/TEC within EMDs CO-5, SAO-2 and R-1. These areas will be fenced and clearly identified as areas of conservation significance with appropriate signage.'

With respect to access for any reason, it should be noted that the site is an approved mining area and not suitable for unescorted public access. The referred to population of *Prasophyllum* sp. Wybong are on private property, within a mine site with rigorous occupational health and safety standards. Mangoola Coal is not required to provide public access. Mangoola Coal are however, willing to escort people on the site should legitimate access be required.

5.4.12 Heritage Impact

Submission

56. Council is not in a position to support the heritage strategy proposed in the Application and notes that the result of the Application would be to prevent internal access to significant heritage items – including Anvil Rock.

Response

The area through which access is being sought is an approved mining area and not suitable for unescorted public access. The area is private property and in terms of property rights (the same as any other private property holder), Mangoola Coal are not required to provide public access. However, Mangoola Coal are willing to escort people on the site should legitimate access be required. In addition, a commitment was made in the original EA to provide facilitated access to the area. Therefore, should access be requested, in accordance with Section 7.3.12 of the current ACHMP:

'Xstrata Mangoola will provide supervised access for Aboriginal stakeholder groups and other community interest groups/individuals to visit sites outside the project impact area for teaching purposes. Visitors will be supervised by a representative of Xstrata Mangoola (in inducted person appointed by Xstrata Mangoola).'

Access to some areas will be restricted during periods when construction or mining is in progress.

In addition, Mangoola Coal undertakes annual monitoring of all rockshelter sites within their offsets and at least two stakeholder representatives are involved in this work. These individuals have access to Anvil Rock during these surveys.

5.4.13 Rail

Submission

57. It is noted that the project will intensify rail movements and incorporates a refuelling depot.
58. Muswellbrook is the junction of the Ulan (Western), Northern, and Hunter rail lines – the three lines servicing the Gunnedah, Ulan, and Hunter coal basins.
59. By 2015 it is estimated, on the back of present ‘take or pay’ coal agreements, that there will be 100 million tonnes of coal per annum (MtPA) transported into Muswellbrook along the Ulan line and 20 MtPA transported into Muswellbrook along the Great Northern line. Those two lines intersect in the urban centre of the township at the southern end of the central business district. The bridge on which the lines intersect sits proximate to a second bridge which forms part of the National Highway. The town’s main street also forms part of that same section of the National Highway. The rail and road bridges both sit above Muscle Creek.
60. The lines are not attenuated for noise. They are single tracked corridors with little potential for duplication or triplication without compromising future development in the main street of Muswellbrook or residential development proximate to the three lines.
61. There is no requirement under present law for developers of coal mines to undertake noise attenuation on those rail corridors except in some marginal or incremental way. Any assessed incremental impact is too small to capture for the purpose of a condition of consent. Consequently noise attenuation has never occurred.
62. To complicate matters further, clause 87 of the State Environmental Planning Policy (Infrastructure) 2007 (the SEPP) prohibits the granting of consent to residential (and other) developments near rail lines unless the consent authority is satisfied that LAeq levels proposed for such developments will not exceed:
- (a) 35dB(A) in any bedroom at any time between 10:00pm and 7:00am; and
 - (b) 40dB(A) anywhere else in the building at any time.
63. The effect of the SEPP is to place the onus of attenuating rail noise on residential developers but not on the owner of the rail infrastructure or its users. That is a significant problem in Muswellbrook where residential development is already constrained by the availability of land for urban release noting that:
- (a) the town is encircled by coal mines or past workings;
 - (b) mining buffers and land offsets occupy a significant proportion of the urban hinterland; and
 - (c) three rail corridors – carrying a significant proportion of the State’s coal, all penetrate to the heart of the urban centre (passing through residential zones).
64. It is also a problem in Denman where the Western/Ulan line – projected by 2015 to carry 100MtPA of coal each year – traverses the urban centre from east to west.
65. The rail lines also present safety and traffic convenience issues. In most instances, the local road network traverses the rail lines by level crossings. The intensification of coal movements therefore has the potential to effect the division of Denman in two and Muswellbrook, in three.
66. Council submits that the intensification of rail movements contemplated by the Application would place an unreasonable constraint on the urban development of the town of Muswellbrook and submits that the Application should be refused.

Response

With respect to rail movements associated with the modifications to the Mangoola Coal Mine, Mangoola Coal is proposing to increase train movements from an average of four per day to a peak of ten per day. This proposed increase has resulted from a detailed review of train capacity, rail loading capacity and consideration of the potential fluctuation in daily train movements, required to achieve the required product delivery, considering coal chain logistics. Although there is a proposed increase in train movements, train loading will be consistent with the current approval, i.e. to be undertaken 24 hours a day, 7 days a week. The increase is not a significant impact and is certainly not a major contribution to the above issues raised by MSC.

XCN routinely pays an agreed disbursement for access to the track for the purposes of coal transport for the various mines throughout the Hunter Valley. This payment is in line with the requirements of all rail line users. In addition, XCN participates in the Rail Infrastructure Capacity Group who assists in determining capital expenditure allocation for the maintenance and upgrades of Australian Rail Track Corporation (ARTC) rail infrastructure in NSW in the best interest of the State.

ARTC recently drafted the 2011-2020 Hunter Valley Corridor Capacity Strategy - Consultation Document providing an update on the enhancement strategies for the Hunter Valley rail corridor. These enhancement strategies aim at upgrading the rail corridor to meet the forecasted rail traffic volume increase. The infrastructure capacity group also play a role in the development of this report.

The matters raised by MSC are not directly related to the modification project and are key public transport infrastructure issues relevant for the consideration of the ARTC and the State Government of NSW.

Rail noise assessment

Rail noise impacts from the Mangoola Coal Mine are from train movements associated with the transportation of coal on the Muswellbrook to Ulan line. As part of the noise impact assessment for the proposed modification (refer Section 12.8 and Appendix C7 of the EA) rail noise impacts were assessed in relation to increased train movements from Mangoola Coal.

The noise impact was assessed for a proposed peak of ten train trips per day, averaging five during the daytime period and five during the night time period on the Muswellbrook to Ulan Railway. The rail noise was reassessed in relation to these revised train movements based on a review of train movements associated with other developments using the Ulan to Muswellbrook line and taking into account certain parameters such as train lengths.

The noise footprint maximum increase in distance from the track to meet the ARTC criteria as a result of proposed Mangoola Coal freight movements on any part of the Muswellbrook to Ulan line is 5 metres for daytime peak operations and 20 metres for peak operations at night which is consistent with the proposed modifications. For each section of track under consideration, the noise footprint for daytime $L_{Aeq15hr}$ and maximum passby noise for proposed operations are wholly contained within the existing night time noise footprint. As such the only relevant time period for assessment of future additional exceedances is the night time period. The predicted noise levels associated with the proposed modifications do not affect any additional residences than those outlined in the Anvil Hill Project EA (Umwelt, 2006).

The current noise management measure for the approved project, directly associated with rail is with respect to the location of the rail loop. The loop has been located to use natural topography for shielding as much as possible. In addition, a 4 metre high noise barrier has been constructed on parts of the track that are exposed to nearby residences. In addition, as

part of the modification noise management measures, Mangoola Coal use wheel lubrication on the rail loop around the Sandy Creek Bend.

5.4.14 The Modification

Submission

67. Council does not support the Application and repeats the summary set out at paragraph 7 for the reasons set out in this submission.

68. If, notwithstanding the submissions made by Council the Department nonetheless is minded to grant the approval, Council submits that, as a condition of the variation, the Department impose the conditions set out in the Schedule.

Response

Refer to above response to MSC submission.

It is noted that the MSC has submitted recommended consent conditions for the project approval as part of its submission. The Minister for Planning is the consent authority for the project and where relevant he will take the recommended consent conditions into account.

Submission

69. Council submits that any variation to the Noise Management Zone should not remove or vary any condition which presently benefits any residence whether that benefit arises by the operation of a condition of consent or by a commitment made by the Proponent in respect of any such residence in the course of seeking development consent.

Response

Changes to the noise management zone for the project are consequential based on the proposed mine plan modifications. Section 12.8.1.4 and Appendix C7 of the EA detail the noise impacts assessed for the proposed modification to the approved project. This includes a comparison against the approved project which takes into account changes to the number of residences that are included in both the acquisition and noise management zones; no residences move into the acquisition zone, 10 residences move out of the noise management zone and five new properties move into the management zone as a result of the mine plan modifications, an overall reduction in the number of affected residences.

Mangoola Coal confirms that the management conditions and agreements made with the residents that have moved out of the management zone will remain as per the current approval despite the predicted reduced likelihood of impacts from noise.

5.4.15 Rationale for Conditions

Submission

70. Council repeats the matters set out in this Submission in respect of its alternative submission concerning appropriate conditions and provides the following further supplementary submissions:

- (a) In respect of conditions 1 – 3, to ensure the community does not bear the cost of damage to roads associated with the construction;**
- (b) In respect of conditions 4 – 6, to ensure safety;**
- (c) In respect of condition 7, to ensure safety and amenity;**
- (d) In respect of condition 8 – 10, to monitor compliance;**

- (e) In respect of condition 11, to ensure best practice;
- (f) In respect of condition 12, to limit the development's impact on amenity, local infrastructure, and urban development.
- (g) In respect of condition 13, to ensure ecological connectivity and sustainability;
- (h) In respect of conditions 14 – 17, to ensure desirable ecological and heritage outcomes.
- (i) In respect of condition 18, to monitor compliance;
- (j) In respect of condition 19, to ensure proper community involvement and communication;
- (k) In respect of conditions 19 – 26, to ensure safety, to ensure the community does not bear the cost of constructing and maintaining road infrastructure.
- (l) In respect of conditions 27 – 30, to ensure compliance by the Proponent with local industry best practice, to ensure Council's ability to fund community infrastructure and services, to ensure Council's ability to perform its statutory environmental monitoring functions, and to ensure the safety of road users.
- (m) In respect of condition 31, to ensure the Proponent matches local industry best practice, to increase the local skilled labour supply.

Response

It is noted that the MSC has submitted recommended consent conditions for the project approval as part of its submission. The Minister for Planning is the consent authority for the project and where relevant he will take the recommended consent conditions into account.

6.0 Response to Special Interest Groups

6.1 Special Interest Groups with No Objections

6.1.1 Construction, Forestry, Mining and Energy Union

Submission

The Union is familiar with the Mangoola site and engaged the services of an Environmental Consultant with extensive experience in local government and environmental assessments on coal mining related projects.

The proposed modifications to the mine plan include a number of elements which are specifically designed to improve the environmental performance of the project. The modification to the mine plan does not seek to increase production rate as a result of the alterations to the mine plan or to alter the original consent period.

An evaluation of the proposed modifications has been undertaken by comparing environmental risks against the currently approved project, in conjunction with the Proponents commitment for controls, safeguards or mitigation measures.

Based on comparative analysis of the key elements detailed in the Mangoola Coal Mine Statement of Environmental Effects, it is considered the Modification 4 Project to build on the attributes of existing project approval.

After reviewing all the material and taking advice, the Union supports on balance the Mangoola Mine Modification 4 Project.

6.2 North East Forest Alliance

6.2.1 Vegetation Removal/Offsets

Submission

Destruction of 6.6 ha of Endangered or Threatened Ecological Community, and almost all (10 ha) consists of areas previously designated as offsets.

Response

The Additional Biodiversity Offset Area has been provided as part of the project in order to offset the residual impact of the project (those that could not be avoided or mitigated) on the ecological values of the disturbance area. This also includes offset for impacts to the original Biodiversity Offset Areas for the Mangoola Coal Mine. This additional offset area comprises 64 hectares of Mangoola owned land adjoining the southern part of the Conservation Offset Area (part of the Biodiversity Offset Areas and Corridors for the Mangoola Coal Mine).

The additional offset area contains a number of significant ecological features, including listed vegetation communities, and numerous threatened fauna records. When combined, these records contribute to the ecological value of this area, and highlight the suitability of it as an offset area for the impacts of the proposed mine plan modifications and ETL relocation.

Apart from the above ecological features of this offset area, it provides valuable corridor function within a generally fragmented landscape. The Additional Biodiversity Offset Area is primarily vegetated, and its protection will ensure existing vegetated connectivity from the heavily vegetated existing Conservation Offset Area in the north to the vegetated habitats of the Myambat Military Area. This will provide additional security to the existing corridor

function of this area, which will assist in preserving movement corridors for flora and fauna in the local area. This improved security will, in turn assist in securing this connectivity on a regional basis.

Submission

Proposal disregards processes of assessment and recognition by listing of endangered communities (and vital threatened species habitat they contain). Also ignores consent conditions requiring offsets to persist in perpetuity.

Response

The status of all vegetation communities recorded from the proposed modification areas are accurately identified (as per the *Threatened Species Conservation Act 1995* (TSC Act) and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)) in the EA, and potential impacts on any listed vegetation communities are assessed as required by the relevant legislation.

All offset areas will be provided with long-term security, in accordance with the requirements of Project Approval Condition 40.

Submission

This mine will destroy one of the largest areas of remnant woodland in the region, of considerable significance for flora, fauna habitat and catchment values.

Response

The Mangoola Coal Mine has been approved and is currently under construction and operation. The proposed modifications to the mine plan propose to add a total of 11.7 hectares of additional impact to the disturbance area for the mine and 14.9 hectares for the ETL relocation. The Additional Biodiversity Offset Area has been provided as part of the project in order to offset the residual impact (those that could not be avoided or mitigated) of the project on the ecological values of the disturbance area. This also includes offsetting for impacts to the original Biodiversity Offset Areas for the Mangoola Coal Mine. This additional offset area comprises 64 hectares of Mangoola owned land adjoining the southern part of the Conservation Offset Area (part of the Biodiversity Offset Areas and Corridors for the Mangoola Coal Mine).

Submission

Failed to establish that the development will not involve the net loss of flora and fauna values in the area in the medium to long term (DGRs) by means of the proposed offset strategy. Offsetting cannot compensate for the loss of existing remnant vegetation of high conservation value in the medium term.

Response

As a result of the modifications made during mine planning, the Standard Impact Mitigation Strategies and the Biodiversity Offset Strategy, it is considered likely that there will be no significant impact on threatened species, populations, endangered ecological communities, or their habitats, and no net loss of flora and fauna values, over the medium to long term as a result of the Project. This is achieved for not only the modifications proposed, but also the Mangoola Coal Mine as a whole.

Progressive modifications to the initial project design have resulted in a reduced ecological impact due to the exclusion of a number of significant ecological features from the Proposed Disturbance Area. To prevent the net loss of flora and fauna as part of this proposed modification, the mitigation strategy for the approved project has been amended throughout

the planning for this Project, with the intent of addressing and mitigating the impacts of the Project. In doing so, the objective of the mitigation strategy has been to address any impacts on key threatened species and to reduce the impact as much as possible. In order to do this effectively, the overall goal is to achieve no net loss of flora and fauna values in the area in the medium to long term.

Offsetting is the standard requirement (from the government) for addressing residual impacts that cannot be avoided or minimised. The proposed modifications have adopted the same offsetting approach to the original application for approval for Anvil Hill. This is an approved project and therefore indicates that the approach is appropriate. Implementation of this approach will ensure the goal of no net loss of flora and fauna values in the area in the medium to long term.

Submission

Assessment deliberately understates the conservation status of vegetation communities at the site.

Response

The status of all vegetation communities recorded from the proposed modifications areas are accurately identified (as per the TSC Act and EPBC Act) in the EA, and potential impacts on any listed vegetation communities are assessed as required by the relevant legislation.

6.2.2 GHG/Climate Change

Submission

The EA and Energy and Greenhouse Assessment do not adequately address the issue of GHG emissions and the contribution of the proposal to climate change.

There are no commitments to reduce GHG emissions; mitigation measures proposed in the Energy and Greenhouse Assessment to minimise GHG are inadequate; there are no commitments to offset GHG emissions; and there is no commitment to establishing a GHG management and monitoring plan.

Response

During the environment and community risk assessment and in the DGRs for the s.75W modification for the Mangoola Coal Project, potential changes to the greenhouse gas emissions profile were identified as a key environmental issue. Consequently, a detailed greenhouse gas and energy assessment was prepared by SEE Sustainability as part of the EA (Appendix C8 of the EA).

The assessment addressed energy and greenhouse gas emissions from the Mangoola Coal Mine in accordance with the *World Business Council for Sustainable Development* and the *World Resources Institute Greenhouse Gas Protocol 2004*, the Australian Government Department of Climate Change *National Greenhouse Accounts Factors* (June, 2009) and XC's *Scope 3 Emissions Reporting Standard and Calculator (based on NGA Factors June 2009)*. Energy consumption and greenhouse gas emissions were calculated for various operational scenarios, and relevant management controls identified that can be utilised to minimise energy use and greenhouse gas emissions.

The greenhouse gas assessment was prepared on a comparative basis with that undertaken for the approved project, including the use of an emissions factor derived from site specific testing.

The greenhouse gas and energy consumption inventory was based on proposed production rates, equipment numbers, and energy consumption and methane levels in the ROM coal. The key findings from the assessment in relation to the generation of greenhouse gases and energy consumption for the proposed s.75W modification is provided in Section 12.9.3 of the EA. A comparison of the proposed mine plan modifications and the approved Mangoola Coal Mine energy and greenhouse assessments indicates that the modified project has lower energy consumption and greenhouse gas emissions over the life of the project than the approved project. However, due to the shorter project life (and therefore higher annual coal production), the proposed project has higher annual energy consumption and greenhouse gas emissions than the approved mine.

Project Approval

In accordance with Project Approval Condition 58, Mangoola Coal prepared an Energy Savings Action Plan for the project in accordance with the requirements and guidelines of the Department of Water and Energy (DWE) (now within the NSW DTIRIS). The plan was submitted to the Director-General for approval prior to the commencement of mining operations on site. Comments received stated a need for the inclusion of review/audit provisions which will be included in the amended plan.

The Mangoola Coal Annual Environmental Management Report (AEMR) (December, 2010) provides the details regarding Greenhouse and Energy as required by Project Approval Condition 59:

The Proponent shall:

- a) monitor the greenhouse gas emissions generated by the project;
- b) investigate ways to reduce greenhouse gas emissions generated by the project; and
- c) report on greenhouse gas monitoring and abatement measures in the AEMR, to the satisfaction of the Director-General.

Mangoola Coal has committed to the implementation of the following approaches to improving energy efficiency and reducing greenhouse emissions from the Mangoola Coal Mine, some of which have already been met:

- use of minimum 5 per cent bio-diesel or similar in the mining fleet, where environmental benefit is demonstrated – Status: Mangoola Coal are using 10 per cent biodiesel on site;
- implementation of the energy management system within two years of the commencement of mining – Status: yet to be developed (overburden mining commenced 1 September 2010);
- conduct of an energy efficiency audit each three years after the commencement of mining – Status: overburden mining commenced 1 September 2010 therefore not yet required; and
- installation of gas boosted solar hot water system – Status: installed and operational on site.

Mangoola Coal will continue to assess and implement where feasible greenhouse gas and energy management initiatives during the design, operation and decommissioning of the project.

Mangoola Coal will continue to monitor and seek to improve its energy and greenhouse gas performance against performance targets.

Mangoola Coal will report its greenhouse gas and energy performance via legislative reporting requirements.

In addition to these initiatives, Mangoola Coal will review various emission trading schemes and abatement initiatives available and assess the suitability of these for the Mangoola Coal Mine (for example, the NSW Greenhouse Gas Abatement Scheme). The objective of these measures is to seek further opportunities to reduce or offset greenhouse gas emissions from the Project.

6.2.3 Legislation

Submission

Inconsistent with the objectives of legislation including:

- *Threatened Species Conservation Act 1997*
- *Native Vegetation Act 2005*
- *Environmental Planning and Assessment Act 1979*
- *Natural Resources Commission Act 2003*
- *Catchment Management Authorities Act 2003*
- *Protection of the Environment Operations Act 1997*

Response

It is not clear which objectives in particular the objector feels are not being adequately met. The provisions of the TSC Act, the EP&A Act and PO&E Act are directly relevant to this project and have been addressed in the EA.

The NSW EA process is a legislative based process ensuring that relevant aspects and impacts are assessed on a project specific basis.

In summary, the EA for the proposed mine plan modifications was developed to meet the DGRs following which it was subject to adequacy review where all government agencies had the opportunity to assess the document against the DGRs, legislation, guidelines, policies etc NB: Relevant guidelines, policies etc are also highlighted in the DGRs. In addition to this process, the DP&I also completes their own assessment and produces a Director-General's Report which would accompany any potential instrument of approval or project refusal. The process allows for a thorough assessment of issues on a project by project basis.

6.2.4 Ecologically Sustainable Development

Submission

In breach of obligation to apply ESD Precautionary Principle and Polluter Pays Principle.

Breached the obligation on decisions makers to act in the public interest, which involves acting to give effect to the objects of legislation and to have regard to the principles of Ecologically Sustainable Development.

Response

Mangoola Coal is cognisant of the need to apply the principles of Ecologically Sustainable Development (ESD) and aim to apply these principles as part of project planning and development. The EP&A Act aims to encourage ESD within NSW. The proposed mine plan modifications require approval from the Minister under the EP&A Act. As such, the Minister needs to be satisfied that the proposal is consistent with the principles of ESD.

To justify the proposed modifications with regard to the ESD principles, the benefits of the proposed modifications in an environmental and socio-economic context should outweigh any negative impacts, encompassing the following:

- the precautionary principle;
- inter-generational equity;
- conservation of biological diversity; and
- valuation and pricing of resources.

Therefore, as part of the EA for the proposed modifications, an assessment in relation to the principles of ESD was completed. Section 5.5 of the EA details how the principles of ESD have been considered and applied to the project.

On considering the balance of environment and community impacts and the manner in which they will be managed, it is considered that it would be reasonable for the Minister to conclude that the proposed modifications could be undertaken.

6.2.5 Cumulative Impacts

Submission

Failed to comprehensively address the potential cumulative impacts of the combined operation of the project with other approved and existing mines in the region.

Response

Cumulative impacts were assessed as part of the EA of the modification and included consideration of the nearest approved or operational open cut mining operations to the Mangoola Coal Mine as follows:

- Bengalla Mine - an existing operation approximately 12 kilometres to the east of Mangoola Coal Mine. In 2006, Bengalla Mine was approved to increase production from 8.7 to 10.7 Mtpa of ROM coal;
- Mt Pleasant Project - an approved operation approximately 15 kilometres to the east-north-east of Mangoola Coal Mine. Approval was granted in 1999 to extract up to 10.5 Mtpa of ROM coal. At this stage, a date to commence mining is not publicly available; and
- Mt Arthur Coal Mine - a large open-cut mine approximately 15 kilometres to the east-south-east of the Mangoola Coal Mine, has approval to extract up to 36 Mtpa of ROM coal. In 2010 approval was granted for an increase in production rate from the open cut operations from 20 Mtpa to 32 Mtpa of ROM coal. The recent approval also consolidated all of the open cut mining approvals in to one approval.

The cumulative impacts were assessed as part of the EA including:

- dust and noise (Section 12.15.1);
- water - demand, impacts on sediment generation and deposition, and increased salt loads to waterways (Section 12.5.2);
- both road and rail traffic (Sections 12.14. 1.2 and 12.14.2 respectively);

- socio-economic (Section 12.13.2.3; Section 12.15.3); and
- a number of other issues, for example corridors and ecological habitat connectivity for the area, and region.

6.2.6 Air Quality

Submission

The Air Quality assessment was inadequate and the air quality impacts of the proposal are unacceptable. The EA predicts that even with implementation of best practice air quality controls, the proposal will result in significant impacts on a large number of residences.

Response

A comprehensive air quality impact assessment was undertaken for the EA, in accordance with the DGRs and the relevant OEH guidelines. The EA, including the Air Quality Assessment, underwent an adequacy review by the DP&I and relevant government agencies, in accordance with Section 75H of the EP&A Act. The EA was found to be adequate and subsequently placed on public exhibition.

As outlined in the EA, the overall predicted extent of air quality impacts vary slightly, depending on the location and dust classification. For maximum 24-hour average PM₁₀ concentrations, the predicted extent of impacts for the mine plan modifications (as defined by the OEH's 50 µg/m³ criterion) are slightly lower than the expected impacts for the approved mine to the south and west of the disturbance boundary. Slight increases are predicted to the north and north-east. Annual average PM₁₀, TSP and dust deposition impacts are very similar for approved and proposed mine activities and from a dispersion modelling perspective the results are very similar.

