

ASSESSMENT REPORT

GREATER RAVENSWORTH AREA Tailings Pipeline Modifications

Ravensworth Operations Project – MP 09_0176 MOD 3
Liddell Colliery – DA 305-11-01 MOD 6
Ravensworth East Mine – DA 52-03-99 MOD 6

1. BACKGROUND

The Greater Ravensworth Area (GRA) is the name given by Glencore Coal Pty Ltd to three of its mining operations which it owns and operates in the Hunter Valley, owned and operated. These operations overlie the Singleton and Muswellbrook local government areas and include Ravensworth Operations, Liddell Coal Operations and the Mount Owen Complex (see **Figure 1**).

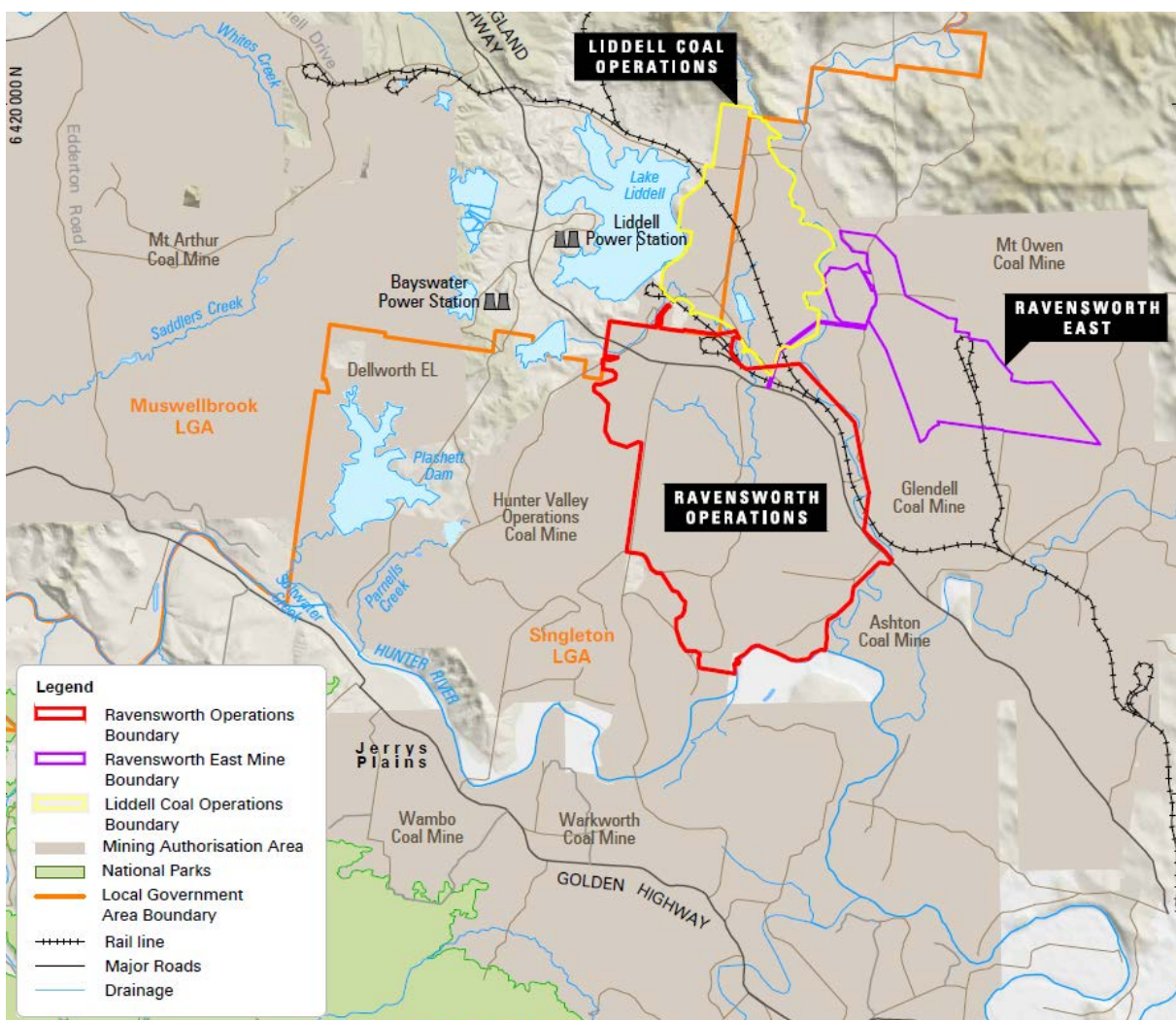


Figure 1: Location and layout of the Glencore mines in the Greater Ravensworth Area

All mines within the GRA have a long-established presence in the Hunter Valley Coalfield, with mining commencing as early as the 1950s at Liddell Colliery. Liddell Colliery currently has approval for open cut mining up to 8 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal under DA 305-11-01. Open cut mining activities at Ravensworth Operations are carried out under MP 09_0176 which permits extraction of up to 16 Mtpa of ROM coal. The Mount Owen Complex currently holds three separate planning approvals for each of its mining areas:

- Glendell Mine has approval to mine up to 4.5 Mtpa of ROM coal under DA 80/952;
- Mt Owen Mine has approval to mine up to 10 Mtpa of ROM coal under DA 14-1-2004; and
- Ravensworth East Mine has approval to mine up to 4 Mtpa of ROM coal under DA 52-03-99.

Ravensworth Operations Pty Limited, Liddell Coal Operations Pty Limited and Mt Owen Pty Limited (herein collectively referred to as Glencore) are seeking approval for modifications to three development consents and project approvals, being Ravensworth Operations (MP 09_0176), Liddell Colliery (DA 305-11-01) and Ravensworth East (DA 52-03-99). No changes are proposed at either Mt Owen Mine or Glendell Mine.

2. PROPOSED MODIFICATION

On 13 November 2015, Glencore lodged three separate modification applications with the Department under section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Glencore proposes to modify three existing consents to permit construction and operation of a tailings pipeline from the Coal Handling and Preparation Plants (CHPPs) at Ravensworth Operations and Liddell Colliery to the West Pit Void at Ravensworth East Mine (see **Figure 2**).

Specifically these modification applications include:

- construction of an approximately 11 kilometre (km) tailings pipeline network connecting both the Ravensworth and Liddell CHPPs to the West Pit Void at Ravensworth East Mine;
- construction of a flocculant plant near the West Pit Void at Ravensworth East Mine, to allow flocculants to be fixed with tailings immediately prior to deposition in the emplacement area;
- staged emplacement of tailings generated from Ravensworth Operations and Liddell Operations within the West Pit Void at Ravensworth East Mine; and
- interim utilisation of the Narama Void as a central water storage facility for the GRA prior to it being backfilled as per the existing approved Ravensworth Operations final landform.

These modifications seek to facilitate the first stage of the introduction of a fully integrated approach to tailings management across the GRA. Importantly, the modification does not seek to increase the overall amount of tailings material emplaced in the West Pit Void at Ravensworth East Mine. A further detailed description of the modification is provided in Glencore's Environmental Assessment (EA - see **Appendix A**).

Glencore has advised the Department that it has identified that there is both significant environmental and economic benefit in applying an integrated approach to tailings management at its GRA operations. Glencore has recognised that there is future opportunity to implement a larger strategy (referred to as Stage 2 tailings management strategy) aimed at further ensuring the logical and sequential filling of already approved tailings emplacement areas and reducing the need for additional tailings facilities at other Glencore mines in the GRA. The Department notes that the proposed modification has been developed as a stand-alone application and as such, its implementation would not be dependent on any other future approval of