Under the proposed mine plan modifications; the predicted impacts do not extend over any private residences that are not already within the management or affectation zones for the approved mine activities. In respect to air quality the proposed modifications will not impact on any additional residences than already approved under the original development consent.

As outlined in Section B.6 and 14 of the EA, Mangoola Coal have committed to a range of management measures in order to minimise air quality impacts attributable to their mining operations.

6.2.7 Hydrogeology

Submission

Potential to produce considerable changes to the hydrogeological regime of the region by physically altering aquifer pressures, groundwater flow directions, local evaporative capacity, infiltration, and runoff characteristics.

Response

An assessment of the potential impacts on groundwater resources was completed for the proposed mine plan modifications considering the quantity and quality of groundwater resources and water users in the vicinity of and downstream of the proposal area. The mine plan modifications result in a pit shell that closely approximates the approved pit shell in perimeter and area. Mackie Environmental Research Pty Ltd has confirmed that the approved and proposed long term water levels in the modified pit shell are consistent between the approved and proposed Projects.

Groundwater assessment and potential impacts are discussed in Section 12.5.2 and Appendix C4 of the EA.

6.2.8 Surface Water Assessment

Submission

The "Surface Water Assessment is inadequate and mitigation measures proposed are inadequate" (EDO 2006).

Response

The Environmental Defenders Office report (EDO, 2006) refers to the original Anvil Hill Environmental Assessment (Umwelt, 2006), which was approved in June 2007.

6.3 Wybong Action Group

Submission

Council is unable to upgrade and maintain the road network impacted upon by the modified project to contemporary, safe and appropriate Austroads standards and has no reasonable prospect of ever being able to do so.

Response

In summary, based on the additional traffic assessment completed as part of this response to submissions (Parsons Brinkerhoff, 2011), in relation to the proposed ETL relocation, the existing road system will be able to accommodate the associated traffic increase without changing the LoS of the roads trafficked by this project.

With respect to funding provided for road upgrades, Mangoola Coal has made contributions for all roads which service the Mangoola Coal Mine. Contributions from Mangoola Coal total approximately \$11.8 million and include:

- Wybong Road West Safety Works- \$520,000;
- Wybong Road East Upgrade- \$7,830,000;
- Wybong Road/Mangoola Coal Mine Northern Access Road Intersection- \$880,000;
- Golden Highway/Wybong Road Intersection- \$1,280,000;
- Bengalla Road/Denman Road Intersection- \$870,000; and
- Wybong Road West Maintenance- \$420,000.

All road upgrades have been to a standard agreed with MSC which is based on Austroads standards.

MSC provided Mangoola Coal with a Notice of Practical Completion (PC)¹⁹ for the Wybong Road Upgrade Construction with MSC determining PC was achieved 20 July 2010. The notification also included a list of minor defects and minor omissions to be rectified by a prescribed date.

¹⁹ Dated 13 October 2010.

In February 2011 MSC withdrew PC of the upgrade works due to numerous failures of the road surface. Since this time, Mangoola Coal have been in discussion with MSC regarding the potential causes of the failures with tests being carried out on the road late 2010 and early 2011 to gather data from the pavement to assist in determining the cause of the failures. Based on information from these tests, Parsons Brinkerhoff produced an independent assessment on the likely causes of failure which was sent to MSC for review on 20 April 2011. To date no feedback on this report has been received.

In parallel with the process of determining the cause of failures, Mangoola Coal undertook to repair the failed sections of road which was completed on 19 April 2011. Following this Mangoola Coal have requested MSC re-issue PC for the road upgrade works.

Mangoola Coal have also undertaken to review the pavement failure report with MSC and, if required, undertake further work if an agreement can be reached with MSC on the scope of this.

The matters raised by WAG in relation to the broader road network are not matters that relate specifically and only to Mangoola Coal's proposed modifications. Indeed, many of the roads noted in Council's submission are primary access roads for other businesses, agriculture, tourism and other mines. Ongoing management and maintenance of the road network is the responsibility of MSC which will be funded by rates payments from Mangoola Coal and other mines etc who utilise the network.

Submission

It is not clear from the Application which conditions the Proponent applies to have revoked or varied or whether the Proponent seeks a further condition.

Response

It is for the Minister for Planning to determine the Project Approval Conditions, and not a legal requirement for this Response to Submissions report.

Submission

WAG submits that a modification needs to be assessed not only against the degree of the proposed change to the prevailing consent conditions but also by reference to change in the various scientific and other considerations which underpinned the original consent – such as relating to climate change, biodiversity, landscape, noise, dust, water and other management strategies.

Response

The Mangoola Coal Mine is an approved project. The ETL relocation application was supported by a comprehensive EA prepared in accordance with DGRs and relevant legislation, policies and guidelines. The EA thoroughly addresses issues, concerns and impacts, based on sound scientific knowledge and thorough impact analysis, considering both approved and proposed operations.

Submission

The actual traffic volumes for the Bengalla Link Road, are twice that of those projected in the Bengalla Environmental Impact Statement and the heavy vehicle movements for Wybong Road are more than 50% higher than that projected in the Xstrata Mangoola Environmental Impact Assessment.

Response

A thorough traffic assessment has been undertaken for the project, including the additional traffic impact assessment in **Appendix 3**. This traffic assessment specifically addresses impacts on Bengalla Link Road and Wybong Road, from projected increased traffic generation and concludes that in relation to the proposed ETL relocation, the existing road system will be able to accommodate the associated traffic increase without changing the level of service of the roads trafficked by this project.

Submission

There is little suitable land available in the Shire for offset habitat and mining applicants have sought to acquire land in neighbouring LGAs to satisfy offset requirements. Against that background, there is the very real potential for the local extinction of ecological species. This is particularly true of orchids which are apparent for only short periods each year and which only exist on the site. In August 2009, for example, the Federal Environment Minister gazetted the *Prasophyllum* Wybong (a local orchid) as critically endangered. The only population of the orchid is on the Mangoola lease area but was detected only after consent was granted for that operation. The management of offset plans to preserve habitats and species is increasingly problematic when in excess of half the rateable land mass of the Shire is subject to potential surface mining disturbance.

Response

In relation to this matter, the following is important to note:

- The land-based offsetting of ecological impact is a requirement of OEH and DP&I, and as per the *Principles for the Use of Biodiversity Offsets in NSW* (DECCW, 2008);
- All of the land proposed for offsetting for the Mangoola Coal Mine as part of the proposed modifications, is on Mangoola Coal owned²⁰ land within the Muswellbrook LGA;
- *Prasophyllum* sp. Wybong is not restricted to the project area and has a wide distribution of populations with an extent of occurrence estimated to be 48,000 km². It is known from seven populations in eastern NSW near Ilford, Premer, Muswellbrook, Wybong, Yeoval, Inverell and Tenterfield;
(www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=81964)
- The Biodiversity Offset Areas and Corridors contain known large populations of 'Muswellbrook's native orchids which are apparent for only short periods each year'. Surveys within the approved project disturbance area are conducted on an annual basis during the flowering periods of *Diuris tricolor* and *Prasophyllum* sp. Wybong (C. Phelps ORG 5269) for the purpose of documenting the number of plants to be disturbed (to inform the offset strategy), and for translocation purposes. To date, considerable numbers of *Diuris tricolor* have been translocated from the approved project disturbance area into comparable habitat within the secure Biodiversity Offset Areas (refer **Section 5.2.1** of this Response to Submissions Report for further details). Impact assessments or due diligence assessments for all works with the potential to impact on terrestrial orchids or their habitats, have ecological surveys carried out during their flowering periods; and
- The ROMP for the Mangoola Coal Mine (Umwelt, 2011c) provides detailed information relating to the protection and management of known orchid habitat within the secured Biodiversity Offset Areas and Corridors, as well as potential habitat for these species.

²⁰ Xstrata Mangoola Pty Limited.

Submission

The proposal does not conform to the Muswellbrook Shire Development Control Plan.

Response

The Muswellbrook Shire Development Control Plan is not relevant to the proposed project; the project application under the EP&A Act. Notwithstanding this a review of the provisions of the MLEP, which regulate planning and development within the shire of Muswellbrook, was completed as part of the EA (refer Section 5.3.2 of the EA) and Mangoola Coal does comply with the zoning provisions.

The aims of the MLEP include:

- (b) to encourage the proper management of the natural and human-made resources of Muswellbrook by protecting, enhancing or conserving:
 - (ii) timber, minerals, soils, water and other natural resources. (clause 1.2(2)(a)(ii))
- (g) to provide a secure future for agriculture by expanding Muswellbrook's economic base and minimising the loss or fragmentation of productive agricultural land. (clause 1.2(2)(g)).

The zoning of land in the MLEP for various aspects of the projects and their permissibility is shown in **Table 6.1**.

Table 6.1 - Zoning and Permissibility, MLEP 2009

Project Element	Zone in MLEP	Permissibility
Raw Water Dam	RU1 – Primary Production, environmentally sensitive land	Drainage, earthworks and mining are all permitted with consent
Drainage areas Around Rail Loop	RU1 - Primary Production and E3 – Environmental Management	Drainage permitted with consent in RU1 and E3
Minor extension to approved project disturbance boundary for mining purposes	E3, environmentally sensitive land	Refer below in response for further details.
Changes to mine plans in the approved project disturbance area	RU1 and E3, some areas designated as environmentally sensitive land	Refer below in response for further details.

It should be noted that in Zone E3, the MLEP permits extensive agriculture without consent, and a number of types of development with consent.

The Environmentally Sensitive Land designation (Part 7 additional local provisions MLEP) means that:

- (3) Development consent must not be granted for development on environmentally sensitive land—biodiversity unless the consent authority is satisfied that the development satisfies the objective of this clause and:
 - (a) the development is designed and will be located and managed to avoid any potential adverse environmental impact, or
 - (b) if a potential adverse environmental impact cannot be avoided, the development:

- (i) is designed and located so as to have minimum adverse impact, and
- (ii) incorporates effective measures to remedy or mitigate any adverse impact caused.

There is a note in the MLEP indicating that the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* may apply to land within this zone.

The aims of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*, also known as the Mining SEPP, are in recognition of the importance to New South Wales of mining, petroleum production and extractive industries, and are as follows:

- (a) to provide for the proper management and development of mineral, petroleum and extractive material resources for the purpose of promoting the social and economic welfare of the State, and
- (b) to facilitate the orderly and economic use and development of land containing mineral, petroleum and extractive material resources, and
- (c) to establish appropriate planning controls to encourage ecologically sustainable development through the environmental assessment, and sustainable management, of development of mineral, petroleum and extractive material resources.

As indicated above, the proposed extension to the approved project disturbance area for mining and areas affected by the modified mine plans are within the E3 zone of the MLEP.

Clause 7 of the Mining SEPP is relevant as it allows for development permissible with consent under a number of circumstances including:

- (b) Mining carried out:
 - (i) on land where development for the purposes of agriculture or industry may be carried out (with or without development consent),

As noted above, extensive agriculture is permitted in Zone E3 without consent, so therefore the operation of Clause 7 of the Mining SEPP applies to this modification.

In relation to the Environmentally Sensitive Land designation, Clause 8 of the Mining SEPP relates to determination of permissibility of mining under local environmental plans. This is relevant where there are additional provisions relating to land, such as the designation of land as being Environmentally Sensitive.

Clause 8 states the following:

- (1) If a local environmental plan provides that development for the purposes of mining may be carried out on land with development consent if provisions of the plan are satisfied:
 - (a) development for that purpose may be carried out on that land with development consent without those provisions having to be satisfied, and
 - (b) those provisions have no effect in determining whether or not development for that purpose may be carried out on that land or on the determination of a development application for consent to carry out development for that purpose on that land.
- (2) Without limiting subclause (1), if a local environmental plan provides that development for the purposes of mining, petroleum production or extractive

industry may be carried out on land with development consent if the consent authority is satisfied as to certain matters specified in the plan, development for that purpose may be carried out on that land with development consent without the consent authority having to be satisfied as to those specified matters.

This means that the Minister for Planning as the consent authority does not have to be satisfied that the project meets the requirements of additional clause 7 of the MLEP in granting project approval.

Submission

The application increases on-road diesel fuel haulage, onsite storage and use.

Response

The transportation of the fuel associated with the rail re-fuelling facility by road is a consequential activity of the re-fuelling facility assessed as part of the EA. The proposed rail re-fuelling facility will be located where existing rail track provides for easily obtained access for re-fuelling reducing the risk of fuel spillage.

The re-fuelling initiative is aimed at improving efficiency by enabling trains to be refuelled as part of loading operations. It is proposed that two additional fuel tankers per day would travel to and from the Mangoola Coal Mine, using the route from the New England Highway, via Thomas Mitchell Drive, Bengalla Link Road and Wybong Road to the Mine.

The road geometry and the layouts of the key intersections along the route are such that they can accommodate the additional two heavy vehicles/fuel tankers and their turning paths without any operational or safety concerns. There is nothing to indicate that an accident involving a fuel tanker is more likely to occur than accidents involving other vehicles (Parsons Brinkerhoff, 2011).

A 100 kL diesel storage tank will be constructed and operated in accordance with Xstrata's Hydrocarbon Standard and the *Australian Standard AS 1940 – 2004 Storage of Flammable and Combustible Liquids*. A spill pit will be constructed at each of the three re-fuelling points and the storage tank refilling point to capture any spillage of diesel during the re-fuelling process, which will drain to the oil/water separator.

Submission

The application claims without justification to diminish noise and dust emission despite "larger proportions of the open cut pit areas being open."

Response

The modifications application was supported by a comprehensive EA prepared in accordance with DGRs and relevant legislation, policies and guidelines. As part of the EA for the modifications, both an Air Quality Impact Assessment and Noise Assessment were conducted (refer Appendix C6 and C7 of the EA, respectively). There are no significant air quality impacts associated with the ETL relocation. The construction noise assessment for the ETL predicted that the noise criteria will be exceeded during standard hours at three private residences (i.e. 25, 81 and 132). Residence 25 is not permanently occupied and all of these residences are currently within the acquisition zone for the approved Mangoola Coal operation.

Submission

The mining proposal (Modification 4) abandons the previously Approved Mine Operation Plan in full by the significance of its departure from and radical transformation to the project (as originally and subsequently) approved. Consequently the modification proposed is incapable of being approved under S75W of Part3A of the Planning Act.

The New Mine Operation Plan:

- a) radically transforms the Approved project such that it bears little relation to the original mine plan,
- b) increases the initial extraction rate 25 times i.e. 2500%, from 200,000 tonne to 5Mt²⁴;
- c) will contribute to a substantial increase in the dispersal of PM₁ to PM₁₀ particles into the atmosphere of the Upper Hunter causing associated ill health and increased mortality/morbidity at all ages.
- d) Its approval at this time, being also incomplete and uncertain, is not in the community interest,
- e) it should lawfully be referred to the Planning and Assessment Commission, and
- f) rejected in its current form.

Response

- a) The modifications to the mine plan will not radically transform the current approved Mangoola Coal Mine. The proposed modifications to mine plans will result in an impact of an additional 11.7 hectares, an increase in disturbance of 0.52 per cent to the total project area; and the ETL relocation will result in an additional impact on 14.9 hectares, a disturbance increase of 0.67 per cent of the approved project area.

The modifications are as a result of the optimisation of the mine plan, and are not changing the way in which coal is mined from the area the mining methods employed, truck and shovel, will remain the same.

- b) 'The modification does not seek to increase the production rate as a result of the alterations to the mine plan or to alter the original consent period of 21 years' (Section 11.1 of the EA). The approved limit of extraction is 10.5 Mtpa. As a result of the modifications to the mine plans a more efficient mining sequence can be implemented at the site resulting in a shorter overall life of mine, despite no change in the maximum approved extraction rate. Full production for a few years (through a quicker ramping up of operations to the maximum annual production rate in the early years as noted by Wybong Action Group) does not result in more adverse impacts; mine optimisation; including full production for a few years, results in a shorter mine life of 15 years. However, such ramping up would have occurred a little later with the original and approved project.

- c) The OEH's criteria for TSP and deposited dust have been set to protect against nuisance impacts, while the PM₁₀ criteria have been set to protect against adverse health effects.

A detailed air quality assessment was prepared as part of the EA in accordance with relevant OEH guidelines. The assessment is outlined in Section 12.7 of the EA and presented in Appendix C6. The assessment predicts that:

- maximum 24-hour average PM₁₀ concentrations are predicted to comply with the 50 µg/m³ (project only) goal at all privately owned residences for all assessment years;
- annual average PM₁₀ concentrations are predicted to comply with the 30 µg/m³ (cumulative) goal at all privately owned residences for all assessment years;

- annual average TSP concentrations are predicted to comply with the 90 $\mu\text{g}/\text{m}^3$ (cumulative) goal at all privately owned residences for all assessment years; and
- annual average dust deposition levels are predicted to comply with the 2 $\text{g}/\text{m}^2/\text{month}$ (project increment) or 4 $\text{g}/\text{m}^2/\text{month}$ (cumulative) goal at all privately owned residences for all assessment years.

With respect to PM_{10} , it is defined as all airborne particulate matter that has equivalent aerodynamic diameter less than 1 micron. This particulate matter classification has been increasingly discussed in the scientific community in the past few years as epidemiological studies suggest that finer particles (that is, finer than PM_{10}) may be more closely linked to adverse health effects. However, there are no air quality standards, guidelines or criteria for PM_{10} , either at state or national level that can be used to assess the significance of PM_{10} concentrations in the ambient air.

There are differences in the fractions of smaller and larger airborne particles between urban and rural areas. In urban areas the main air pollutants are due to emissions from combustion sources, such as motor vehicles, and the airborne particulate matter contains a higher fraction of smaller particles (for example $\text{PM}_{2.5}$ and PM_{10}) than that found in areas where emissions are from a crustal origin. Particles generated through mining in the Hunter Valley are predominantly due to the crushing or abrasion of rock, and in the case of mining, most of the emissions will be larger than $\text{PM}_{2.5}$, and much larger than PM_{10} . This places urban areas as higher risk, in terms of the levels of fine particulate matter concentrations ($\text{PM}_{2.5}$ and PM_{10}), than rural areas.

Reference is made to early comments regarding $\text{PM}_{2.5}$. Briefly this is a NEPM standard more applicable to regions and sourced from motor vehicle emissions, particularly diesel engines. A review of several years of monitored results for several mines nearby indicates compliance with NEPM $\text{PM}_{2.5}$ limits.

At present, the only standards for assessing $\text{PM}_{2.5}$ monitoring data are the NEPM $\text{PM}_{2.5}$ standards which are intended for 'regional' monitoring sites, not for the monitoring project specific sources. The goal for the NEPM is to gather sufficient data nationally to facilitate a review of the Advisory Reporting Standards, so that air quality goals can be developed and adopted by state regulatory authorities. The OEH has yet to develop assessment criteria for $\text{PM}_{2.5}$ that can be applied on a project specific basis and at present there is no timeline for states to show compliance with any goals²¹. Refer to **Section 5.4.2** for further details regarding Mangoola Coal's proposed $\text{PM}_{2.5}$ monitoring.

While no $\text{PM}_{2.5}$ predictions have been made specifically for the proposed modifications, predictions for the approved mine (presented to the Independent Hearing and Assessment Panel, January 2007²²) showed that the impact zone of $\text{PM}_{2.5}$, defined by comparing annual $\text{PM}_{2.5}$ predictions with the NEPM standard, was found to be very similar to the impact zone of PM_{10} . It is therefore inferred that areas around Mangoola Coal Mine where compliance with the PM_{10} criteria has been predicted would also be predicted to comply the NEPM advisory standards for $\text{PM}_{2.5}$.

Therefore, the dust levels at private residences will not exceed either the project specific or cumulative dust criteria levels and thus the project is not predicted to adversely impact the health of residents.

Mangoola Coal will continue to monitor dust levels to verify that the Mangoola Coal Mine does not adversely impact on the dust levels in the area.

²¹ In 2008, the Queensland Government introduced $\text{PM}_{2.5}$ 'air quality objectives' consistent with the NEPM. Other states (including NSW) are likely to follow, although no indication of timeframe has been given.

²² Independent Hearing and Assessment Panel Anvil Hill Coal Project – Report to the Director-General Department of Planning, January 2007.

- d) The EA is not incomplete and uncertain. The EA for the proposed mine plan modifications represents a comprehensive EA prepared in accordance with DGRs and relevant legislation, policies and guidelines. The impacts from the proposed mine plan modifications are well documented and there is certainty around these impacts. This Response to Submissions report is thorough, with submissions comprehensively addressed. It is for the Minister for Planning to determine approval.
- e) The referral or otherwise of EA to the Planning and Assessment Commission is a matter for the Minister of Planning to determine.
- f) N/A

The EA concluded that there will be minimal net change in the extent of environmental impacts associated with the projects due to the considerable effort that was directed into the design of the project to minimise environmental impacts, while improving the efficiency in Mangoola Coal's operations. Overall, the Mangoola Coal mine project is expected to bring substantial economic benefits to the State of NSW, whilst maintaining a focus on responsible environmental performance and management. Section 3 of the EA details the project justification and alternatives considered in determining the most appropriate modifications to the mine plan.

Submission

There are NO approved industrial developments that influence noise levels relating to this project. NO existing industrial noise at any potentially affected residences or near the disturbance area and consequently an intrusiveness sound level of 35 dB(A) maximum is indicated (INP) and adopted for the Mangoola Coal Project. Noise modelling has utilised a 10th percentile exceedance (a calculated noise level) as a measure for noise impacts on all residences.

Response

By specifying a project-specific criteria of 35 dB(A) (based on intrusiveness criterion) for the day, evening and night time, the most stringent criterion available has been adopted for each of the identified residences surrounding the Mangoola Coal Mine.

Section 6 of the noise impact assessment from the Anvil Hill Project EA (Umwelt, 2006) notes that the: *'noise impact of the development can be determined by comparing the predicted noise level at the receiver with the project-specific noise levels that have been derived for that particular location.'*

The assessment also notes: *'The INP generally directs the use of a single set of adverse meteorological data to use in the assessment of noise impacts; however Wilkinson Murray has adopted a more rigorous approach in past assessments where noise levels at residences are calculated under a varied set of existing meteorological conditions. Measured statistical occurrences of these conditions over a period of one year are then applied to the results, and a 10th percentile exceedance level calculated, which is then compared with relevant criteria. This approach is generally more conservative than one using a single set of meteorological data as it accounts for the directional distribution of prevailing winds for each residence surrounding the proposal.'*

The assessment procedure adopted was significantly more complex but it provides a much more comprehensible description of noise impacts at a receiver.

In the preparation of the noise impact assessment for the mine plan modifications EA, the methodology accepted by the relevant government agencies was applied (NB: The same methodology applied to the assessment for the Anvil Hill project). OEH and DP&I have accepted this methodology as appropriate.

The adequacy review of the EA did not raise concerns regarding noise measurement.

Submission

The Mangoola Project and its surrounds however are often affected (>84% of winter nights and > 42% summer nights) by strong night and early morning temperature inversions ($\geq 4^{\circ}\text{C}/100\text{m}$) which dramatically and unpredictably elevate night and early morning noise from the Xstrata Mangoola mine to obtrusive levels.

During these common combinations of non-linear vertical temperature inversion and calm or light winds operational mine and traffic noise is focussed, magnified and reflected randomly within the adjacent valleys, frequently with increases of 10-20 dB(A) in magnitude such that coal trains passing Mangoola, road traffic at Sandy Creek on shift changeover and bulldozers operating on the haul road and top surface of the overburden dump can be clearly heard – bulldozers from several kilometres distant as if one hundred metres away.

Response

As noted in the submission, Figure 2-3 of the noise impact assessment for the mine plan modifications shows the occurrence of $4^{\circ}/100\text{m}$ between 42.8 per cent of the time during summer nights and up to 84.8 per cent of the time during winter nights. As noted in Section 2.4.6 in the noise impact assessment for the proposed modifications, Mangoola Coal has advised that not operating for this amount of time would not be financially viable for the proposal.

With respect to the ‘focusing’ of noise, while ENM²³ cannot accurately predict the likely occurrence of such events nor can any other known noise model, the INP (EPA, 2000) notes in Section 5.1 that:

Certain meteorological conditions may increase noise levels by focusing sound-wave propagation paths at a single point. Such refraction of sound waves will occur during temperature inversions (atmospheric conditions where temperatures increase with height above ground level) and where there is a wind gradient (that is, wind velocities increasing with height) with wind direction from the source to the receiver. These meteorological effects typically increase noise levels by 5 to 10 dB, and have been known to increase noise levels by as much as 20 dB in extreme conditions, thereby causing a significant noise impact on residents living in areas prone to these effects.

As a result, the INP (EPA, 2000) expects the criteria, against which the impacts are assessed:

...to apply under weather conditions that would be expected to occur at a particular site for a significant period of time.’

The noise impact assessment for the mine plan modifications has addressed this by determining the noise impacts under a range of meteorological conditions and then by determining the statistical occurrences of these conditions over a period of one year calculated the 10th percentile exceedance level for comparison to the criteria.

²³ ENM = Environmental Noise Model.

Submission

This striking increase in noise can occur randomly over periods from several minutes to several hours. The frequency of these events, and the level of noise augmentation occurring, “cannot be accurately predicted using ENM or any other known model”.

It **MUST** be noted also “that the (inversion and noise) calculations rely on predictions produced by the ENM model. This model is based on simple assumed vertical profiles of temperature and wind speed, and **CANNOT** accurately model more complex situations” (such as those that occur in the steeply rising foothill and partially enclosed valley topography surrounding the Project along the escarpment from Giants Creek to Manobalai, Castlerock and Roxburgh Ridge to Myambat), and that ‘the noise modelling software itself has an accuracy of ± 5 dB.

Response

As noted above, operational noise levels at residences have been calculated using the ENM noise prediction software. ENM is endorsed by the OEH for environmental noise assessment.

Section 6.2.6 of the noise impact assessment for the mine plan modifications notes that recent validation of measured noise levels from similar nearby operations has shown good correlation with predicted noise levels as a 10th percentile exceedance level.

Submission

The prediction of noise effects for the Mangoola Project can only be regarded as a guide that the Independent Hearing and Assessment Panel experts determined required verification through an active and ongoing program of ‘noise monitoring at receiver locations’ including to the North and South of the Project ‘to determine the extent of impacted properties’.

Response

In Section 9 of the noise impact assessment for the mine plan modifications it was noted that real time noise monitoring would be undertaken at representative locations to manage potential noise impacts for residences that are predicted to have 10th percentile noise levels above 35 dBA. At present, Mangoola Coal conduct routine noise monitoring to address their current operations, and undertake noise monitoring in relation to noise complaints. The results of the routine noise monitoring are available on the Xstrata Mangoola website and the results of the complaint based noise monitoring are discussed with the respective complainant. A revised Noise Monitoring Program, prepared in accordance with the Mangoola Coal Mine Project Approval, provides for the verification of the noise impacts through a program of ongoing noise monitoring at receiver locations using a combination of attended noise monitoring and real-time noise monitors. The program was discussed with DP&I in May 2011 with the revised version of the program submitted to DP&I on 4 July 2011 for approval.

In addition, a program of assessment and implementation of noise management measures has been undertaken by Mangoola Coal at affected residences. To date:

- noise management measures have been implemented at 13 affected properties;
- One property has had some measures implemented and currently awaiting recommendations for further measures to be implemented; and
- Two properties have been inspected and are now awaiting recommendations for the best management measures to be implemented and/or discussing options.

Of the residents who have had management measures implemented at their residences, three have specifically provided positive feedback regarding their satisfaction with the measures implemented and the way in which works were conducted.

Submission

The approved solution [during temperature inversions], to restrict dump trucks and dozers involved in the distribution of overburden to operating below the maximum elevation of the overburden emplacement areas at night will have limited success in the common event of temperature inversion and even more-so if such restrictions are not observed such as currently during construction of the overburden dump.

Response

The restriction of trucks to operate below the maximum elevation of the overburden emplacement areas is considered both practical and economically viable. The noise assessment for the mine plan modifications notes that this is more beneficial than construction of bunding on top of overburden emplacement areas. The restriction is also applied to bulldozers involved in the distribution of overburden with respect to daytime and night time dumping.

The implementation of these restrictions is an operational requirement that is being addressed by Mangoola Coal.

Submission

Xstrata Mangoola deny residents every claim of exceedence, refuse to provide any noise readings from the monitor nearest the receiver and refuse to timetable positioning of either mobile monitor to verify their model or measure exceedences. The number and location of monitors within the 35-40 dB(A) 'management zone' that surround the site (see dia 1) is inadequate.

Response

The Noise Monitoring Program, prepared in accordance with the Mangoola Coal Mine Project Approval (06_0014), includes the verification of the noise impacts through a program of ongoing noise monitoring at receiver locations using a combination of attended noise monitoring and real-time noise monitors and has been approved by DP&I. The results of the noise monitoring program will be presented in a Quarterly Noise Monitoring Report which is available on the Xstrata Mangoola web site.

A copy of each Quarterly Noise Monitoring Report will be available on the Xstrata Mangoola website in accordance with Project Approval Schedule 5, Condition 11 (06_0014).

The location and number of monitoring stations is considered appropriate for exceedance detection having regard to the location of private properties and adverse weather and wind directions and noise compliance protocols.

Submission

Wybong Action Group submits that the current Xstrata Mangoola noise monitoring network is demonstrably and on its own information concerning calculation of inversion inadequate to:

- 1. enable the model upon which acquisition, noise amelioration or otherwise has been determined to have been finally determined,**
- 2. inadequate to enable the model upon which noise calculations are based to be verified, and is,**
- 3. inadequate to enable compliance with consent conditions to be determined.**

Response

The noise controls proposed for the mine plan modifications are consistent with those outlined and approved for the original EA, which was subject to intense scrutiny as part of the Independent Hearing and Assessment Panel process. Section 2.4 of the EA (Umwelt, 2011b) notes that these controls include the implementation of a Noise Monitoring Program that will include a combination of real-time and supplementary attended monitoring measures, and a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria outlined in the Mangoola Coal Mine Project Approval. The Noise Monitoring Program has recently been revised to provide further detail in relation to noise monitoring and verification process (refer previous responses regarding program content). Mangoola Coal has submitted a revised Noise Monitoring Program for approval from DP&I.

Submission

Wybong Action Group Submits that the Xstrata Mangoola Noise Monitoring Program MUST include active noise measurement within the currently (2006) defined, pre-Modification 4, 'management zone' (locations with 35-40 dB(A) modelling projections), that is reported daily on the Xstrata Mangoola web site showing daily maximum readings, for each monitor, with historical results.

Response

As described in Section 2.4.4 of the noise impact assessment for the mine plan modifications, Mangoola Coal has committed to the implementation of a real-time monitoring system to monitor operational noise levels from the Mangoola Coal Mine. The noise impact assessment notes that: *'The commitment to use such a system goes beyond normal OEH monitoring requirements and has proved effective in assisting noise management at several other sites in NSW.'*

The results from the implementation of the Noise Monitoring Program will be presented in the Quarterly Noise Monitoring Report and available on the Xstrata Mangoola website, in accordance with Project Approval Schedule 5, Condition 11.

6.3.1 Consultation

Submission

"'Community' is an inclusive term that includes private citizens, representatives of industry, commerce, people groups, Government agencies, and any individual or organisation that may be affected by the policies or plans of another person or party. Consultation involves two-way communication or exchange between an organisation, person or party and the community it seeks to engage." To Xstrata Mangoola however Community Consultation is a one-way street where the community is informed of Xstrata's intentions and 'no correspondence is entered into'.

"It is important to ensure that consultations with the community, including 'hard to reach groups' occur 'right-from-the-beginning', that is when the proposal is being developed. This will ensure that their needs and perceptions about what is important are understood and helps avoid enmity towards the consulting party. Consulting with these groups is important", except to Xstrata Mangoola.

WAG describes the consultation to date as inadequate and more as informing the community of planned events as opposed to seeking input on these events.

Response

Agency and community consultation are key to the preparation of an EA and necessary to determine the relevant issues to be considered through the assessment process. Consultation with relevant stakeholders including affected landholders, the surrounding community, community groups, government authorities, service providers, Aboriginal groups and other relevant stakeholders commenced during the early project planning phases and has continued through the preparation of the EA for the mine plan modifications.

A range of consultative and assessment mechanisms were used to engage the community including:

- CCC – the Projects were initially raised with the Mangoola Coal CCC in 2008 and consultation has been ongoing with the CCC throughout the Project;
- Project Specific CIS – two project specific CIS were held in April 2009;
- Mangoola Coal Consultation – in addition to the specific CIS held for the Project, one further Mangoola Coal CIS, held on 22 July 2010, and two community newsletters developed by Mangoola Coal, which addressed various aspects of the Mangoola Coal Project, have also provided the community with updates on the proposed Projects;
- Individual Meetings – in addition to the consultation mechanisms outlined above, Mangoola Coal has commenced face-to-face consultation with specific residents affected or potentially affected by the proposed Projects; and
- Aboriginal Stakeholder Consultation – consultation with 33 Aboriginal stakeholder groups has also been undertaken during the Aboriginal Heritage Assessments for the Projects.

We note that project information flyers and newsletters, advertisements and company website provide numbers and names which can be contacted to discuss the project throughout the assessment process. The Xstrata Mangoola website also posts a 24 Hour Community Response and Blasting Hotline and contact email address.

Further details on the consultation undertaken are provided in Section 4 of the EA.

Submission

Lack of details for the community on the Wybong Road Upgrade.

Response

Mangoola Coal is currently in negotiations with MSC with respect to the amelioration of the condition of Wybong Road (refer to response to MSC submissions 16-20).

With respect to details regarding timing of works and potential interruptions to traffic Mangoola Coal advertises in local newspapers and provides notifications throughout the community, and notifications are posted on the Xstrata Mangoola website.

6.3.2 Aboriginal Cultural Heritage**Submission**

The Application is uncertain; it has amongst a number of incomplete plans, strategies, reports etc required by the original consent, an unresolved Aboriginal Cultural Heritage Offset Strategy without any timetable or timeframe for resolution.

Response

The Aboriginal Heritage Assessment undertaken as part of the EA includes the details of consultation undertaken with Registered Aboriginal Parties as required (refer Section 12.2 and Appendix C2 of the EA). It has been agreed that further consultation be undertaken with Registered Aboriginal Parties as part of the 6 monthly consultation meeting process in an effort to determine culturally appropriate offsets. At the most recent meeting (3 March 2011), an identified potential offset area was presented to the Registered Aboriginal Parties, the majority of whom indicated that they wish to inspect the area to consider its Aboriginal cultural values. This inspection will be arranged as part of upcoming cultural heritage work at Mangoola Coal Mine and the outcomes reported to DP&I and OEH.

Alternative offset package related to employment and training was also suggested by some representatives. It was determined that the nature of the offset would be finalised following inspection of the proposed offset area and additional consultation between Mangoola Coal and the Registered Aboriginal Parties. Refer to **Section 2.2.3** of this Response to Submissions report for further detail on indigenous training and employment offset potential.

Submission

Clearly again however the Aboriginal Heritage Management Zone SC10 is more appropriately relocated from its current positioning adjacent to the CHPP, MIA and rail loop to a more culturally appropriate area in the vicinity of Wallaby Rock/Western Rocks where the majority of scatters, PAD's, cave habitats and undisturbed native flora and fauna domicile and is more remote from the mine infrastructure, dust, noise and distraction of active workings.

Response

Mangoola Coal has identified to Registered Aboriginal Parties that there is potential for a land offset available to the west of Wallaby Rocks and the majority of the Registered Aboriginal Parties have indicated that they wish to inspect the area to consider its Aboriginal cultural values. A decision regarding appropriate offset will be made in consultation with OEH, DP&I and Registered Aboriginal Parties. Regardless of the location of any additional agreed offsets, the maintenance of the SC10 management zone forms part of the existing conditions of approval and it is not proposed to modify any such condition relating to the SC10 management zone.

6.3.3 Ecology**Submission**

The Greater Eastern Ranges Project sponsored by the Department of Environment, Climate Change and Water is a visionary project connecting preserved and remnant woodland across New South Wales. The Hunter Valley is the most extensive 'gap' in the project's corridor. A cumulative assessment of the land use conflict between open cut coal mining and power generation (and attendant buffers and offsets) on the one hand, with preserved and remnant woodland on the other should be undertaken and a re-connectivity strategy developed in conjunction with the Hunter Central Rivers Catchment Management Authority and landholders.

Response

The Great Eastern Ranges Initiative (the Initiative) is a concept developed by the OEH to maintain and improve long-term connectivity conservation of mountain ecosystems running the length of eastern Australia. Whilst there is currently no requirement to assess a project against the concept area relating to this initiative, Mangoola Coal appreciates and supports the intent of OEH's Greater Eastern Ranges Project. XCN has pledged \$1.5 million over the next three years to help The Wybong Catchment Health Improvement Project address priority natural resource management issues in the Wybong catchment.

The Hunter Central Rivers Catchment Management Authority (HCRCMA CAP) views the Wybong Catchment as a priority saline catchment area and has identified several important areas requiring programs to ensure the health and sustainability of the catchment.

The approved Mangoola Coal Mine lies within the Initiative corridor boundary (with the exception of approximately 32 hectares), and impacts on approximately 2251 hectares of the nominal boundary for this conceptual corridor. The proposed mine plan modifications and impacts on an additional 11.7 hectares of vegetation within the corridor (a total of 26.6 hectares impacted by ETL relocation (14.9 hectares) plus mine plan modifications). The primary goal of the Initiative is 'A connected NSW conservation corridor contributing to healthy ecosystems and healthy people'. The Biodiversity Offset Strategy proposed for the currently proposed and existing approved Mangoola Coal Mine projects has provided for the offsetting of a total of 3132 hectares²⁴ in response to impacting a total of approximately 2265 hectares²⁵. The offset areas surround the vast majority of the impacted areas, and also provide for the immediate protection and pending revegetation of substantial corridors from the Mangoola Coal Mine to conserved areas to the north and west.

The modifications will have no significant short to medium term impact on this initiative and with the combination of progressive rehabilitation and protection and enhancement within offset areas, will provide a substantial contribution to the objectives of this initiative in the long term.

6.3.4 Management Plans

Submission

The EA is also confused as to whether mining has commenced stating that "Mining activities commenced in September 2010" and on the same page stating that that "A number of management plans will be revised in preparation for the next phase of the project – commencement of mining operations."

"In addition, one of the requirements of the Project Approval 06_0014 is the development of a Landscape Management Plan containing a Rehabilitation and Offset Management Plan (ROMP), which will be completed prior to commencement of mining on the site and provide additional information about rehabilitation as well as a Final Void Management Plan and Mine Closure Plan."

Consent Condition 41(b) states "The Proponent shall prepare and implement a detailed Landscape Management Plan for the project to the satisfaction of the DPI and Director-General. This plan must: be submitted to the Director-General for approval prior to starting mining operations on site; and

²⁴ Includes 1904 hectares existing approved Biodiversity Offset Areas, 64 hectares Additional Biodiversity Offset Areas, 222 hectares Western Corridor Offsets, 942 hectares Northern Corridor Offsets.

²⁵ Impacts from ETL relocation 14.9 hectares, 11.7 hectares mine plan modifications, 2238 hectares approved mine.

Consent Condition 10 states “Within 3 months of the approval of any strategy/ plan/program required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or EMRs required under this approval, the Proponent shall:

- a) provide a copy of the relevant document/s to the relevant agencies and the CCC;
- b) put a copy of the relevant document/s on the Proponent’s website.

Xstrata-Mangoola non-compliance with completion of strategies /plans /programs is widespread.

Response

Overburden mining commenced at the approved Mangoola Coal Mine in September 2010.

With respect to the plans required to be completed for the management of the Mangoola Coal Mine activities and operations all management plans have been submitted as required. Refer **Table 6.2** below.

Table 6.2 - Summary of Current Status of Mangoola Coal’s Management Programs and Plans

Clause in Project Approval	Requirement	Status	Comment
Schedule 3, Condition 11	Noise Monitoring Program	Submitted	Submitted to DP&I for review
Schedule 3, Condition 23	Blast Monitoring Program	Submitted	DP&I advised no comments
Schedule 3, Condition 27	Air Quality Monitoring Program (AQMP)	Submitted	Submitted to DP&I for review
Schedule 3, Condition 31	Mangoola Water Management Plan (and its components)	Submitted	DP&I advised no comments
Schedule 3, Condition 32	Site Water Balance	Submitted	DP&I advised no comments
Schedule 3, Condition 33	Erosion and Sediment Control Plan	Submitted	DP&I advised no comments
Schedule 3, Condition 34	Surface Water Monitoring Plan	Submitted	DP&I advised no comments
Schedule 3, Condition 35	Groundwater Monitoring Program	Submitted	DP&I advised no comments
Schedule 3, Condition 36	Surface and Groundwater Response Plan	Submitted	DP&I advised no comments
Schedule 3, Condition 41	Landscape Management Plan (and its components)	Submitted	DP&I advised no comments
Schedule 3, Condition 42	Rehabilitation and Offset Management Plan	Submitted	Pending review by DP&I
Schedule 3, Condition 43	Final Void Management Plan	Submitted	Pending review by DP&I
Schedule 3, Condition 44	Mine Closure Plan	Submitted	Pending review by DP&I
Schedule 3, Condition 44	Aboriginal Cultural Heritage Management Plan (ACHMP)	Approved by DP&I 05/01/2009	Approved up to Year 1 mining and upon completion of salvage activities

Table 6.2 - Summary of Current Status of Mangoola Coal's Management Programs and Plans (cont)

Clause in Project Approval	Requirement	Status	Comment
Schedule 3, Condition 51 and 51A	Construction Traffic Management Plan	Approved by RTA and MSC	Approved
Schedule 5, Condition 1	Environmental Management Strategy	Submitted	DP&I advised no comments
Schedule 3, Condition 19	Road Closure Management Plan	In Preparation	To be approved prior to blasting within 500 metres of Wybong Road
Schedule 3, Condition 48	Conservation Management Strategy	Submitted	Pending review by DP&I
Schedule 3, Condition 58	Energy Savings Action Plan	Submitted	Comments provided and in process of being addressed

6.3.5 Water Resources

Submission

The revised mine plan (in direct opposition to the site water harvesting contained in the original mine plan which assured the community and expert panel that near 100% of mine water requirements would be provided in situ).

“The Proponent states in the EA that water necessary to operate the mine will predominantly come from run-off and water from dams to be constructed on the project site and that water sourced from Sandy Creek and the Hunter River system would only occur during the construction phase of the project and, once the mine is operational, where no other source of water is available.”

Response

As presented in Section 3.2.5 of Appendix C3 of the EA, the predictive water balance indicates that the proposed modifications to the Mangoola Coal Mine will potentially lower the gross water deficit typically by 500 ML per year compared to the approved Mangoola Coal Mine plan. This reduction in water demand, combined with the increase in storage capacity of the Raw Water Dam, will allow for a greater flexibility in water supply management at the Mangoola Coal Mine, with a greater capacity to manage water supplies through extended dry periods with a reduced dependency on river abstractions.

Submission

Xstrata Mangoola intends to draw near 100% of water requirements from the Hunter River water supply and to now divert the majority of surface waters to Big Flat Creek and Anvil Creek runoff and capture uncertain quantities of contaminated site waters in a series of uncertainly sized and located sediment and retention dams.

Response

As discussed in Section 3.1 of the Surface Water Assessment of the EA (refer Appendix C3 of the EA), whilst some components of the modified water management system have been relocated and/or redesigned in response to the modification, the broad water management system remains unchanged from the strategy outlined in the approved Mangoola Water Management Plan (Umwelt, 2010b). Both the approved mine and proposed modifications

adopt separate clean, dirty and saline water management systems that are intended to prevent the contamination of clean water by the proposed mining activities.

The water management system originally proposed for the mine captured runoff from disturbed areas (including overburden emplacement, pit and infrastructure areas) which was to be used as the major source of on-site water. In accordance with the Project Approval for the Mangoola Coal Mine, the water management system was modified so that no licensable water from the Wybong Creek Water Source was used for the purposes of mining. Consequently, water demands on site are to be met according to the following hierarchy of sources:

1. groundwater from the mine water make or licensed constructed bores;
2. the Hunter River using existing WALs;
3. clean water from harvestable rights; and
4. dams collecting water solely for the use of dust suppression, e.g. overburden emplacement area sediment dams.

The diversion of the surface water runoff generated by the upslope catchment areas is intended to preserve as much as possible the existing flow characteristics of the downstream sections of Big Flat Creek and Anvil Creek. It also has the advantage of minimising the volume of water needed to be managed by the mine water management system.

The proposed increase in the storage capacity of the Raw Water Dam also provides additional flexibility in the water supply for the Mangoola Coal Mine, providing additional opportunities to reduce the volume of water abstracted from the Hunter River, thereby further preserving the existing flow regimes in the downstream environment.

In summary, the proposed modification provides greater use and recycling of site water, reduced need for Hunter River extraction or reduced need to discharge off-site and overall improvements in water management, reduced other water user impacts and reduced environmental impacts.

Submission

The amended surface water management plan provides no certainty as to the quality and quantity of site surface water entering the Wybong/Goulburn and Hunter Rivers and should be referred to an Expert Panel for public review and recommendation prior to any determination of the application being made, noting that the catchment areas with potentially saline runoff are increased with the proposed modifications to the mine plan compared to the original approved mine plans (Umwelt, 2006) and the Site Water Management Plan (Xstrata Mangoola, 2008) this increase being a result of the larger proportions of open cut pit.

Response

As stated in Section 3.1.1 of the Surface Water Assessment completed as part of the EA (refer Appendix C3):

The mine water management system has also been designed so there are no discharges of saline water from the mine site. As discussed, runoff from overburden dumps and rehabilitated areas will be channelled, stored and treated as required in various sediment ponds prior to reuse for dust suppression or discharge off site.

The modification significantly reduces water leaving the site. No saline water will leave the site.

Submission

The proposed modification has potential under flooding to adversely impact on channel stability and in stream habitat of the Wybong Creek system and even moreso given that “the dirty water catchment areas of the water management system will drain, via sediment controls, to the downstream water systems, including Big Flat Creek and Sandy Creek”.

Response

As stated in Section 3.3 of the Surface Water Assessment for the EA (refer Appendix C3 of the EA), the potential impacts of the proposed changes to the mine plans were assessed against the previously approved mine plan, concluding that there would be negligible differences in the flooding impacts between the approved mine plans and proposed mine plan modifications.

Except under storm events exceeding the design criteria set in accordance with OEH requirements, discharges from dirty water systems will normally be under controlled conditions after appropriate water treatment has been completed. Where needed, sedimentation dams will be maintained with an available capacity to intercept and store the design runoff volume. As such, spills from the dirty water system will occur once the available storage capacity in the sedimentation dams is exhausted. This means that the total discharge volume from the flood event will be reduced and attenuated by the storage-routing effects of the sedimentation dams. In addition, the spillway for each of the sedimentation dams includes scour protection and energy dissipaters to ensure that the dam spillway and immediate downstream areas remain stable during spilling events.

6.3.6 Final Void**Submission**

The statement “an alternative of full void infill and reliance on evapo-transpiration by trees and grass was considered. However, the current proposal is considered superior in the prevention of saline discharges (refer to Section 5.3) and cost of implementation” relates to the original 4 pit MOP and has not been considered in Modification 4 which contains in its final landform the tailings dams and a steep sided, final void transecting an identified existing Regional Biodiversity Corridor critical to the Greater Eastern Ranges Initiative in the Upper Hunter. (See fig 12.13 and Upper hunter Focus Area 1 below). No dimensions are given for the final void beyond near 130m depth with a surface area that can only be visually estimated from the scale as many hectares. Neither provides habitat or safe water source for native fauna or migratory birds despite forming the major water bodies within the Anvil Hill area post mining.

Response

The final void will be reduced to one pit located at the south-western end of the approved project disturbance area near the area associated with the Main Pit workings. Consistent with the approved Mangoola Coal Mine, the final void will be designed to capture groundwater inflow from the Main Pit and South Pit overburden emplacement areas and allow for the evaporation of accumulated water. In order to provide an appropriately sized evaporative surface, the final void will have an area of approximately 130 hectares and will result in a reduced long-term final void water level of approximately 129 mAHD²⁶. This level is within the range of expectation and will not adversely affect the long-term outcomes of containing groundwater-leachate and avoiding over-topping (refer to Appendix C4 of the EA).

²⁶ AHD = Australian Height Datum.

An assessment of the long term void water levels, water quality and required management, is included in Section 12.5.1 of the EA. The final void will become a self contained system that will not overflow or discharge to the surrounding environment.

The final void also has the advantage of collecting seepage/leachate from the overburden emplacement areas where the seepage will be contained and evaporated.

6.3.7 Traffic/Roads

Submission

WAG require CHR(S) turn treatments in lieu of AUR turn treatments for the following reasons:

- **Reduction in Overtaking-Intersection vehicle accidents (where a right turn vehicle is hit by an overtaking vehicle) [on the left as at Ridgeland-Castlerock-Wybong Intersection];**
- **Provision of more consistent intersection layouts;**
- **Increase in the average design life of turn treatments i.e. compared to AUR turn treatments, CHR(S) treatments will be able to function for longer periods before an upgrade is required; and**
- **Address concerns from the motoring public that more CHR turn treatments should be provided on high-speed roads to improve safety.**

(WAG attached a paper developed by Austroads "Road Safety in Rural and Remote Areas of Australia" (who WAG incorrectly reference as the NSW RTA) which supports, in places, the use of channel lanes for turning in rural areas and also to use consistent measures over a road network).

Response

The DGRs for the proposed mine plan modifications required accurate predictions of the road and rail traffic likely to be generated by the revised mine plan and a detailed assessment of the impact of this traffic on the capacity, efficiency and safety of the road and rail networks.

The traffic assessment completed as part of the EA concluded that the traffic associated with the modified project, when combined with the ETL relocation construction traffic numbers, does not result in changes to the level of service on roads surrounding the Mangoola Coal Mine. Impacts to traffic associated with the proposed modifications are expected to be minimal.

Section 6.8.1 of the EA provides an overview of the existing road network and traffic demands and further details on the potential impacts relating to the projects are summarised in Sections 8.14 and 12.14. A copy of the traffic impact assessment report is provided as Appendix A5 to the EA.

Considering the traffic related submissions for the proposed modifications, Mangoola Coal has commissioned additional traffic assessment including potential mitigation measures for the project area. This includes discussion with MSC regarding road and/or intersection upgrades, capacity and related issues. Further details of the assessment are included in response to MSC submission 7(c)(i).

Submission

No Traffic Management Plan available for the Wybong Road Upgrade.

Response

A Construction Traffic Management Plan, including management measures for the Wybong Road upgrade was developed in August 2009 and is available on the Xstrata Mangoola website.

Submission

Need to re-construct Castlerock Rd school bus stop.

Response

Mine traffic does not impact on Castlerock Road and therefore there is no proposal to upgrade this school bus stop.

6.3.8 Air Quality**Submission**

WAG has attached a letter to DECCW outlining why PM10 and PM2.5 monitors are required in the Wybong area after discussions with Mitchell Bennett (DECCW) and Mr Holmes (assuming Nigel Holmes) held at the Upper Hunter Air Quality Public Consultation session held in September 2009. (The letter doesn't address the modification but mentions Anvil Hill as well as other mines as a reason for monitoring). "We believe that an absence of real time monitoring in the Wybong Valley area would present a serious deficiency in the DECCW Upper Hunter Air Quality Monitoring program that would be detrimental to the substantial population resident in the Wybong Valley."

Response

At present, the only standards for assessing PM_{2.5} monitoring data are the NEPM PM_{2.5} standards which are intended for 'regional' monitoring sites, not for the monitoring of project specific sources. The goal for the NEPM is to gather sufficient data nationally to facilitate a review of the Advisory Reporting Standards, so that air quality goals can be developed and adopted by state regulatory authorities. The OEH has yet to develop assessment criteria for PM_{2.5} that can be applied on a project specific basis and at present there is no timeline for states to show compliance with any goals²⁷. Should monitoring of PM_{2.5} become a government requirement, Mangoola Coal will undertake monitoring as required.

Should the NSW Government introduce the requirement to measure fine particulate matter (i.e. PM_{2.5}) in the future on a project specific basis, Mangoola Coal would implement the appropriate monitoring program in consultation with the relevant authorities and the local community. Despite the monitoring of PM_{2.5} not being a legislative requirement, Mangoola Coal plan to implement two PM_{2.5} monitors. The exact locations of the monitors are yet to be determined; however, they are likely to be located north-west and south-east of the mine site to capture the prevailing wind conditions.

While no PM_{2.5} predictions have been made specifically for the proposed modifications, predictions for the approved mine (presented to the Independent Hearing and Assessment Panel, January 2007²⁸) showed that the impact zone of PM_{2.5}, defined by comparing annual PM_{2.5} predictions with the NEPM standard, was found to be very similar to the impact zone of PM₁₀. It is therefore inferred that in areas around Mangoola Coal Mine where compliance

²⁷ In 2008, the Queensland Government introduced PM2.5 'air quality objectives' consistent with the NEPM. Other states (including NSW) are likely to follow, although no indication of timeframe has been given.

²⁸ Independent Hearing and Assessment Panel Anvil Hill Coal Project – Report to the Director-General Department of Planning, January 2007.

with the PM₁₀ criteria has been predicted there would also be predicted compliance with the NEPM advisory standards for PM_{2.5}.

6.3.9 Visual Amenity

Submission

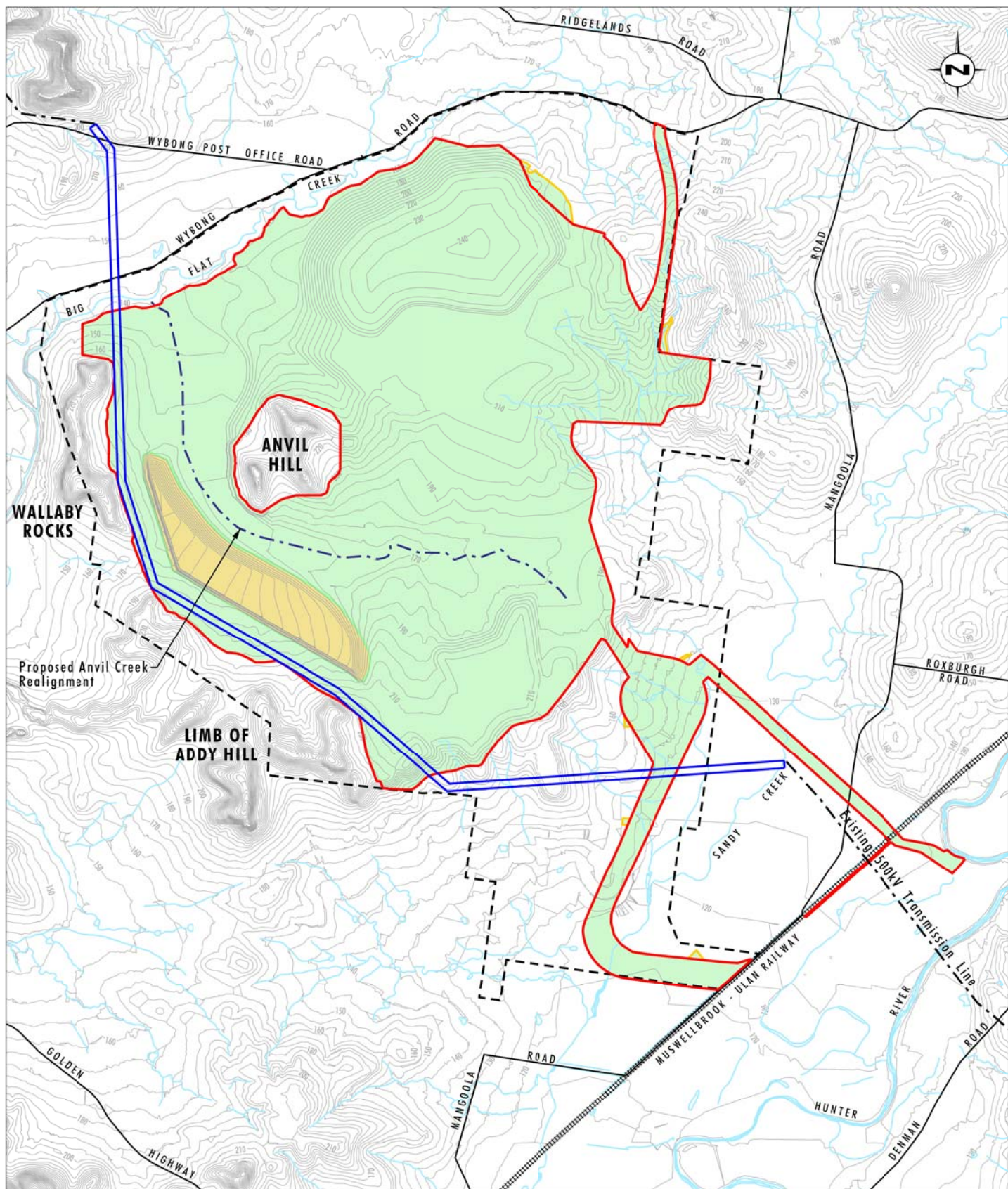
“The changes to the mine plan also result in significantly higher landforms than previously assessed in the northern end of the pit. The approved Project has a maximum rehabilitated height of around RL210 whereas the proposed Project has a proposed final rehabilitated height of RL 240. The most significant difference to the surrounding topography is the unbroken line and volume of the new emplacement combined with the steep sided appearance over a distance of approximately 2400m. The extra height of the embankment will emphasise the volume and scale of the element. “The increase in height of the emplacement will however correspondingly increase the long term visual impacts due to the final bulk and scale of the emplacement. The final emplacement will also be more prominent due to the increase in bench height to RL240. The short and long-term views of Anvil Hill will not be possible due to the extra height of the main emplacement at RL240. The heightened main emplacement will screen the later years of mine extraction to viewers adjacent to VP11.”

Response

Whilst the final landform of the project area will contain landforms at a greater elevation than previously proposed, the conceptual final landform for the proposed modification (refer **Figure 6.1**) has been designed to maintain consistency with the local area and will predominantly consist of an undulating landform reflecting the dominant features of the existing environment. Although the emplacement area will limit views from some properties close to the site in the north, it will also act as a physical barrier between some residents and the mine site. The principles that support the conceptual final landform are consistent with the approved project as follows:

- the conceptual final landform will complement Anvil Hill, the most prominent topographical feature within the approved project disturbance area (approximately 285 mAHD) through the establishment of ridgelines leading to this feature;
- (NB: Other notable topographical features within and surrounding the study area include ‘Wallaby Rocks’, at an height of 264 mAHD, and Limb of Addy Hill, a height of 302 mAHD, both of which rise approximately 100 metres above the surrounding area);
- the overburden emplacement areas will predominantly consist of slopes of 10 degrees and will increase to up to a maximum of 14 degrees in places, consistent with NSW DTIRIS (formerly DPI) guidelines; and
- the final landform will be designed and constructed as a self draining landscape, with appropriate surface drainage and sediment control structures to be installed to manage surface runoff from rehabilitated areas.

The mine plan modifications create a more appropriate final landform shape through better availability of out-of-pit overburden emplacement areas where rehabilitation is undertaken in a more integrated process. The previous mine plans saw the creation of an artificial valley due to the residual location of the ETL through the site in a north-west to south-east direction.



Source: Xstrata Mangoola
Base Map: Dept. of Lands (2003)
Note: Contour Interval 5m

Legend

- Approved Project Disturbance Boundary
- - - Mining Lease 1626 Boundary
- Modified Project Disturbance Boundary
- Proposed 500kV ETL Relocation
- Rehabilitation - completed
- Final Void

FIGURE 6.1

Conceptual Final Landform

The visual amenity impact assessment completed as part of the EA for the mine plan modifications (refer Section 12.6 of the EA) concludes that visual impacts associated with the infrastructure areas are similar to the approved project for the public viewpoints, with the exception of the following:

- VP10, located to the north-west of the study area, has visual impacts that decrease from low to nil-low; and
- VP11, located to the north of the study area, has visual impacts that increase from nil to nil-low.

The slight decrease in visual impacts at VP10 is due to the proposed saddle in the landform east of Anvil Hill, which will act as a more significant screen of the infrastructure areas. The slight increase in the visual impact at VP11 is due to the removal of a haul road which will allow views of the infrastructure areas, as well as a more prominent emplacement area. Whilst the emplacement area will be more visible, it will also be progressively rehabilitated and as discussed above, will not be out of place from a landform perspective.

It is acknowledged that sections of the overburden emplacement will increase from RL 210 to RL 240 increasing in bulk and scale in the short to medium term. However, increased and earlier rehabilitation as well as screen planting is intended to reduce the level of impact to the level of the approved project (namely, an 'acceptable level of impact').

It is also acknowledged that short and long term views to Anvil Hill will not be possible from certain viewing locations.

Additional Visual Impact Assessment

In response to the submissions received on the EA for the mine plan modifications and ETL relocation, Umwelt conducted an additional visual amenity assessment specifically targeting the concerns raised in submissions. The visual amenity assessment completed previously was a general landscape based assessment, whereas the work completed in response to submissions on the EA for the mine plan modifications and ETL relocation provides detail in response to specific concerns raised. The additional visual amenity assessment process included the following:

4. **Radial Analysis Assessment** – Radial analyses are developed using 3D topographic information, aerial photographs and electronic data files relating to site infrastructure and other infrastructure surrounding the mine site. A radial analysis illustrates what is visible from eye level at that location. It should be noted that radial analyses are topography based only and do not include vegetation which may in fact screen a portion of a viewshed. Radial analyses were completed to gauge the potential visual impact from targeted viewpoints which were determined based on visual amenity impact related submissions. A comparison of radial analyses was made using perceived visual worst case year during mine operations – the approved mine vs. the approved mine plus mine plan modifications and relocated ETL.

5. **Field Assessment** - A field assessment was conducted including:

- a visit to the Mangoola Coal Mine;
- travelling the regional road network which services the mine; and
- visiting locations raised in submissions and subsequently the subject of a radial analysis.

Throughout the assessment observations were made regarding visual amenity and potential impacts, and photographs were taken.

6. **Photomontages** - A photomontage is developed using a panoramic photograph (made using a series of individual photos), 3D topographic information, and electronic data files pertaining to the site infrastructure and other infrastructure surrounding the mine site. Constructing photomontages of 'before and after' scenarios illustrates the existing landscape and provides a comparison landscape including the relocated ETL. Final locations chosen for the construction of photomontages were determined based on the results of the radial analysis exercise and photos taken and observations made during the field assessment.

As part of the assessment a viewing location on Ridglands Road was chosen to illustrate potential impacts of the mine plan modifications and ETL relocation on the broader valley view; Viewing Location 1 (refer **Figure 6.2**). This location was also used in the previous assessment undertaken; VP11. The location was chosen during the field assessment where photographs and observations were made, and a radial analysis was completed.

Observations indicate that at present the active overburden is visible in some locations, between vegetation screening. It is possible that some motorists would observe glimpses of the overburden and mining activities from this location, however the impact is minimal. There are no private residences which would be impacted. The current overburden rehabilitation works will progress through the remainder of 2011.

The radial analysis illustrates what would be visible from eye level at this location and compares the approved mine and existing ETL with the mine plan modifications and ETL relocation using the year 2 mine plan for each (refer **Figure 6.3**). The analysis illustrates no real change in what would be visible from this location, in fact the mine plan modifications are likely to have less impacts as the location in which overburden is most visible will be rehabilitated whereas in the approved mine plan overburden will be visible but still active. In addition, the relocated ETL will be less visible from this location as it will be several kilometres further away from the existing location.

A panoramic photograph from Viewing Location 1, **Plate 6.1**, illustrates the valley view.

No photomontage was deemed necessary for this location as the radial analysis and field assessment demonstrated no visual amenity impacts from this location.

Submission

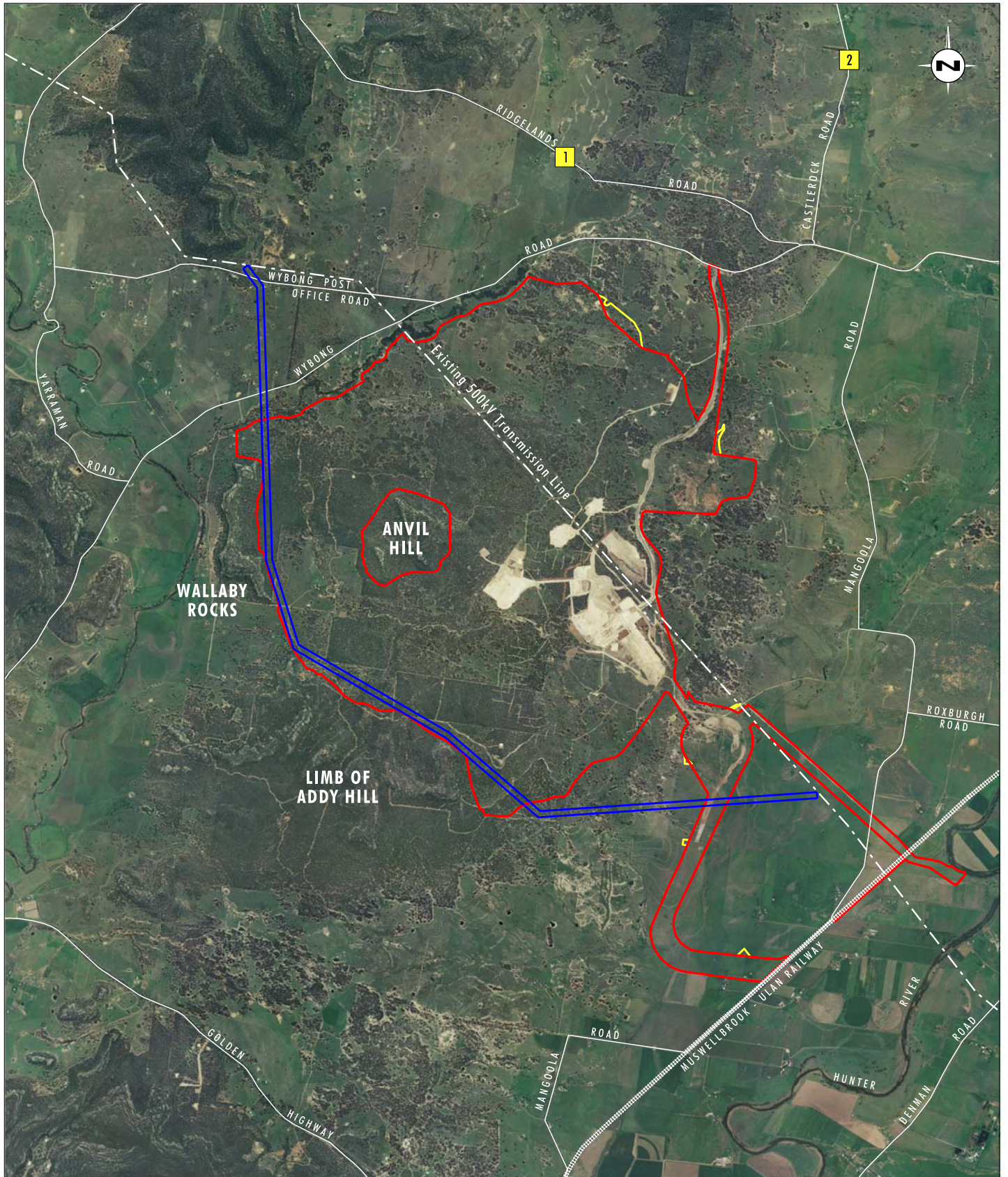
Further confusion is created by the claims extended in the Community Information Sheet (CIS) of November 2010 that "During October Mangoola Coal has concentrated on building a noise bund approximately 500m south of Wybong Road. This bund can be seen from sections of Wybong Road and it forms an important part of our future noise management. Before the end of November Mangoola Coal will move into 24 hour, 7 day operations and in addition to the bund itself a number of measures are being taken to minimise our impact on neighbours including:

- Selection of night time work areas below the Wybong Road noise bund.
- Positioning and orientation of lighting plants to minimise impact on surrounding areas."

The claimed noise bund is the commencement of the overburden dump subsequent to commencement of mining in September 2010 and it is troublesome that Xstrata Mangoola appear to claim otherwise.

In addition, despite the CIS referred to above:

- dumping has continued atop the "Wybong Road noise bund" during night time on most nights,



Source: Dept. of Lands (2003), Xstrata Mangoola (2010)

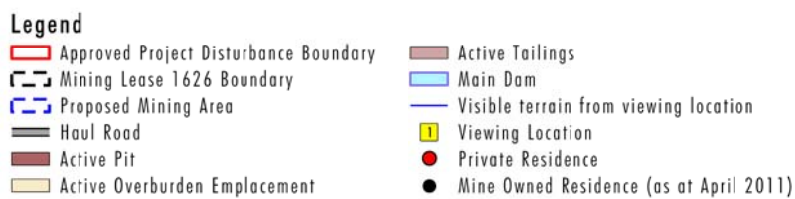
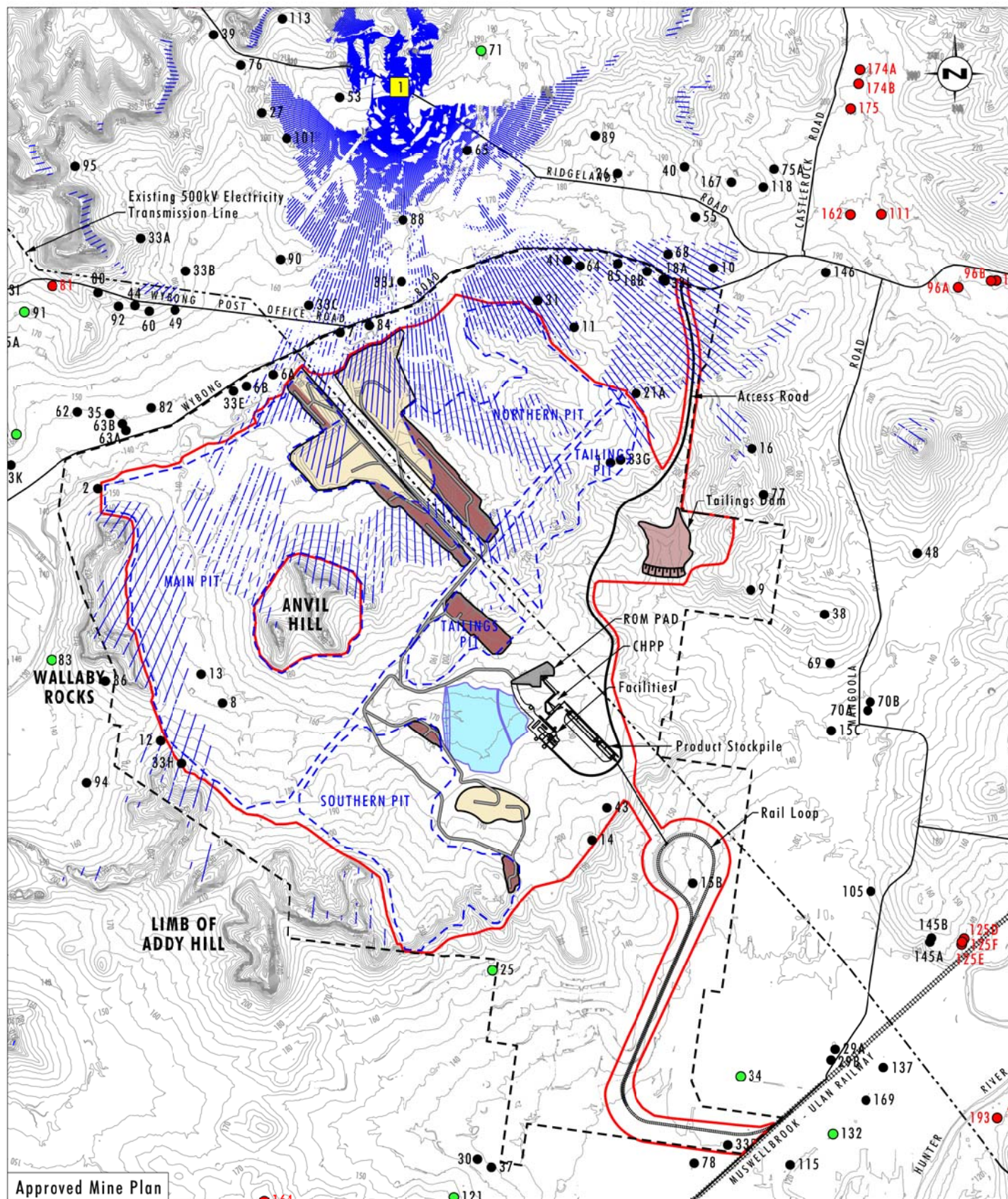
0 1.0 2.0 3.0 km
1:60 000

Legend

- Approved Project Disturbance Boundary
- Modified Project Disturbance Boundary
- Proposed 500kV ETL Relocation
- Viewing Location

FIGURE 6.2

Viewing Locations
Mine Plan Modifications



File Name (A3): R20_SecB_V1/2497_370.dgn

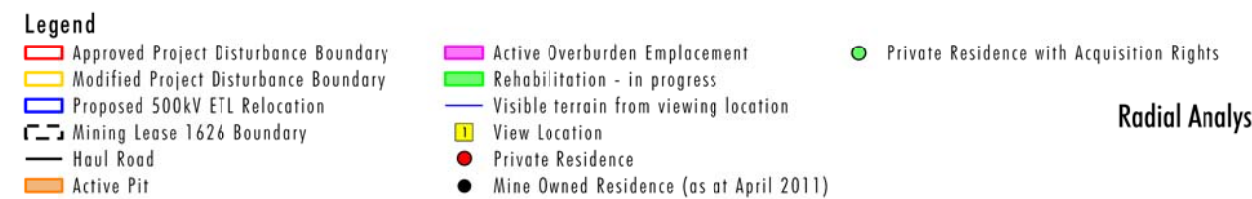
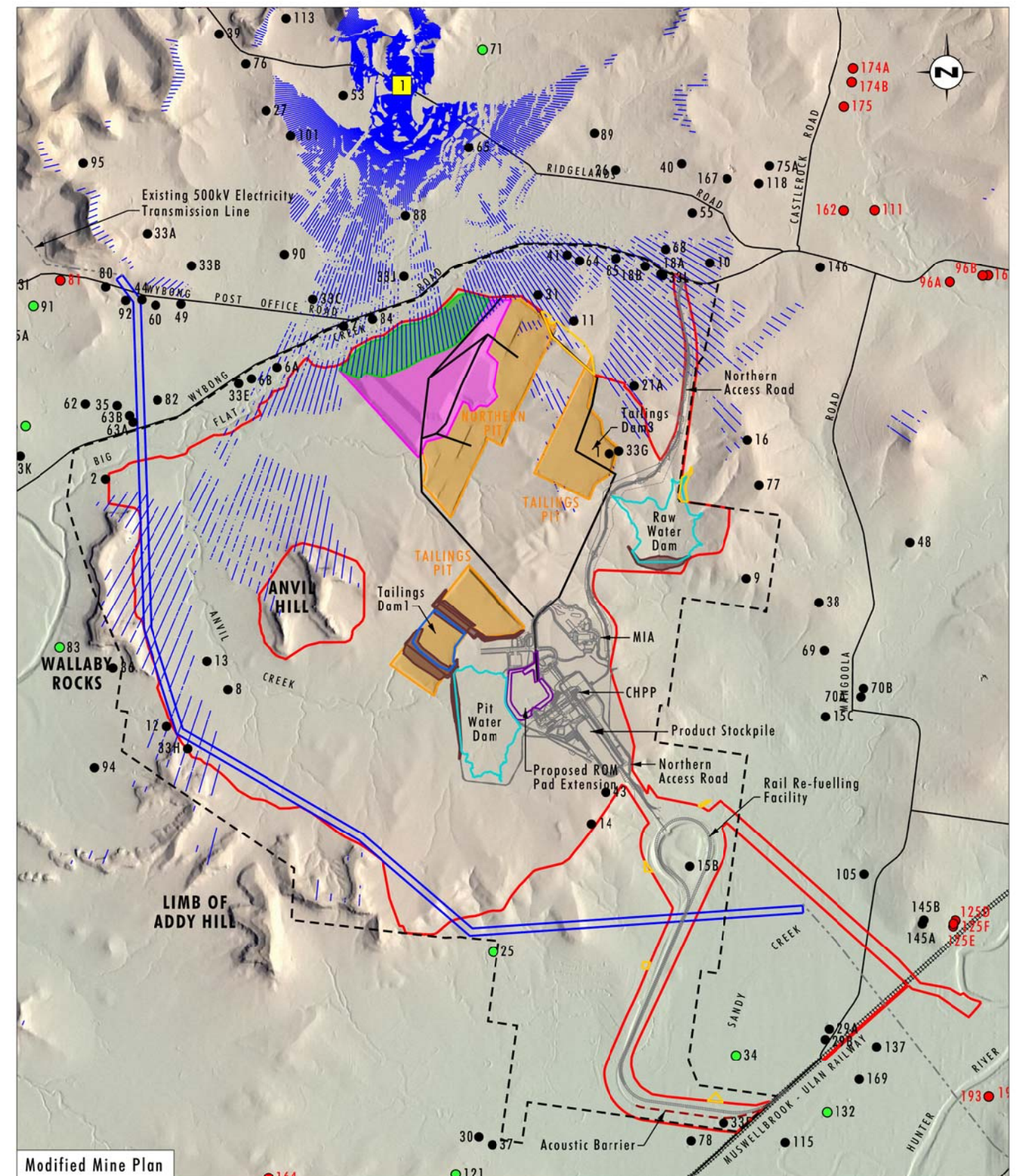


FIGURE 6.3

Radial Analysis - Visual Location 1
Ridgeland Road
Year 2 Mine Plan



PLATE 6.1

View from Ridgeland Road
facing south towards Anvil Hill and
the Mangoola Coal Mine

- lighting plants are positioning and orientated to minimise impact to the south consequently the more exposed residences (all located to the North and North West and on the Wybong PO Road plain are lit to a high intensity from dusk to dawn every night at times interfering adversely with vision on Wybong Road, Wybong PO Road and Ridgeland's Road and have been relocated only temporarily following complaint after which the light often returns to the original offending position.

These unsatisfactory situations and the wilful contempt for Commitments and Consent Conditions shown by Xstrata Mangoola must not be permitted to continue.

Response

It is acknowledged that the information provided in the CIS may be confusing. The bund in question has a strategic double purpose, both for early noise screening-noise reduction as well as forming part of initial overburden emplacement. The aim of its location is for improved outcomes for nearby residents as well as for mine operations with respect to noise management. It should be noted that noise impacts from dumping in this location are in compliance during both day and night time operations. It should be noted that overburden rehabilitation works will progress through the remainder of 2011.

Night lighting management strategies are in place on site aiming to reduce and/or direct light away from residents and surrounding road users. Complaints received to date with respect to lighting have been satisfactorily dealt with.

6.3.10 Noise

Submission

"The Department is cognisant that the existing background noise in the locality is very quiet, and below the 30dB(A) level set in the INP as a floor for consideration of background noise and setting of noise criteria. As such, the Department believes that special dispensation is warranted for all private properties affected by noise associated with the project (i.e. significantly affected, moderately affected and marginally affected properties). The Department's usual practice is to require proponents to offer architectural noise treatments (such as double glazing, insulation and/or air conditioning) to affected properties where the project noise criteria are exceeded by 3dB(A) or more (i.e. 38dB(A) for the Anvil Hill project)." This program has not commenced.

Response

Mangoola Coal confirms that the application of process of applying 'feasible and reasonable' mitigation measures to reduce noise levels has commenced in consultation with relevant property owners and is an ongoing process being investigated and implemented until resolutions regarding this issue are met.

In addition, Mangoola Coal confirms that those residences identified as having rights for noise mitigation and management in accordance with Project Approval No 06_0014, will still have those rights available to them, irrespective of whether the modification results in their property no longer being predicted to receive the level of noise impacts above the relevant trigger level that is noted in this condition. This commitment is included in the Revised Statement of Commitments for the Mine Plan Modifications provided in **Appendix 2**.

Submission

It is recommended that a comprehensive real time noise and wind data monitoring program be developed and implemented. This will include real time noise monitoring at several locations representative of the most exposed residences at the time. Together with real time weather data, this should be available and used by operators to modify operations as appropriate to reduce noise impact wherever possible.

Response

Mangoola Coal is committed to the management and maintenance of the real-time monitoring system implemented to monitor operational noise levels from the Mangoola Coal Mine. The results from the implementation of the Noise Monitoring Program will be presented in the Quarterly Noise Monitoring Report and available on the Xstrata Mangoola website.

Submission

The EA assessment found that bunding on overburden emplacement areas was not as effective as limiting truck and dozer elevations. We understand that this is due to practical considerations. Hence bunding was not adopted. It is well established that barriers such as bunding or other, are not effective in adverse weather conditions. “the information provided does demonstrate that for certain receivers the 10% noise levels for certain operations are higher than that for an inversion of 40 C/100m. For other receivers the 10% noise level is lower. Hence, it is not possible to simply apply a standard correction to all the predicted noise levels presented in the EA, as this varies for different receiver locations.

The recommendation therefore is to remodel using the 40 C/100m weather condition to assist in better defining potential noise impact. Alternatively, rely on thorough noise monitoring to determine the extent of impacted properties.

For receivers to the north-west of the mine, according to this analysis, my finding is that the mine noise levels quoted in the EA are potentially 1.5dB below what I consider as representative. This increase is again considered marginal and therefore inconsequential in terms of noise level. Such variations in noise level are within reasonable modelling accuracy. To that end, the ENM software developer quotes an accuracy of $\pm 5\text{dB}$.

However, for this particular site there are many receiver locations that are located in areas potentially impacted by mine noise. Therefore, defining a “line-in-the sand” for noise impact using modelling becomes critical. For example, the EA has defined this line as the 40dB(A) noise contour. Applying the above 1.5dB modelling underestimation for residence to the north-west will result in more properties identified as inside this „line“ or significantly impacted. As with inversion effects, it is not possible to simply apply a standard correction to all the predicted noise levels presented in the EA, as this varies for different receiver locations. Importantly though, the noise criteria does not change and therefore the actual impact once measured and verified retrospectively will ultimately define the impact area.

The recommendation therefore is to remodel using the INP winds derived earlier in Table 3 (e.g. 2.5m/s from the south-east and east) to define potential noise impact for receivers to the north-west and west of the site. Alternatively, rely on thorough noise monitoring to determine the extent of impacted properties.

Response

With respect to relying 'on thorough noise monitoring to determine the extent of impacted properties' Mangoola Coal is committed to the implementation of a Noise Monitoring Program that includes a combination of real-time and supplementary attended monitoring to measure the noise levels in the region surrounding the mine. Roles and responsibilities are outlined in Section 1.6 of the Noise Monitoring Program to ensure the effectiveness of the monitoring program is systematically evaluated. Section 4 of the Noise Monitoring Program outlines the protocol for evaluating compliance with the noise impact assessment and land acquisition criteria outlined in the Project Approval. Section 5.2 of the Noise Monitoring Program (Umwelt, 2011b) outlines the protocols for undertaking the additional monitoring necessary to assess the noise impacts upon request of a property owner.

With respect to the use of the noise modelling software ENM, the modelling of the construction and operational phase of a development using the ENM software is endorsed by the OEH. In general the model produces conservative noise estimates, i.e. worse than likely to occur and generally worse case scenarios are modelled. We agree that monitoring is intended to verify modelled and actual noise impacts on nearby residents.

Submission

Recommend two additional noise monitors to the south-west (location appears to be on the Nipol property) and north-west (adjacent to Ridglands Rd) of the mine site.

Response

Mangoola Coal's Noise Monitoring Program (Umwelt, 2011b) includes a combination of real-time and supplementary attended monitoring to measure the noise levels in the region surrounding the mine. Protocols are included in the Noise Monitoring Program to assess the effectiveness of the monitoring program and for evaluating compliance with the EA predictions and noise criteria outlined in the Mangoola Coal Mine Project Approval (06_0014).

This includes the potential for additional monitors as suggested based on predicted and actual noise levels. Another option is for short term monitoring for adverse wind-temperature inversions and/or adverse years of mining operations.

Notwithstanding this, the AQMP (Umwelt, 2011a) allows for air quality monitoring locations to be reviewed and where necessary, modified over the life of operations according to progressive monitoring results, physical changes in mining operations, or following the acquisition of private property by Mangoola Coal. The AQMP has recently been revised to include additional proactive monitoring measures. As part of the review, the placement of existing monitoring locations was re-evaluated to confirm that the existing monitoring locations are relevant to the predicted air quality impacts. The AQMP was submitted to DP&I on 4 July 2011.

6.3.11 Socio-Economic**Submission**

We consider that the modification of the mine plan would result in a further deterioration of the underlying sustainability and diversity of the community and would further 'overheat' local markets to the substantial detriment of the community – such markets including the market for labour, health services, community services, water, land, and particularly accommodation.

Response

Response to the issue of impacts on socio-economic aspects of the community and region is provided previously in this report. Refer to the response to MSC submission 7(c)(ii).

6.3.12 Other**Submission**

Trees along Wybong Rd clear felled when the report outlining the works to be undertaken indicated 'selected felling' [WAG interpretation] "Remove required trees and overhanging branches to improve clear zones and sight distances"

Response

Trees along Wybong Road were removed as part of the Wybong Road East upgrade. A clearing zone was required for safety requirements as part of the engineering design approved by MSC. Trees, including stumps, were removed as they posed a safety hazard.

Submission

Letter from WAG to XM dated 24 October 2010 outlining non-compliances in terms of mgt plans on website and also requests another CIS to discuss:

- a) **Definition of requirement for 'best endeavours' in relation to Schedule 3 Specific Environmental Conditions, Condition 2 and how this requirement has been complied with in practice in each instance,**
- b) **Excessive Construction and Operational Noise Impact in Wybong & vicinity of Brogheda,**
- c) **Timetable for implementation of Additional noise mitigation measures (per Consent Condition 8) at properties & residences listed in Appendix 5 and Table 1 of the Environmental Assessment,**
- d) **Wybong Road Upgrade (Haulage related closure) - not envisaged in any EA, not consulted upon with the road user community or addressed in the Approval or Construction Traffic Management Plan,**
- e) **Wybong Road Upgrade – safety and operational deficiencies in relation to intersections at Castlerock Road and Ridgeland Road, exceedence of predicted heavy and other traffic numbers and safety concerns in relation to continued Xstrata Mangoola use of Wybong Road (west of the mine entrance) for haulage of oversize loads and other traffic,**
- f) **Unadvised and unannounced change of internet address of Mangoola Website,**
- g) **Non-compliance with Approval Conditions as per above list.**

Email from WAG to Evelina dated 18 November 2010:

I would appreciate an early response to the attached email of 24 October to which no reply has been received, and also to the following questions in relation to your November Newsletter:

1. **Where in the existing Environmental Assessment is the 'Noise Bund' described,**
2. **In accordance with which parts of a. the existing Environmental Assessment, and b. Project Approval and Consent Conditions is the 'Noise Bund' being constructed**
3. **Has the Director-General of Dept of Planning given approval for the construction of the 'Noise Bund'**
4. **Has the Director-General of Dept of Planning given approval for 24/7 Operation**
5. **Has the Director-General of Dept of Planning given approval for mining and blasting for the commencement of coal extraction.**

Response

A copy of the Mangoola Coal response to these matters raised in correspondence from the Wybong Action Group is included in **Appendix 6**.

6.3.13 Conditions of Approval

It is noted that the Wybong Action Group has submitted recommended consent conditions for the project approval as part of its submission. We expect that these recommendations will be considered by DP&I and where relevant they will take the recommended consent conditions into account.

6.4 Green Alliance Network (formerly associated with North East Forest Alliance)**Submission**

The current mining approval is for 10.5 million tonnes per year. The impact of that approval on the loss of local populations of at least 15 threatened species was not addressed by the then proposed Biodiversity Offset Strategy.

Response

As required by State and Commonwealth legislation, the potential impacts of the proposed modifications on threatened species, endangered populations, TECs (and their habitats) have been considered as part of the Ecological Assessment completed as part of the EA for the proposed mine plan modifications. The assessment of significance concluded that (in considering the mitigation measures proposed as part of the project) the project is not likely to result in a significant impact on threatened fauna species within the proposed modification areas.

These impacts were also considered in great detail within the Ecological Assessment completed for the proposed Anvil Hill Project EA completed by Umwelt in 2006. The assessment completed in 2006 led to the development of a substantial Biodiversity Offset Strategy, including:

- provision of Biodiversity Offset Areas to allow for the protection and management of 1904 hectares of land surrounding the disturbance area for the Mangoola Coal Mine;
- provision of 1164 hectares of Corridors to provide for the protection and augmentation of existing vegetation within two defined corridors, to improve existing corridor function and connectivity for habitat and wildlife around the Mangoola Coal Mine and nearby secure areas;
- a detailed augmentation strategy to increase habitat quality within the Biodiversity Offset Areas, including revegetation works, nest boxes, orchid translocations and other habitat augmentation strategies; and
- detailed annual ecological monitoring to assess the efficacy of these strategies.

A similar offsetting approach has been adopted as part of the current project, whereby impacts unable to be mitigated have been offset by provision of an Additional Biodiversity Offset Area (64 hectares²⁹). The ROMP (Umwelt, 2011c) provides further details on the management of biodiversity values within the Mangoola Coal Mine. This ROMP will be amended to include the Additional Biodiversity Offset Area, if the mine plan modifications are approved.

All of the above measures provide for the management and conservation of flora and fauna species within the 3132 hectares of Biodiversity Offset Areas established (or proposed to be established) as part of the Mangoola Coal Mine.

Submission

The current approved mining will impact local populations of threatened fauna species. A further 4 species recorded at Anvil Hill have since been listed as Vulnerable under the TSC Act. We have not determined the impact of either the original mining operation nor the proposed modification on the populations of these 4 species, however the Little Lorikeet and the Scarlet Robin are hollow-dependent species. The local populations will be significantly impacted.

Response

The Ecological Assessment prepared as part of the EA for the proposed modifications clearly states (refer Section 2.12.1 of Appendix C1 of the EA) that, in relation to the original Ecological Assessment completed as part of the Anvil Hill Project EA (Umwelt, 2006):

Since the completion of this assessment, four species that were recorded as part of the Anvil Hill EA have been listed as Vulnerable under the TSC Act. These are:

- *little eagle (Hieraetus morphnoides);*
- *varied sittella (Daphoenositta chrysoptera);*
- *little lorikeet (Glossopsitta pusilla); and*
- *scarlet robin (Petroica boodang).*

Each of these has been considered within the current Ecological Assessment as part of the EA.

The known records of each of these species were provided in Figure 3.3 of the Ecological Assessment (Appendix C1 of the EA) for the proposed mine plan modifications. None of these species were recorded during surveys of the proposed modifications areas, however potential habitat for these species was acknowledged, where it existed. In addition to this, those species considered to be potentially impacted by the proposed modifications were considered by way of the required impact assessments (refer Appendix D of the Ecological Assessment (Appendix C1 of the EA)). This potential impact included hollow-dependent species (thereby capturing the little lorikeet), however the scarlet robin is not hollow-dependent, therefore considered unlikely to be impacted by the proposed modifications.

The assessment of significance concluded that (in considering the mitigation measures proposed as part of the project) the project is not likely to result in a significant impact on threatened fauna species within the proposed modification areas.

²⁹ Total area disturbed by ETL relocation and mine plan modifications is 26.6 hectares.

Submission

“The loss of hollow-bearing trees will be the primary impact on threatened fauna species” (AppB1 5.2). The allusion to nest-box mitigation, relocation of individuals and a Draft ROMP (in prep) does not address the issue of loss of local populations as the mechanism of extinction of species.

Response

As discussed above, the EA assessment of significance concluded that (in considering the mitigation measures proposed as part of the project) the project is not likely to result in a significant impact on threatened fauna species within the Proposed Modification Areas. As previously discussed, loss of hollow bearing trees is addressed by detailed pre-clearance procedures, relocation of hollows and nest box installations, as documented in detail in the ROMP. Detailed annual ecological monitoring is to be conducted to assess the efficacy of these strategies.

Submission

It would appear improper, if not unlawful, if approval for this proposed modification was given while the existing approval was being breached. The public requires access to the ROMP for informed input.

Response

The Project Approval conditions for the Mangoola Coal Mine state:

41. The Proponent shall prepare and implement a detailed Landscape Management Plan for the project to the satisfaction of the DPI and Director-General. This plan must:

- a) be prepared in consultation with DECC and DWE by suitably qualified expert/s whose appointment/s have been approved by the Director-General;
- b) submitted to the Director-General for approval prior to starting mining operations on site; and
- c) include a:
 - Rehabilitation and Offset Management Plan;
 - Final Void Management Plan; and
 - Mine Closure Plan.

Mangoola Coal is in full compliance with this condition. A Landscape Management Plan (including the ROMP) was submitted to DoP (now DP&I) and (the then) DPI for approval prior to starting mining operations on site. These documents have since been revised and resubmitted, based on a number of rounds of comments from, and discussions with, the above authorities, including OEH. The final versions of these documents are with DP&I for approval.

7.0 Response to Community Submissions

7.1 Air Quality

7.1.1 Health

Submission

Impacts on health

Health Issues - excess dust pollution from these modifications to mining activities is a great health concern.

Health Issues in relation to dust (agree with Wybong Action Group).

Asthma is a major health concern, and one that my family members suffer from. The increased dust will only cause further issues. We find this frustrating as we purchased the property before mining was in the area to avoid such health issues.

Concerns regarding increase in health problems (respiratory) and unknown long term effects of dust pollution from open cut mines.

Response

The OEH's criteria for TSP and deposited dust have been set to protect against nuisance impacts, while the PM₁₀ criteria have been set to protect against adverse health effects.

A detailed air quality assessment was prepared for the Project in accordance with relevant OEH guidelines. The assessment is outlined in Section 12.7 of the EA and presented in Appendix C6. The assessment predicts that:

- maximum 24-hour average PM₁₀ concentrations are predicted to comply with the 50 µg/m³ (project only) goal at all privately owned residences for all assessment years;
- annual average PM₁₀ concentrations are predicted to comply with the 30 µg/m³ (cumulative) goal at all privately owned residences for all assessment years;
- annual average TSP concentrations are predicted to comply with the 90 µg/m³ (cumulative) goal at all privately owned residences for all assessment years; and
- annual average dust deposition levels are predicted to comply with the 2 g/m²/month (project increment) or 4 g/m²/month (cumulative) goal at all privately owned residences for all assessment years.

Therefore, the dust levels at private residences will not exceed either the Project or cumulative dust criteria levels, in accordance with current Project Approval Conditions.

Mangoola Coal will continue to monitor dust levels to verify that the mine does not adversely impact on the dust levels in the area.

7.1.2 Increased Dust Levels

Submission

The Air Quality evaluation in the EA modification acknowledges that there will be dust increases to the north and north-east, therefore, a consent condition for this modification should require Mangoola Coal to install additional dust monitoring instruments along Castlerock Road.

Response

In accordance with the existing development consent, Mangoola Coal operates under an AQMP (Umwelt, 2011a). The AQMP outlines the air quality monitoring requirements associated with the operation, and provides a mechanism for assessment of air quality monitoring results against the relevant air quality impact assessment criteria and land acquisition criteria.

The existing air quality monitoring network includes a combination of dust deposition gauges, high volume air samplers (both TSP and PM₁₀), continuous dust monitoring devices and meteorological stations. All dust monitoring locations are illustrated on **Figure 7.1**.

There is currently a depositional dust gauge located on Castlerock Road and a TEOM located along Ridglands Road. It is considered that the existing monitoring locations would adequately cater for assessing potential air quality impacts along Castlerock Road.

Notwithstanding this, the AQMP allows for air quality monitoring locations to be reviewed and where necessary, modified over the life of operations according to progressive monitoring results, physical changes in mining operations, or following the acquisition of private property by Mangoola Coal.

The AQMP (Umwelt, 2011a) has recently been revised to include additional proactive monitoring measures. As part of the review, the placement of existing monitoring locations was re-evaluated to confirm that the existing monitoring locations are relevant to the predicted air quality impacts. The AQMP was submitted to DP&I on 4 July 2011.

Submission

In relation to the following statement:

“For maximum 24-hour average PM₁₀ concentrations, the predicted extent of impacts for the modified mine (as defined by the DECCW’s 50 ug/m criterion) are slightly lower than the expected impacts for the approved mine to the south and west of the disturbance boundary. Slight increases are predicted to the north and north-east.”

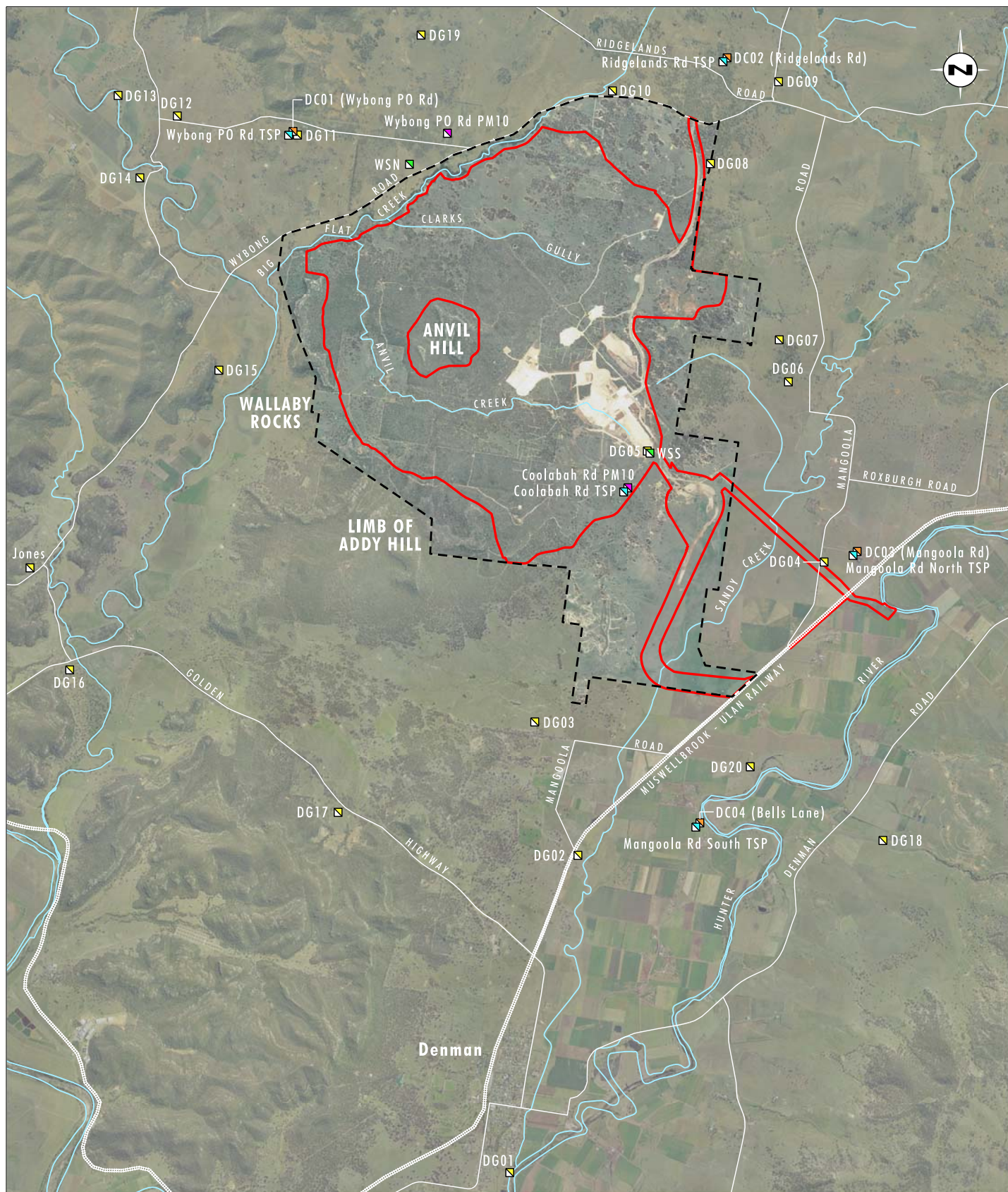
Many weather events come from the south west into the Castlerock area. The valley landscape creates a tunnelling effect and I question how Mangoola Coal will monitor and manage the increased dust fallout on Castlerock residents beyond the lease area.

Response

In accordance with the existing development consent, Mangoola Coal operates under an AQMP. The locations have been selected to take into account the local topography, the nearest residences, and the predominant wind directions.

The depositional dust monitoring network is illustrated on **Figure 7.1** and consists of:

- one high volume air sampler measuring PM₁₀ concentrations, located off the northern side of Wybong Post Office Road;



Source: Mangoola Coal (2010)

Base Source: Dept. of Lands (2003), ortho-rectified by Plateau Images

0 1.0 2.0 4 km
1:75 000

Legend

- Approved Project Disturbance Area
- Mining Lease 1626 Boundary
- Dust Deposition Gauge
- Meteorological Station
- High Volume Air Sampler (PM₁₀)
- High Volume Air Sampler (TSP)
- TEOM

File Name (A4): R20_SecB_97_361.dgn

FIGURE 7.1

Dust Monitoring Locations

- one high volume air sampler measuring TSP concentrations, located off the northern side of Wybong Post Office Road;
- one high volume air sampler measuring PM₁₀ concentrations, located off the northern side of the Golden Highway, to the south of the Mangoola Coal Mine; and
- 21 dust deposition gauges.

In addition, four real-time continuous dust monitoring instruments will be situated to the east, north-west, south-east and south of the mine (refer **Figure 7.1**).

The extensive air quality monitoring network currently operated by Mangoola Coal is considered adequate to monitor potential impacts and mitigate impacts at the Castlerock residences. The real time monitoring system includes alarms and responses to adverse scenarios, e.g. dust suppression using water sprays.

In addition, air quality monitoring locations will be reviewed and where necessary, modified over the life of the operations according to progressive monitoring results, physical changes in mining operations, or following the acquisition of private property by Mangoola Coal.

Submission

In relation to the following statement:

“The dust monitoring program for the Mangoola Coal site captures the effects that dust emissions from other existing mining operations have on air quality in the study area. The monitoring program has not however captured the effects of dust emissions from expected changes in future activities from other mining operations... .. potential cumulative effects from other mines in the vicinity of the Mangoola Coal site are considered to be insignificant and will not affect the conclusions of this assessment.”

These two statements are conflicting and confusing. The cumulative dust impacts of the local mines is already sizeable and the close proximity of the Mangoola Coal Mine to the Castlerock area must increase the cumulative dust effects, given Mangoola Coal has acknowledged that there will be slight increases to the north and north-east.

Response

As outlined in the Air Quality Impact Assessment completed for the EA (refer Appendix C6 of the EA), the current monitoring at Mangoola Coal Mine captures the effects of dust emissions from other existing mining operations and these data are included in the background levels recorded. In accordance with the DGRs, the air quality assessment also considered the approved or planned modifications to the surrounding operations. The nearest mining operations to the Mangoola Coal Mine site which are known to be operating or are planned to undergo significant modification to activities are as follows:

- Bengalla Mine - an existing operation approximately 12 kilometres to the east of Mangoola Coal Mine. In 2006, Bengalla Mine was approved to increase production from 8.7 to 10.7 Mtpa of ROM coal;
- Mt Pleasant Mine - an approved operation approximately 15 kilometres to the east-north-east of Mangoola Coal Mine. Approval has been granted to extract up to 10.5 Mtpa of ROM coal. At this stage, a date to commence mining is not publicly available; and

- Mt Arthur Coal Mine - a large open-cut mine approximately 15 kilometres to the east-south-east of the Mangoola Coal Mine, has approval to extract up to 36 Mtpa of ROM coal. In 2010 approval was granted for an increase in production rate from the open cut operations from 20 Mtpa to 32 Mtpa of ROM coal. The recent approval also consolidated all of the open cut mining approvals in to one modern approval.

The Air Quality Impact Assessment reviewed the relevant modelling and documentation for each of the operations listed above, as detailed in Section 7.4 of Appendix C6 of the EA. The Air Quality Assessment found that the proposed air quality impacts from the Bengalla, Mt Pleasant and Mt Arthur Coal operations would have a minimal impact on cumulative air quality with respect to the Project.

The air quality impacts due to modification to the Bengalla Mine are predicted to result in a reduction of annual average PM₁₀ and TSP concentrations to less than 1 µg/m₃ by the time emissions reached the receptors in the current assessment. Annual average dust deposition was predicted to have reduced to below 0.1 g/m₂/month at these receptors.

While some analysis of potential cumulative impacts were inferred for the Mt Pleasant Mine, it is difficult to align development stages as mining has not yet commenced. Due to the prevailing wind conditions, the Mt Pleasant Mine Environmental Impact Statement indicated that there would be almost no transport of emissions from the mine towards the area around the Mangoola Coal Mine site. Accordingly, the cumulative impacts of the Mangoola Coal Mine site and the Mt Pleasant Mine are expected to be minimal.

The assessments of future changes to Mt Arthur Coal Mine operations have suggested that the offsite air quality impacts will not vary from the current levels. The monitoring undertaken for Mangoola Coal will contain a contribution from the Mt Arthur operations. The existing contributions are anticipated to be consistent with approved and planned expansions at Mt Arthur Coal Mine.

Approval for the proposed production at Mt Arthur had not been determined at the time of preparing the air quality impact assessment for the EA. The air quality assessment for Mt Arthur (Holmes Air Sciences, 2009) showed that the contribution of Mt Arthur activities to annual average PM₁₀ concentrations in the Mangoola Coal Mine will be of the order of 4 µg/m³ or less (based on a conservative extrapolation of available contour levels in Holmes Air Sciences, 2009). Annual average PM₁₀ is the particulate matter classification which defined the maximum extent of air quality impacts. The Mt Arthur proposal includes an increase in overall production of 8 Mtpa which, relative to 36 Mtpa is approximately 29 per cent (that is, 36/28). Thus, the existing contribution of Mt Arthur activities to the Mangoola Coal Mine area is likely to be around 3 µg/m³ or less; a contribution which is captured by the air quality monitoring data and used in the air quality assessment for the EA. Therefore, the change in annual average PM₁₀ concentrations in the Mangoola Coal Mine area, due to the Mt Arthur approval, will be in the order of 1 µg/m³. This projection does not affect the conclusions of the Mangoola Coal Mine modifications air quality impact assessment.

The EA concluded that potential cumulative effects of emissions from other mines in the vicinity of Mangoola Coal Mine are considered to be insignificant in terms of the conclusions of the assessment as they have been captured by the monitoring program undertaken for Mangoola Coal Mine and the data has been included in the assessment.

In comparison to the approved project, the overall predicted extent of air quality impacts vary slightly, depending on the location and dust classification. Slight increases are predicted to the north and north-east. Annual average PM₁₀, TSP and dust deposition impacts are very similar for approved and proposed mine activities and from a dispersion modelling perspective the results are very similar.

While there has been a slight predicted variation to the north and north-east, the predicted impacts do not extend over any private residences that are not already within the management or affectation zones for the approved mine activities. Any change in cumulative impact on the residence of Castlerock Road as a result of the mine plan modifications is considered negligible.

In summary the proposed modification, the nearby mines cumulative impact and proposed changes to nearby mines are not considered to produce unacceptable or additional dust impacts on nearby residences.

Submission

In relation to the following statement:

“In addition, four (4) real-time continuous dust monitoring instruments will be situated to the south, east, north and west of the mine.”

Due to the fact that Mangoola Coal has acknowledged that there will be increases in dust to the north and north-east, I consider it prudent that Mangoola Coal install an additional real-time continuous dust monitoring instrument 2 km along the Castlerock Road from Wybong Road to the north-east of the mine site.

Response

Mangoola Coal has installed four real-time monitoring instruments to the north-east, north-west, south-east and south of the site (refer **Figure 7.1**). The locations for the real-time monitoring instruments were selected taking into account the local topography, the nearest residences and the predominant wind directions.

Monitoring site DC02, located north-east of the site, is considered representative of the receivers located to the north-east of Mangoola Coal's operations, including the residences along Castlerock Road.

Submission

In relation to the following statement:

“The predicted air quality impacts for the proposed mine plan were also compared with the predicted impacts for the approved mine. The modelling showed that the air quality impacts for the proposed mine plan would be similar to those predicted for the approved mine and, under the proposed mine plan, the predicted impacts would not extend over any private residences that were not already within the extent of impacts for the approved mine activities.”

I disagree with this assessment and consider that at consent condition for this modification should require Mangoola Coal install additional dust monitoring instruments along Castlerock Road.

Response

The overall predicted extent of air quality impacts vary slightly, depending on the location and dust classification. For maximum 24-hour average PM₁₀ concentrations, the predicted extent of impacts for the mine plan modifications (as defined by the OEH's 50 µg/m³ criterion) are slightly lower than the expected impacts for the approved mine to the south and west of the disturbance boundary. Slight increases are predicted to the north and north-east. Annual average PM₁₀, TSP and dust deposition impacts are very similar for approved and proposed mine activities and from a dispersion modelling perspective the results are very similar.

The detailed air quality assessment completed as part of the EA (refer Appendix C6), predicted that:

- maximum 24-hour average PM₁₀ concentrations are predicted to comply with the 50 µg/m³ (project only) goal at all privately owned residences for all assessment years;
- annual average PM₁₀ concentrations are predicted to comply with the 30 µg/m³ (cumulative) goal at all privately owned residences for all assessment years;
- annual average TSP concentrations are predicted to comply with the 90 µg/m³ (cumulative) goal at all privately owned residences for all assessment years; and
- annual average dust deposition levels are predicted to comply with the 2 g/m²/month (project increment) or 4 g/m²/month (cumulative) goal at all privately owned residences for all assessment years.

The depositional dust monitoring network is shown on **Figure 7.1** and consists of:

- one high volume air sampler measuring PM₁₀ concentrations, located off the northern side of Wybong Post Office Road;
- one high volume air sampler measuring TSP concentrations, located off the northern side of Wybong Post Office Road;
- one high volume air sampler measuring PM₁₀ concentrations, located off the northern side of the Golden Highway, to the south of the Mangoola Coal Mine; and
- 21 dust deposition gauges.

In addition, four real-time continuous dust monitoring instruments will be situated to the east, north-west, south-east and south of the mine.

The extensive air quality monitoring network currently operated by Mangoola Coal is considered adequate to monitor potential impacts at the Castlerock residences.

Additionally, air quality monitoring locations will be reviewed and where necessary, modified over the life of the operations according to progressive monitoring results, physical changes in mining operations, or following the acquisition of private property by Mangoola Coal, re: additional dust monitors.

Submission

In reference to Appendix C6 – 8 – Dust Monitoring and Mitigation. In relation to the location of 4 real time dust monitoring instruments, we feel it would be prudent of Xstrata Mangoola to place these in locations where there are affected landholders. Consultation regarding this issue would be welcomed.

Response

Mangoola Coal have installed four real-time monitoring instruments to the north-east, north-west, south-east and south of the site (refer to **Figure 7.1**). The locations of the real-time monitoring instruments were selected taking into account the local topography, the nearest residences and the predominant wind directions.

The locations of the real time air quality monitoring instruments were determined in consultation with suitably qualified experts and relevant Government agencies.

The monitoring locations were subsequently included on the Mangoola Coal Environmental Protection Licence (EPL).

In addition, air quality monitoring locations will be reviewed and where necessary, modified over the life of the operations in accordance with progressive monitoring results, physical changes in mining operations, or following any further acquisition of private property by Mangoola Coal.

Submission

The increased use of heavy vehicle will result in an increase in the production of air pollutants locally, notably particulate matter PM_{1.0} which is not monitored.

Response

The air quality impact assessment undertaken for the proposed mine plan modifications was completed in accordance with the DGRs and relevant OEH guidelines. There is currently no standards or guidelines on criteria or monitoring for PM₁ emissions.

Mangoola Coal currently operates an extensive monitoring network in accordance with their Project Approval and EPL conditions. Mangoola Coal is not currently required to monitor PM₁ emissions from their operations. However, whilst not a government or health requirement, Mangoola Coal plans to implement two PM_{2.5} monitors (refer **Section 5.4.2**).

Submission

An increase in production would further impact the already problematic air pollution levels.

Response

The mine plan modifications do not seek to increase the maximum production rate as a result of the alterations to the mine plan or to alter the original consent period. Under the modified mine plan mining will continue for 15 years at a rate of up to 10.5 Mtpa.

As outlined previously, the overall predicted extent of air quality impacts vary slightly, depending on the location and dust classification. For maximum 24-hour average PM₁₀ concentrations, the predicted extent of impacts for the modified mine (as defined by the OEH's 50 µg/m³ criterion) are slightly lower than the expected impacts for the approved mine to the south and west of the disturbance boundary. Slight increases are predicted to the north and north-east. Annual average PM₁₀, TSP and dust deposition impacts are very similar for approved and proposed mine activities and from a dispersion modelling perspective the results are very similar.

Submission

Dust has increased considerably in the last 6 months. It has increased to the point where furniture needs to be polished twice per day and screens vacuumed at least once per week. This problem will only escalate as the mine moves into production stages and more vegetation is removed.

The volume of dust settling on furniture in dwellings has increased dramatically in recent months.

Noted increase in the dirt on the roof and rain water guttering of both dwellings on the property – residents rely on tank water.

Response

The OEH's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005) provides impact assessment criteria for a range of air pollutants, including deposited dust. The OEH's criteria for deposited dust are long term (i.e. annual average) criteria that have been set to protect against nuisance impacts, such as observed increases in deposited dust on properties. The numerical values of the OEH's deposited dust criteria are 2 g/m²/month as a maximum increase and 4 g/m²/month as a maximum level. The OEH criteria were used in the air quality impact assessment for the proposed mine plan modifications.

As outlined in the EA and air quality impact assessment, computer-based dispersion modelling was undertaken to predict the contribution of emissions from mining and other activities to deposited dust levels and other particulate matter classifications, such as PM₁₀. The model predictions highlighted areas around the mine that might be expected to exceed the OEH's air quality criteria of 2 g/m²/month and 4 g/m²/month for deposited dust. In accordance with the OEH's assessment methodology, and with respect to deposited dust, areas of predicted non-compliance with air quality criteria have the potential to experience adverse nuisance impacts. However, compliance with relevant criteria does not imply that surrounding residences will receive no impact at all. It would be expected that, since commencement of mining operations, surrounding residents will notice increased dust levels.

Based on the air quality impact assessment, annual average dust depositional levels are predicted to comply with the 2 g/m²/month (project increment) and 4 g/m²/month (cumulative) criteria at all private residences for all assessment years. Mangoola Coal have committed to undertaking ongoing depositional dust monitoring over the life of the project. If it is found that Mangoola Coal's operations are exceeding depositional dust criteria operations would be reviewed, exceedance would be discussed with relevant authorities, and potentially discuss issues with landholders.

With respect to the issue of dirty rainwater entering rain water tanks, Mangoola Coal have established a program for the installation of First Flush Filter Systems for those relying on tank water. A letter stating the availability of first flush systems for landowners was sent out in February 2011 and installation of systems commenced in March 2011. To date, a total of 102 systems have been installed on 61 properties (some properties have more than one rain water tank). Installations are expected to be completed by the end of 2011.

Submission

There is no mitigation offered for the impact of more people on Muswellbrook's already degraded air quality which will be subjected to intensified PM levels.

Response

Mangoola Coal is located approximately 20 kilometres to the west of Muswellbrook residential area in the upper Hunter Valley. Based on the air quality impact assessment undertaken for the proposed mine plan modifications, Muswellbrook residential area is located outside of the predicted air quality affectation area.

Mangoola Coal has committed to a range of management and mitigation measures to minimise the impact of operations for nearby potentially affected residents, as outlined in the EA (refer Sections 13.6 and 14 of the EA). Specifically, the measures aim to minimise the offsite impacts caused by wind-blown or traffic generated dust. These measures will be continually revised and updated as required based on the outcomes of the AQMP.

Submission

Failure to monitor TSP, dust deposition and particulate sizes in the vicinity of the Brogheda Homestead.

Response

Brogheda Homestead is located approximately 5 kilometres north-west of the Mangoola Coal Mine operations. Based on the air quality impact assessment undertaken for the proposed mine plan modifications. Brogheda Homestead is located outside of the predicted air quality affectation area. The existing air quality monitoring network is considered adequate for the Mangoola Coal Mine.

7.2 Noise

Submission

Further to the review of the proposed modifications of the Mangoola Coal Mine, as encapsulated in the noise and vibration assessment report entitled 'Mangoola Mine Modifications – Noise & Vibration Assessment', dated December 2010 and reference No. 08190-MO, this submission focuses on the noise and vibration impact concerns relevant to property no. 81 as identified in the current EA.

1. EA Noise Modelling

The modelling conducted for these proposed modifications to the Mangoola Coal Mine, has been based on the EA noise modelling information for the current approved mine plan. At the Independent Hearing Assessment Panel (IHAP) hearing and later acknowledged in the Submissions Report, the noise predictions were shown to be in error by a potential 2dB(A) as a result of a lack of consideration for acoustic reflections from the surrounding land forms and topography. Noise modelling conducted for the current modification proposal provides no evidence that such a consideration has been made this time around. Therefore, the same concerns exist as before, that the noise model is under predicting the true noise impacts upon the surrounding community.

Response**Modelling Methodology**

The Director-General's *Environmental Assessment Report* (DoP, 2007) of the Anvil Hill Coal Project EA (Umwelt, 2006) noted that:

The Department is satisfied that further noise modelling is not warranted, given the relatively small magnitude of the noise modelling prediction variations, that the variation is within the model accuracy of the noise modelling software, and given the recommended noise management conditions described below, which include requirements for a rigorous noise monitoring program (including real-time monitoring) and acquisition rights for any private property found to experience noise above 40dB(A), as a result of independent noise monitoring.

As OEH was satisfied with the modelling methodology used for the Anvil Hill EA noise impact assessment (Umwelt, 2006) the same methodology was used for the noise impact assessment for the mine plan modifications (refer Appendix C7 of the EA) to maintain consistency in the approach used and the outcomes reported.

2. Measured Impacts at Property No. 81

The report assess the worst-case scenario of noise at property no. 81 will be 1dB(A) less [i.e. 43dB(A)] under the proposed new plan as opposed to the 44dB(A) predicted under the 2006 EA.

Given that there is sufficient evidence from the mine's noise monitoring readings carried out at property no. 81 to suggest that actual noise levels with the current operations at the mine, very often exceed the predicted 44dB(A) from the 2006 EA, it is of grave concern that the new predictions for the proposed new plan for the mine, may also be erroneous. The concern, based on the evidence at hand, is that the noise impacts presented in the current EA for the proposed new plan for the mine, may underestimate noise impacts at property no. 81 as has been the case by earlier assessments and studies. Existing operations and activities of the mine have been measured and reported by mine staff to the residents of property no. 81 to be at levels often between 45 and 50dB(A) – refer to the excerpt from the noise diary kept by the residents of property no. 81 which details any instances of loud noise and the noise levels provided by the mine at the time of each incident. Such exceedances are clearly noticeable by the residents of property no. 81 and they are clearly annoyed and impacted by offensive noise emanating from the mine.

Furthermore, Heggies were engaged by Xstrata to prepare a noise study and assess various noise mitigation measures at property no. 81 as a result of existing and proposed mine operations. Appendix D and H of Heggies report dated 22 November 2010, presents noise predictions of 47-50dB(A) occurring in the vicinity of property no. 81 during Year 15 of the proposed new mine plan. Interestingly, the actual measured noise levels on site tend to better match these predictions rather than those presented in the current EA for the same year of the mine plan.

Response

Planning Context

DP&I notes that a 2 dB exceedance of a nominated project-specific noise level is minor, a 3 to 5 dB exceedance is moderate and an exceedances of greater than 5 dB is significant. Using this as a guide, the DP&I's contemporary approach to the implementation of the noise conditions in current consents is based on:

- the acquisition upon request of properties that were identified in the Anvil Hill Project EA noise impact assessment (Umwelt, 2006) or mine plan modifications noise impact assessment (refer Appendix C7 of the EA) as being significantly affected by the development;
- acquisition of any properties upon request if subsequent monitoring shows that the operations are causing additional significant exceedances of the recommended noise criteria;
- the implementation of additional noise mitigation measures, such as double glazing and insulation upon request at any residence where noise monitoring shows that noise levels are moderately above the recommended noise;
- compliance with the recommended noise criteria at all other privately-owned properties;
- management of operations in accordance with best practice to minimise noise impacts on the surrounding area; and
- monitoring the noise impacts of the operations to assess the acoustic performance of the operation.

Notwithstanding this, where noise limits may be exceeded an applicant can choose to negotiate a private agreement with the affected party. Once a private agreement is in place the project-specific noise criteria and potential exceedance of the criteria is no longer covered by a DP&I planning consent or OEH EPL condition other than the recognition that the private agreement is in place.

With respect to the existing Project Approval, Condition 8 of Schedule 3 of the Mangoola Coal Mine Project Approval requires, upon written request, the implementation of additional noise mitigation measures where noise monitoring shows the noise generated by the project is greater than, or equal to, an LAeq, 15minute of 35 dB(A) (i.e. 2dB lower than the DP&I's contemporary approach to the implementation of the noise conditions), except where a negotiated noise agreement is in place.

Predicted Noise Levels

The predicted 10th percentile operational noise levels at Property 81 are presented in the noise impact assessment for both the Anvil Hill Project EA (Umwelt, 2006) and the EA for the mine plan modifications (Umwelt, 2010) and are presented below in **Table 7.1**. **Table 7.1** also illustrates an overall reduction in the noise impacts at Property 81.

Table 7.1- Predicted 10th Percentile Operational Noise Levels at Property 81, dB(A)

Period	Year 2	Year 5	Year 10	Year 15	Year 20
EA NIA (Umwelt, 2006)					
Day time	39	41	44	41	38
Evening	38	41	43	43	38
Nighttime	38	41	43	44	39
MOD NIA (Umwelt, 2010)					
Day time	37	39	40	36	-
Evening	37	39	41	36	-
Nighttime	38	41	43	37	-

Criteria

The noise impact assessment criteria applicable to Property 81 include:

- Project Approval 06_0014 MOD2
Property 81 is included in the list in Appendix 5 of properties to be acquired due to significant noise impacts
- Project Approval 06_0014 MOD2
Schedule 3 Condition 4: Land Acquisition Criteria
Property 81 is predicted to experience noise levels greater than 40 dB(A) LAeq.15minute therefore acquisition upon request is available to the land owner
- Project Approval 06_0014 MOD2
Schedule 3 Condition 8: Additional Noise Mitigation Measures
Property 81 is predicted to experience noise levels greater than 35 dB(A) LAeq.15minute therefore the implementation of reasonable and feasible additional noise mitigation measures is available to the land owner
- Project Approval 06_0014 MOD2
Schedule 3 Table 1 Notes
The noise emission limits apply under meteorological conditions of:
 - wind speeds of up to 3 m/s at 10 metres above ground level; or
 - temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

EPL 12894 does not apply to Property 81 as the land is subject to acquisition upon request.

Based on the findings of the noise impact assessment as part of the EA for the mine plan modifications Mangoola Coal is committed to:

- maintaining the noise impacts of the mining operation within the predicted 10th percentile operational noise levels as presented in the noise impact assessment for the EA;
- acquiring, upon request, the significantly affected property(s) identified in Table 5 of the Mangoola Coal Mine Project Approval;
- the acquisition of properties upon request if subsequent monitoring shows that the operations are causing additional significant exceedances of the recommended noise criteria;
- implementing reasonable and feasible additional noise mitigation measures where operational noise monitoring shows the noise generated by the project is greater than, or equal to, an LAeq,15minute of 35 dB(A); and/or
- negotiating a private amenity agreement with any affected party.

3. Reporting of Low Frequency Noise Component Instead of Total Noise from the Mine

When the mine commenced its operations, they also commenced reporting measured noise levels to the residents of property no. 81 in a particular manner. In recent months however, the mine introduced a new guideline where the staff member is neither allowed to tell anyone what the total noise levels are nor give out individual 15 minute interval noise level results. Staff appear to now have been directed to only provide the 'low frequency' component of the total noise level measured and the range (highest and lowest) for a longer term period of a few hours at a time. For example, between 7pm – 9pm on Monday 6/12/10, the range reported to the residents of property no. 81 was 35 – 43dB(A) as the low frequency component of the total noise measured.

The mine is maintaining the view that they only have to consider low frequency noise levels (i.e. from 630Hz and below, according to advice provided by the Environment and Community Manager of the mine in an email to the residents of property no. 81 dated 8/02/2011) and not total noise levels, as they argue that their operations only produce low frequency noise. This is incorrect as evidence provided by the noise diary kept by the residents of property no. 81, and a statement provided by the Environment and Community Manager of Mangoola Coal Mine dated 1/02/2011, suggests that there is more than low frequency noise produced by the mine operations, which states:

"I have listened to a selection of noise files and spoken to some of our production personnel and we are confident they the whine noise is coming from dif whine on our large mining trucks. I have also spoken to our maintenance department and they believe that this noise cannot be reduced."

To filter out all measured noise above 630Hz is incorrect as it wouldn't cover the types of noises the residents of property no. 81 are complaining about finding offensive and annoying. For example, the engine surges (as though going uphill), bangs and booms (as though heavy object hitting metal) track noises from dozers, exhaust noise of vehicle slowing down (exhaust brakes), horn blasts, clangs and bangs and the whine of plant diff units, would all tend to be at higher frequencies (i.e. above 1kHz or so).

The only logical reason for attempting to filter out high frequencies is to remove any influence from insects in summer months and frogs near waterways etc. These would typically occur above 2-4 kHz, so anything lower should be included. Furthermore, if the Minister's Approval Conditions and the mine's Noise Management Plan doesn't specifically say that only low frequencies ought to be used to assess compliance of mine noise, then this approach cannot be justified. There are many ways for extracting only the noise from a mine and excluding other sources from measured results, rather than simply looking only at a portion of the total noise measured.

In summary, this approach is erroneous and it is not consistent with the methodology for compliance monitoring set out in DECCW's 'Industrial Noise Policy'. Furthermore, to our knowledge, this approach is not consistent with the noise monitoring and assessment procedures described in the mine's original EA or any other environmental documents prepared at the time. Also, to our knowledge, this approach is not set out in any Environmental Management Plan (EMP), Noise and Vibration Plan (NVMP) or Noise Monitoring Program, that we have read and was prepared around the time of the mine's application for approval and shortly after. In fact, even the new EA for the proposed modifications to the mine, which is a current document, also does not include assessing noise compliance by using this technique.

Response

Noise Monitoring Methodology

Condition 11 of Schedule 3 of the Mangoola Coal Mine Project Approval (06_0014) requires Mangoola Coal to prepare a Noise Monitoring Program which includes:

- *a combination of real-time and supplementary attended monitoring measures; and*
- *noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this approval.*

Mangoola Coal has installed a network of SentineX noise monitoring units. The original development of the SentineX noise monitoring system was undertaken following the approval of the Mt Owen Complex in 2005. During the development phase of the SentineX noise monitoring system in 2006, the Xstrata Mt Owen Noise Management Plan noted that the audible frequency range that contains mining related noise, nominally 20-630Hz, would be further assessed on the basis of monitoring data.

At Mt Owen it was found that when mine related noises dominate the noise environment the 20 Hz to 630 Hz frequency band LAeq, 15minute noise level was typically 0.5 dB or less below the corresponding LAeq, 15minute noise level. Hence, the 20 Hz to 630 Hz frequency band LAeq, 15minute noise level has been retained at the Mt Owen Complex.

During period night time period from 9 to 10 May 2011 the 20 Hz to 630 Hz frequency band LAeq,15minute noise level at SentineX 80 (located adjacent to Property 81) was typically less than 1 dB below the LAeq, 15minute noise level in noise samples analysed.

The 24 hour run chart from SentineX 80 illustrating the relationship between the 20 Hz to 630 Hz frequency band LAeq, 15minute noise level and the corresponding LAeq, 15minute noise level is presented in **Figure 7.2** below.

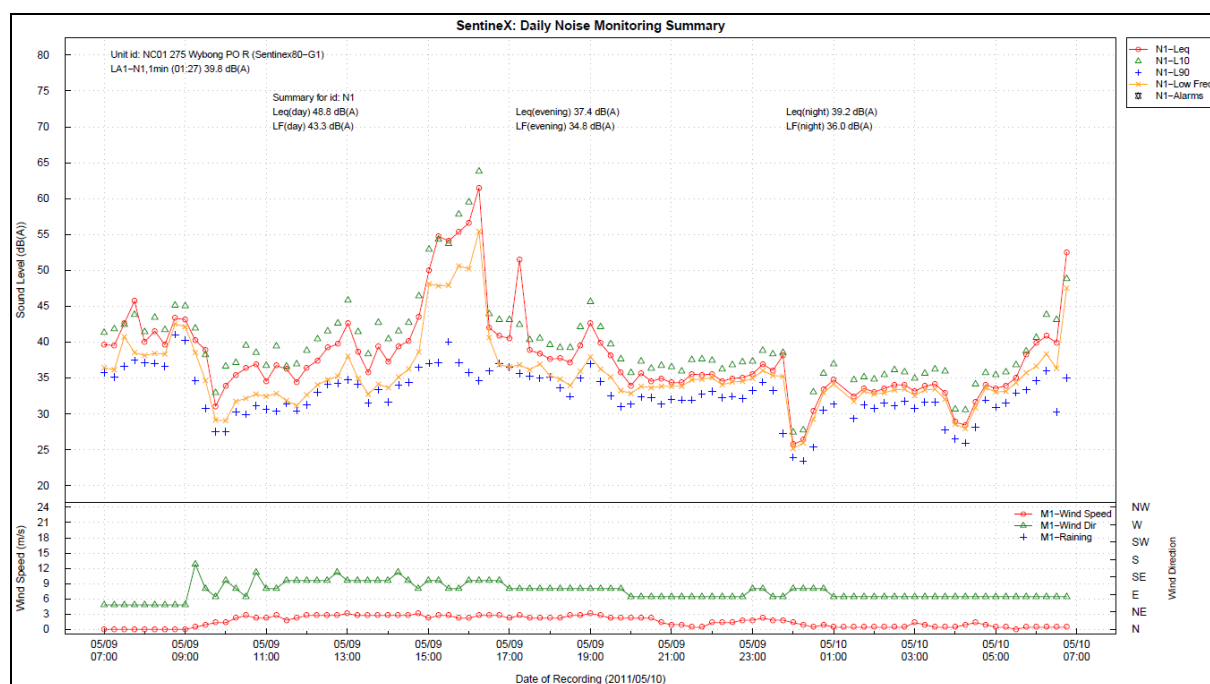


Figure 7.2 - Measured Noise Levels at SentinelX 80 Mangoola Coal Mine

Figure 7.3 presents an example of the analysis of the 1/3 octave data for the monitoring period 02:45 to 03:00 on 10/5/2011. The 20 Hz to 630 Hz frequency band LAeq, 15minute was reported at 33.4 dB(A). By comparison the 20 Hz to 1000 Hz frequency band LAeq, 15minute was 34.1 dB(A). From the corresponding audio file it was possible to confirm that the LAeq, 15minute of 34.4 dB(A) was primarily attributable to mine related noise.

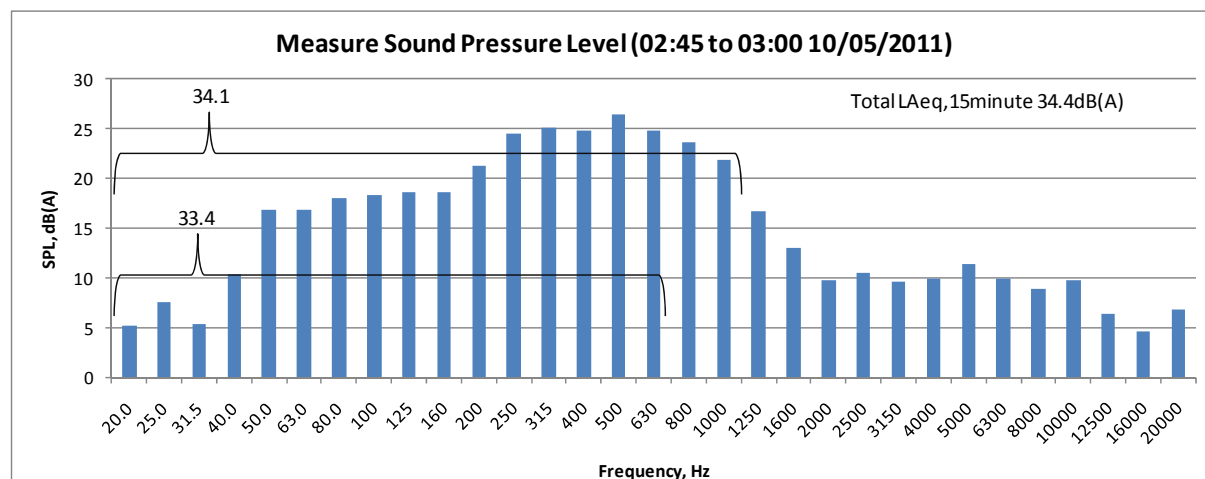


Figure 7.3 - Analysis of 1/3 Octave data from SentinelX 80

For the monitoring period 21:00 on 9 May 2011 to 05:30 on 10 May 2011 at SentinelX 80, presented in **Figure 7.4**, the 20 Hz to 630 Hz low frequency LAeq, 15minute ranged from 0.8 to 1.0 dB below the LAeq, 15minute noise level (except for one 15 minute interval starting at 23:45 9 May 2011).

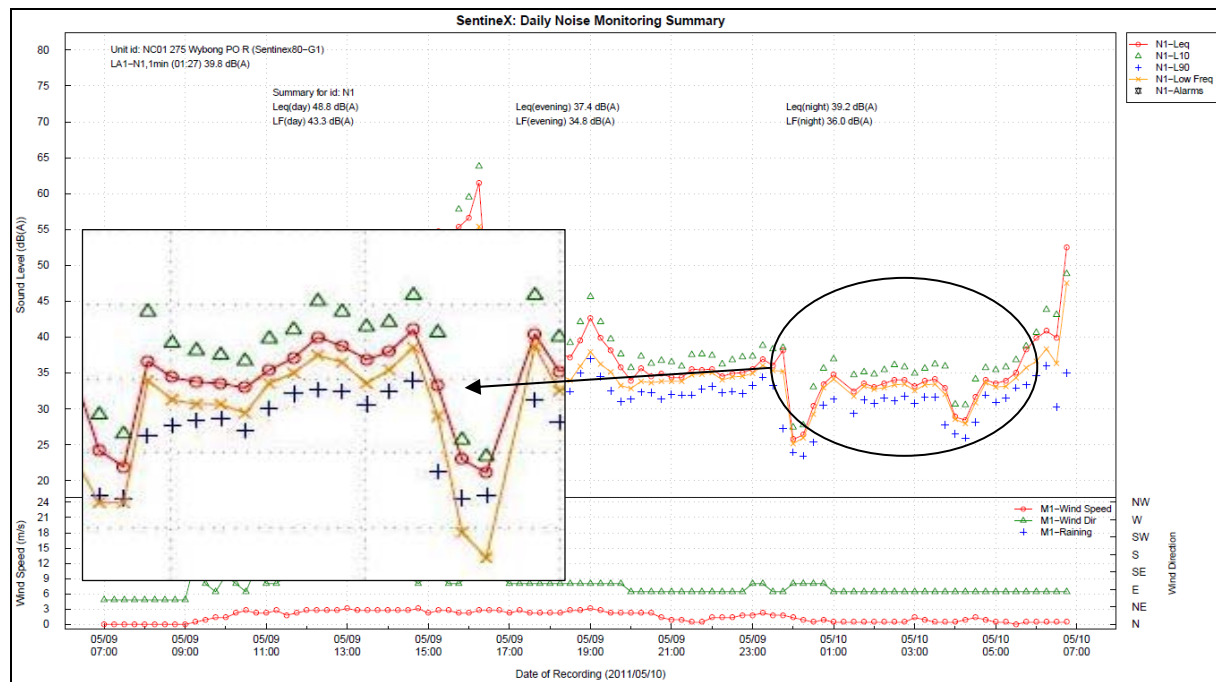


Figure 7.4 - Analysis of 1/3 Octave data from SentineX 80

The data analysed from SentineX 80 for this assessment does not include full mining activities under winter night time inversion conditions. A review of monitoring data on the SentineX Repository suggests that at SentineX 80 the 20 Hz to 630 Hz frequency band LAeq, 15minute noise level will typically be recorded at less than 1 dB below the LAeq, 15minute noise level when the noise environment is primarily attributable to mine related noise.

Conclusion

Based on the review of the monitoring data from SentineX 80 for the period 9 to 10 May 2011 it can be concluded that:

- Mangoola Coal Mine was, at the time, compliant with the predicted noise levels for Property 81;
- the use of the 1/3 octave 20Hz to 630 Hz frequency band LAeq,15minute noise level can be used as an indicator of mine related noise; and
- until further analysis has been completed the mine's noise contribution at SentineX 80 could be reported as the 20 Hz to 630 Hz frequency band LAeq,15minute noise level plus 1.0 dB. This is on the basis that the 20 Hz to 630 Hz frequency band LAeq,15minute noise level is solely attributable to Mangoola Coal Mine.

As part of the recent update to the Noise Monitoring Program, Mangoola Coal is committed to reviewing the use of the 20 Hz to 630 Hz frequency band LAeq,15minute noise level as a tool to assess the performance of the Mangoola Coal Mine operations.

4. Reporting of $L_{Aeq,90\%}$ instead of L_{Aeq} Noise Levels

In addition to the practice of reporting only the 'low frequency' noise component of the measured noise levels, we understand that the mine is also presenting $L_{Aeq,90\%}$ which under normal acoustic metric definitions stand for the L_{Aeq} noise that is exceeded for 90% of the time. This is being used by the mine to assess for noise compliance instead of using the straight L_{Aeq} noise levels as defined in the INP.

It is suggested by the mine that this approach is being used as a way of extracting the component of noise that is attributable to the mine. This is neither an approved nor an accepted practice. In fact, the EA stipulates:

‘Real time noise monitoring would be undertaken at representative locations to manage potential noise impacts for residences that are predicted to have 10th percentile noise levels above 35dBA’.

This means L_{Aeq} noise levels that exceed 35dB(A) for more than 10% of the time, not exceeding the limit for more than 90% of the time as it is implied by the selection and use of the $L_{Aeq,90\%}$ noise metric.

Response

Mangoola Coal is committed to the development and maintenance of reporting protocols that enable the measured noise levels to be assessed against the 10th percentile operational noise levels predicted in the noise impact assessments for both the Anvil Hill Project EA (Umwelt, 2006) and the mine plan modifications EA.

5. 500kV Transmission Line Relocation

Noise generation associated with the construction of the relocated transmission line is to be managed by installing an appropriate temporary noise barrier during construction activities, if required. The new EA however, gives little weight to any permanent noise mitigation for the operational phase of the mine, but does heavily promote acquisition of properties such as property no. 81 which it identifies as being in the acquisition area [i.e. exceeding 40dB(A)] as the sole solution of the impact.

Response

Please refer to Point 2 Response above.

6. Earth Bund

The current EA does not consider any options for mitigating the noise at property no. 81. It merely identifies this property as suitable for acquisition. However, given that the residents of property no. 81 do not wish to sell their property and their preference is to live there, noise mitigation measures specific to their needs ought to be evaluated and considered.

In a recent effort to address existing noise exceedances from the existing mine operations, Heggies were engaged to conduct some noise modelling of various noise mitigation options. One of these is the installation of an earth bund along the eastern side of property no. 81, running almost north-south along the property boundary. The bund's noise shielding performance was modelled to provide a 10-15dB(A) noise reduction for mine operations to Year 10. This degree of noise reduction is substantial as is the time-frame over which such a noise benefit would be gained (i.e. 10 years out of a total 15 year mine life). This alone suggests that such a bund is an effective form of noise mitigation measure. Heggies' revised modelling also models noise levels for Year 15 of the mine's operation and they report that no noise reduction benefit is provided by the bund that they have modelled. Yet in their earlier modelling they showed a 1dB(A) marginal noise benefit achieved at one of their four assessment points on property no. 81.

It appears that Heggies has not optimised the location and height of the bund in their noise modelling exercise, and therefore noise reduction opportunities have not been maximised. Should the earth bund design be optimised by utilising the existing landforms and topographic features of the area and by keeping in mind the mining operations at Years 10 and 15, then it is likely that a significant noise reduction may

be gained for the last few years of the mine operation as well as the first 10 years, which would further support the implementation of an earth bund.

Furthermore, of interest is that the mine's new plan ends at year 15 and does not mine the north face of Wallaby Rock. This would act in support of the argument currently underway between the residents of property no. 81 and the mine, that an earth bund along the ridgeline would provide significant noise reduction benefits to the residents of property no. 81 for the life of the mine.

In light of the above comments, the following conclusions can be drawn:

- noise impacts are unpredicted in the current EA as was the case with the earlier EA, proven through noise measurements of current mine activities;
- noise monitoring and compliance assessment methodology used by the mine to date is incorrect; and
- the objector (identified as property 81 in the Mangoola Modification EA) is not seeking acquisition, but rather noise mitigation measures in the form of an earth bund of a height and location that maximises noise shielding benefits on property 81, from existing landforms in the area (e.g. along the ridgeline running almost north to south along the eastern side of property 81), and in the form of at-property measures that will allow the residents to have flexibility in managing the noise in areas on their property that are impacted according to what level of noise is emitted by the mine, under what meteorological conditions and what time of day/night the impacts occur.

Response

Noise impacts at residential receivers have been calculated using the ENM noise prediction software. ENM is endorsed by the OEH for environmental noise assessment. Through the Noise Management Program prepared by Umwelt on behalf of Mangoola Coal, in accordance with the Project Approval, Mangoola Coal is committed to the verification of noise impacts through a program of ongoing noise monitoring at receiver locations using a combination of attended noise monitoring and real-time noise monitors.

The noise monitoring and compliance assessment methodology used for and by the Mangoola Coal Mine is in accordance with the INP, DECC 2000 and the expectations of both OEH and DP&I.

Mangoola Coal confirms that the application of 'feasible and reasonable' mitigation measures to reduce noise levels will be investigated for each of the properties affected by the Project. However, it should be implicit that mitigation measures will be applied to a dwelling and not as a whole of property solution.

Submission

This table indicates that construction activities will comply in standard hours at 132 and be 3dBA above in non-standard hours. The second residence is finally acknowledged in this report and it is apparent that it will be affected by non-compliance with noise criteria, 1dBA for standard hours and 6dBA for non-standard hours. We are concerned about the modelling for this table as the disparity between the two residences is inconsistent with their location as they are less than 100m apart on similarly flat terrain.

Response

A Noise and Blasting Assessment was completed by Wilkinson Murray as part of the EA for the proposed modifications (refer Appendix C7 of the EA). The results from this assessment do illustrate a difference in predicted noise levels of 3 dB(A) during non-standard hours between residences 132 and 132B. In response to this submission, a review of the data

input into the noise model was completed and revealed that there was an error in the receiver height at residence 132B which was set higher above ground level than residence 132. As such, the model has over predicted construction noise levels at 132B and rerunning of the model for this location determined that noise at both residences would be the same.

The model verification confirms that a noise level of 38 dBA has been predicted for both residence 132 and 132B. It should be noted that the presented noise levels are 'maximum' construction noise levels whereby construction of the ETL is occurring at the nearest worksite to residences. The predicted noise levels will occur for a limited period of time during ETL relocation construction (ranging from a few days to a few weeks).

Submission

Fig. 2.3 shows the common occurrence of Temperature Inversion Probabilities at Mangoola. We are concerned that the project conditions become somewhat irrelevant during a weather inversion. As landholders in close proximity to operations it appears that often when we make a complaint regarding noise it is disregarded due to a weather inversion. Is there a facility that can be put in place to protect residents from continued noise, be it construction or mining activity?

Response

The night period, under temperature inversion conditions, is usually when maximum noise levels are predicted. The night time noise assessment undertaken for the EA takes into account strong temperature inversions. These results have been taken into consideration when determining those residences which are predicted to have significant exceedances, and these residences are noted in the project approval as having acquisition rights.

In the case of response to complaints, complaints will continue to be addressed through the Mangoola Coal Complaints Management Procedure. The purpose of this procedure is to ensure that complaints, including environmental complaints are properly documented and responded to in accordance with approval and licence requirements and Company Policy. The procedure covers all complaints received from the community or involving community matters and provides information on the required response.

In summary, the process for addressing complaints/enquiries is as follows:

- upon receipt of a complaint or enquiry, through any medium, i.e. email, phone etc, they are referred to the Environment & Community Staff (E&C staff);
- the E&C staff collect the required information from the either the person receiving the complaint or by contacting the complainant;
- information is registered in the Xstrasafe Community Complaint section (for complaints relating to the environment, the E&C staff will be notified verbally prior to entry into Xstrasafe);
- the E&C staff shall inform the complainant of the investigation and any immediate actions taken, as appropriate, to resolve the issue. These actions must be recorded in community complaints within 'immediate actions taken' within Xstrasafe;
- alternatively, the E&C staff shall then record details of action taken in community complaints within Follow Up/Feedback Comments within Xstrasafe; and
- records will be managed in accordance with Xstrata document control systems.

Management of community interactions/complaints will be communicated through the Mangoola Coal Induction.

The Operations Manager will be informed of community complaints of a significant nature as considered appropriate by E&C staff.

The procedure cannot be altered without the approval of the Operations Manager.

Submission

The Noise and Blasting evaluation in the EA modification acknowledges that the noise model (ENM) could be suspect in a number of situations, therefore, a consent condition for this modification should require Mangoola Coal not be permitted to move the ten residences to the north and south-east out of the management zone, but retain these ten residences and also include the five residences to the south-west in the management zone. My house is starting to suffer cracks in the ceiling and structural defects, directly as a result of the blasting and early works of Mangoola Coal.

Response

The noise impact assessment for the mine plan modifications EA (refer Appendix C7 of the EA) details the noise impacts assessed for the proposed modifications. This includes a comparison against the approved project and takes into account changes to the number of residences that are included in both the acquisition and noise management zones; no residences move into the acquisition zone, 10 residences move out of the noise management zone and five move into the management zone.

Mangoola Coal confirms that the management conditions and agreements made with the residents that have moved out of the management zone will remain in place despite reduced likelihood of impacts from noise. The Revised Statement of Commitments for the Mine Plan Modifications includes this commitment (refer **Appendix 2**).

Submission

In relation to the following statement:

“Typically, noise from infrastructure and from rail loading and movement would be audible at residences close to these facilities but barely audible or inaudible at most residences surrounding the proposal”.

Noise impacts are normally assessed by measuring the increase in noise from the general background level and I question the credibility of this statement, given:

1. The general background noise level on residences in Castlerock Road (about 2 – 3 km to Mangoola Coal’s Mining Lease) is around 28 dBA.
2. The Intrusiveness Criterion specifies that the noise level from the proposed source should not exceed the RBL by more than 5dBA and the RBL is set a 30dBA.
3. Mangoola’s own assessment data suggests noise levels from 38 – 40 dBA.
4. Mangoola Coal has offered noise-mitigating measures such as Air Conditioning and Mechanical Ventilation to allow windows kept closed, so residents can stay in their houses to evade predicted offensive noise levels.

Response

Section 3.1 of the INP (EPA, 2000) notes that where the rating background level (RBL) is found to be less than 30 dB(A), then it is set to 30 dB(A).

DP&I notes that a 2 dB exceedance of a nominated project-specific noise level is minor, a 3 to 5 dB exceedance is moderate and an exceedances of greater than 5 dB is significant.

Using this as a guide, OEH's contemporary approach to the implementation of the noise conditions in current Mangoola Coal Mine Project Approval is based on:

- the acquisition of significantly affected property(s) upon request;
- the implementation of additional noise mitigation measures, such as double glazing and insulation upon request at any residence where noise monitoring shows that noise levels are moderately above the recommended noise criteria (typically 3 to 5 dB above the project specific noise levels but set at 0 to 5 dB for the Mangoola Coal Mine);
- compliance with the recommended noise criteria at all other privately-owned properties;
- management of operations in accordance with best practice to minimise noise impacts on the surrounding area;
- monitoring the noise impacts of the operations to assess the acoustic performance of the operation; and
- acquisition of any properties upon request if subsequent monitoring shows that the operations are causing additional significant exceedances of the recommended noise criteria.

Notwithstanding this, where noise limits may be exceeded a private agreement may be negotiated with the affected party. Once a private agreement is in place the project-specific noise criteria and potential exceedance of the criteria is no longer covered by the Project Approval or OEH EPL condition other than the recognition that the private agreement is in place.

Submission

In relation to the following statement:

"It should be noted that the calculations described above rely on predictions produced by the ENM model. This model is based on simple assumed vertical profiles of temperature and wind speed, and does not accurately model more complex situations. In particular, there are times when a combination of non-linear vertical temperature and wind speed profiles can result in 'focussing' of noise in a small area. In these events, increases in noise level of 10 – 20 dBA can occur over periods of minutes to hours. The frequency of these events, and the level of noise enhancement occurring, cannot be accurately predicted using ENM or any other known model."

Given the acknowledged limitations on the ENM model, I question the accuracy of Mangoola's predicted noise envelope.

Response

As noted previously, the modelling of operational noise levels using the ENM noise prediction software is endorsed by the OEH. In addition to this, Section 6.2.6 of the noise impact assessment for the EA (refer Appendix C7 of the EA) notes that recent validation of measured noise levels from similar nearby operations has shown good correlation with predicted noise levels as a 10th percentile exceedance level.

Submission

The current consent conditions relies on the proponent offering appropriate mitigation for any impacts but the consent does not protect the landholders rights in the scope of mitigations suggested being double glazing and air-conditioning. This is consequently adopted as the only form of mitigation that will be offered by the proponent. Air conditioning and double glazing of windows are not appropriate mitigations for residents who live on rural life style acreage, are in a remote area and undertake the majority of their outdoor activities on their own property and in the immediate area of it e.g. horse riding, swimming, walking, fauna and flora surveys, to name a few. If we resided in a residential area with community recreational areas available and in close proximity to us to allow for open aired activities away from industrial noise then perhaps this form of mitigation would be appropriate.

Response

Section 7.4 of the INP (EPA, 2000) provides suggestions for mitigating noise impacts such as insulation and double glazing of windows. The INP notes that for these to be effective, the residence would need to be air conditioned or provided with an appropriate ventilation system that does not compromise the effect of the noise insulation.

Mangoola Coal confirms that the application of process of applying 'feasible and reasonable' mitigation measures to reduce noise levels has commenced in consultation with relevant property owners and is an ongoing process being investigated and implemented until resolutions regarding this issue are met.

In addition, Mangoola Coal confirms that those residences identified as having rights for noise mitigation and management in accordance with the original Project Approval No 06_0014, will still have those rights available to them, irrespective of whether the modification results in their property no longer being predicted to receive the level of noise impacts above the relevant trigger level that is noted in this condition. This is reflected in the Revised Statement of Commitments for the Mine Plan Modifications (refer **Appendix 2**).

Submission

In relation to the following statement:

"Five privately owned properties located to the south-west move into the management zone, ten privately owned properties located to the north and south-east move out of the management zone, no new properties move into the acquisition zone and no additional vacant land is affected by the proposal."

I strongly disagree with this proposal and I would argue that such a proposition is unfounded and certainly unjust. How can Mangoola Coal acknowledge that the noise model (ENM) could be suspect in a number of situations and offer private residences noise mitigation measures, however then argue that these same residences should be removed from the management zone?

A consent condition for this modification should be that Mangoola Coal not be permitted to implement this unsound proposition. The original ten residences and the new five residences should be included and remain in the management zone.

Response

Changes to the noise management zone for the project are consequential based on the proposed modifications. Section 12.8.1.4 and Appendix C7 of the EA detail the noise impacts assessed for the proposed modification to the approved Mangoola Coal Mine. This includes a comparison against the approved project which takes into account changes to the number of residences that are included in both the acquisition and noise management zones; no residences move into the acquisition zone, 10 residences move out of the noise management zone and five move into the management zone.

Mangoola Coal confirms that the management conditions and agreements made with the residents that have moved out of the management zone will remain in place despite reduced likelihood of impacts from noise. The Revised Statement of Commitments for the Mine Plan Modifications includes this commitment (refer **Appendix 2**).

Submission

In relation to the following statement:

“In most cases, no direct information is available on predicted noise levels from other mines at residences potentially affected by noise from Mangoola”.

Why wasn't Mangoola Coal pro-active by gaining current background noise data from these residences before the mine progresses to full production? Surely this approach would reveal which mining activity was impacting on various residences at the different mine projects in the area come online?

A consent condition for this modification should be that Mangoola Coal implement continuous noise monitoring devices among the fifteen residences, which should remain within the management zone.

Response

Section 6.4 of the noise impact assessment for the EA (refer Appendix C7 of the EA) notes that: *‘No existing industrial noise sources were identified at residences during attended measurements near the proposed disturbance boundary. However, it is possible that some of the residences considered in this study may be affected by noise from other mining operations, particularly those residences on the eastern boundary of the area considered. Given the distance to the nearest mining operations (approximately 12 kilometres to the east), any residences affected by noise from other mines can be expected to have LAeq noise levels from Mangoola Coal which are significantly below the relevant amenity criterion of 40dBA. In this case, exceedance of the amenity criterion would require that noise from these other mines was the dominant noise source, and it is likely in that case that noise from the other mines would exceed their own relevant site specific noise criteria.’*

Notwithstanding this, Mangoola Coal will be implementing a Noise Monitoring Program that includes protocols to assess the effectiveness of the real-time and supplementary attended monitoring programs in the region surrounding the mine. This includes protocols for the assessment of the LAeq,period (where period = day, evening or night) cumulative noise levels.

Submission

There will be considerable cumulative noise increase from various mine activities, which truly won't be realised until the mine reaches full production. These mine activities with significant noise factors will include:

- **Road traffic noise during change of shifts**
- **Rail noise from loading / shunting coal carriages**
- **Blasting noise**
- **Operational noise from plant machinery**

I challenge any methodology which claims ‘precise’ noise modelling given the large number of variable noise sources, geographic contours and climatic conditions.

Response

The modelling of operational noise levels was undertaken using the ENM noise prediction software. The software and methodology used in the application of the software is endorsed by the OEH. In addition to this, Section 6.2.6 of the noise impact assessment for the EA (refer Appendix C7 of the EA) notes that recent validation of measured noise levels from similar nearby operations has shown good correlation with predicted noise levels as a 10th percentile exceedance level.

Submission

In relation to noise modelling and potential impacts, our residence, 132, is predicted to have an exceedance of recommended noise criteria in both standard and outside standard hours.

Response

Mangoola Coal confirms that the management conditions and agreements in place for the residents in the management zone as defined in the Anvil Hill Project EA (Umwelt, 2006) will be available for residents in the management zone identified in the current EA for the proposed modification. This commitment includes the application of ‘feasible and reasonable’ mitigation measures to reduce noise levels for each of the properties affected by the Mangoola Coal Mine.

Submission

Our residence, 132 is listed extensively throughout the EA, however we have two residences on our property, our main residence and a second residence is tenanted, (132B), yet we have only managed to find it referenced once in the entire EA (Appendix B-5 Table 3.3). We are aware that we could possibly have missed other references, as the EA is quite lengthy but are concerned that Xstrata Mangoola have deliberately omitted the reference to two residences on 132. We have raised the issue of them not recognising it in previous negotiations and it has been subsequently rectified, but are concerned about the failure to recognise it in this EA.

Response

The second residence at 132B has not been identified by Mangoola Coal in the current EA which is an oversight, not a deliberate omission. In relation to 132B noise levels, residence 132 and 132B have different predicted noise levels as they are at different locations relative to nearby predicted construction equipment. The difference in predicted noise levels is 3 dB(A). Both residences 132 and 132B are located within the acquisition zone.

Submission

Noise levels are of great concern. Mangoola have provided noise monitors on adjoining properties to gain background levels prior to commencement, however we have yet to receive the tallied outcome. We were notified on numerous occasions while the monitors were in place that the monitors had malfunctioned. This leaves us questioning the quality of the information. The noise levels appeared to be at peak state at the start and end of shifts at the mine site, however it has been noted the noise is heard on still mornings where machinery is audible. This level of noise will only increase with production levels increasing. When the trains begin to travel in and out of the mine site we will have another inconvenience with the noise of the shunting, refuelling and loading.

Response

Mangoola Coal is implementing a Noise Monitoring Program (Umwelt, 2011b) that includes a combination of real-time and supplementary attended monitoring to measure the noise levels in the region surrounding the mine. Protocols are included in the Noise Monitoring Program to assess the effectiveness of the monitoring program and for evaluating compliance with the noise impact assessment and land acquisition criteria outlined in the Mangoola Coal Mine Project Approval.

The results from the implementation of the Noise Monitoring Program are presented in the Quarterly Noise Monitoring Report and available on the Xstrata Mangoola website.

Submission

Concerned with the failure to monitor noise in the vicinity of Brogheda Homestead.

Response

Brogheda Homestead is located approximately 5 kilometres northwest of Mangoola's Coal Mine operations and unlikely to be affected by noise impacts. Refer previous response in relation to this submission.

Submission

Unexplained reduction in modelled noise impact relative to the NE of the mine.

Response

Modelling methodology, using ENM, is the same for both the proposed modifications operations and the previously modelled Anvil Hill Project. The inputs for the running of models differ, however, based on the proposed differences between the approved mine and the proposed modifications. The model for the modifications includes the following:

- duration of mining activities reduced from 20 years to 15 years;
- operations spread over one pit rather than the approved two pit areas;
- pit locations and haul route changes due to the ETL relocation; and
- currently proposed plant and equipment as per the modifications plans.

It should be noted, however, that despite these differences, the overall predicted maximum noise levels do not change significantly. The assessment for the modifications is based on these maximum noise levels.

The modelling includes different locations for mobile plant and equipment between the day, evening and night scenarios. Where plant that operates in the same vicinity for long periods, such as dozers and excavators, and/or the equipment has a fixed location, such as the coal preparation plant, the plant/equipment is modelled as point sources. Items involved in transport of materials such as haul trucks, watercarts, graders, trains and conveyers are modelled with source points at 40-50 metre intervals along the routes. The effective sound power level for each source point is then assigned based on the number of items of plant using the route and the number of source points.

Each year of the mining operation modelled for the EA for the proposed modification also takes into account the projected mine plan for the year being considered. The assessment of the meteorological conditions and the surrounding natural topography included in the ENM models remain unchanged.

Therefore, the reduction in the modelled noise levels in one location and the predicted increase in noise levels in another location is primarily associated with the projected mine plan for the year under consideration and the location of the equipment within the proposed mine footprint.

Submission

Excess noise pollution from these modifications to mining activities is a great health concern.

Response

Health impacts with respect to environmental noise levels are primarily associated with sleep disturbance. Section 6.2 of the noise impact assessment for the mine plan modifications EA (refer Appendix C7 of the EA which notes that: *'One or two noise events per night (i.e. events that may disturb sleep), with maximum internal noise levels of 65–70 dBA, are not likely to affect health and wellbeing significantly'*).

Such events are likely to be associated with normal activities at the mine and, as also noted in the assessment: *'The maximum instantaneous sound pressure level for typical plant around the proposal would be less than 5dBA above the sound power level used in noise modelling. On this basis, any properties with potential to experience noise levels above the L_{Amax} screening criterion will also experience noise levels above the 40dBA operational criterion.'*

Mangoola Coal implements will be implementing a Noise Monitoring Program which includes monitoring techniques to capture and report on the noise levels that have the potential to disturb sleep. Protocols have been included in the Noise Monitoring Program to assess the effectiveness of this component of the monitoring program and for evaluating compliance with the noise sleep disturbance criteria outlined in the Mangoola Coal Mine Project Approval (06_0014).

Submission

While we waited some 6 months for this promised report on the modelling of various noise mitigations, so we could seek independent review of the Xstrata mitigations proposed and reach an agreement with Xstrata on these mitigations, Xstrata apparently, it would seem, informed the Director-General (DG) that they had used best endeavours to acquire, or reach a negotiated agreement with us as per the following:

Appendix 3

Best Endeavours to Acquire

2. Prior to starting mining operations on site, the Proponent shall demonstrate to the satisfaction of the Director-General that it has used its best endeavours to acquire all of the land listed in the table in Appendix 5, or to enter into a negotiated agreement with the applicable landowners.

At least 3 months prior to the proposed start of mining operations on site, the Proponent shall submit a report to the Director-General that:

(a) identifies the land in the acquisition zone; and

(b) demonstrates that it has used its best endeavours to acquire this land, or enter into a negotiated agreement with the applicable landowner.

Note: In this condition, negotiated agreement means a written agreement between the Proponent and the landowner in which the landowner agrees, for the purpose of this approval, not to be counted as a number in the acquisition zone.

If Xstrata has not informed the DG as per the above then they have breached the above consent conditions by commencing mining operation (includes all coal extraction, processing and transportation activities carried out on site) in September 2010 prior to having a negotiated agreement with us. Any agreement before this date was going to be impossible given that we did not receive the promised noise mitigation modelling report until 3rd November 2010 despite Xstrata having it in July 2010. The report still did not provide all the information requested in March 2010 and the meeting with Xstrata with noise experts in attendance and it was not until 1st December 2010 we received the final document. Some 3 months after commencement of mining operations and still with no mitigation in place and no opportunity to have the final report reviewed (currently being undertaken by Renzo Tonin and Associates) and will form part of this submission.

Response

The contention that Mangoola Coal has not complied with its Project Approval, Conditions 2 and 8 of Schedule 3, is refuted.

Condition 2, Schedule 3 – Best Endeavours to Acquire

Prior to starting mining operations on site, the Proponent shall demonstrate to the satisfaction of the Director-General that it has used its best endeavours to acquire all of the land listed in the table in Appendix 5, or to enter into a negotiated agreement with the applicable landowners.

At least three months prior to the proposed start of mining operations on site, the Proponent shall submit a report to the Director-General that:

- a) identifies the land in the acquisition zone; and
- b) demonstrates that it has used its best endeavours to acquire this land, or enter into a negotiated agreement with the applicable landowner.

Note: In this condition, negotiated agreement means a written agreement between the Proponent and the landowner in which the landowner agrees, for the purpose of this approval, not to be counted as a number in the acquisition zone.

The assertion that Mangoola Coal is not in compliance with Condition 2 of the Project Approval has no basis, and in fact demonstrable through Mangoola Coal records.

Mangoola Coal acknowledges the position of the owner of Property 81 with regard to acquisition and the strong preference to reside at the property. As such, in March 2010 Mangoola Coal initiated discussions regarding the option of negotiated agreement in accordance with the relevant conditions of the Project Approval. Engagement between the property owners and Mangoola Coal has been extensive and meetings have been initiated by both parties throughout the process to date. Mangoola Coal has requested a further meeting regarding the matter without success; notwithstanding this, Mangoola Coal is committed to the process.

Condition 8, Schedule 3 - Additional Noise Mitigation Measures

Upon receiving a written request from:

- a landowner of the land listed in the table to Appendix 5 (unless the landowner has requested acquisition); or
- a landowner of the land listed in Table 1 (except where a negotiated noise agreement is in place); or

- the owner of any residence where subsequent operational noise monitoring shows the noise generated by the project is greater than, or equal to, $LA_{eq15\text{ minute}}$ 35 dB(A) (except where a negotiated noise agreement is in place); or
- an owner of the 4 residences on Wybong Road where traffic noise levels are predicted in the EA to exceed the traffic noise criteria in Table 3 (i.e. Residence numbers 168, 246, 249 and 96B); or
- an owner of the 2 residences adjacent the Ulan to Muswellbrook rail line where rail noise levels are predicted in the EA to cause additional exceedances of the applicable rail noise criteria, the Proponent shall implement additional noise mitigation measures such as double glazing, insulation, and/or air conditioning at any residence on the land in consultation with the landowner.

These additional mitigation measures must be reasonable and feasible.

If within three months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director-General for resolution.

Within three months of this approval, the Proponent shall notify all applicable landowners that they are entitled to receive additional noise mitigation measures, to the satisfaction of the Director-General.

Much negotiation has been entered into with respect to the mitigation measures. Mangoola Coal records indicate that discussions regarding noise mitigation at Property 81 have been conducted on a regular basis during the period from June 2008 to November 2010. Mangoola Coal is committed to the continuation of constructive consultation to ensure that an agreement can be reached regarding the implementation of reasonable and feasible noise mitigation measures as contemplated by the Project Approval.

Mangoola Coal has undertaken a significant amount of work over the past two years to attempt to resolve a number of landholder issues, including noise mitigation measures, and will continue to do so as required throughout the life of the mine. It should be noted that commencement of mining operations is not conditional upon reaching agreement with affected landowners on the implementation of reasonable and feasible noise measures.

With respect to the noise impact assessment for the EA (including noise modelling), the assessment was completed to the satisfaction of DP&I.

Submission

In reference to Appendix C7 – 2.4.6 – Restriction of Operations under Adverse Meteorological Conditions. Fig. 2.3 shows the common occurrence of Temperature Inversion Probabilities at Mangoola. We are concerned that the project conditions become somewhat irrelevant during a weather inversion. As landholders in close proximity to operations it appears that often when we make a complaint regarding noise it is disregarded due to a weather inversion. Is there a facility that can be put in place to protect residents from continued noise, be it construction or mining activity?

Response

Numerous studies in the area have revealed that in the winter night period strong inversions may occur. Temperature inversions predominately occur in the winter months. The night time noise impact assessment completed as part of the EA as is based on temperature inversions, which enhance noise levels.

The noise modelling takes into account strong temperature inversions at night (worst case scenario 4 degrees/100metres) and results indicate that much of the time it is the night period when maximum noise levels are predicted (i.e. under inversion conditions). The daytime and evening noise levels have been modelled based on Meteorological data which includes wind strength, direction and temperature inversions. Therefore the residences with acquisitions rights and identified as located in the management zone take into account inversion conditions.

In the instance of a complaint, residents concerns will be responded to in accordance with Mangoola Coal complaints management procedures. Further details on the procedure are provided previously in **Section 7.2**.

7.3 Visual Amenity

Submission

The Visual Impacts in the modification EA provides no reference to visual impact from the Castlerock Road perspective.

Response

Some minor changes to visual impacts are expected as a result of the proposed modifications due to the changes in the orientation of the mining areas as well as the increased height (up to 30 metres) of the main emplacement area. Consequently, a visual impact assessment was completed as part of the EA for the proposed modifications to the approved Mangoola Coal Mine. Viewpoints chosen are public viewpoints which have the highest impacts. The potential visual impacts for individual residences in the vicinity of the Project vary relative to their location, elevation and distance to the Project and associated infrastructure. Based on the location of Castlerock Road it was not anticipated that there would be any visual amenity impacts as there is significant vegetation screening throughout this area therefore no viewpoints were located in this area.

In response to the submissions received on the EA for the mine plan modifications and ETL relocation, Umwelt conducted an additional visual amenity assessment specifically targeting the concerns raised in submissions. The visual amenity assessment completed previously was a general landscape based assessment, whereas the work completed in response to submissions on the EA for the mine plan modifications and ETL relocation provides detail in response to specific concerns raised. **Section 6.3.9** of this Response to Submissions provides details on the additional visual impact assessment undertaken.

Although unlikely to have visual amenity impacts, in order to address the concerns raised in this submission, the additional visual impact assessment included the potential visual impacts of the mine plan modifications and ETL relocation from Castlerock Road. The assessment included the completion of a radial analysis and a field assessment including making observations and taking photos. The radial analysis taken from Viewing Location 2 (refer **Figure 6.2**) illustrates that visual impacts from the mine plan modifications and ETL relocation are negligible (refer **Figure 7.5**). This is further demonstrated in **Plate 7.1** which illustrates the view looking towards the Mangoola Coal Mine from Castlerock Road (taken from Viewing Location 2).

Submission

The Mangoola Coal project has failed to provide visual mitigation measures as promised and consent obligated. The mine has created significant adverse impacts in the local area and consequently, ruined the local amenity. If this modification is approved, it should receive far greater scrutiny than the project has thus far.

Radial Analysis - Viewing Location 2
Castlerock Road
Year 5 Mine Plan



PLATE 7.1

View from Castlerock Road facing south
towards Mangoola Coal Mine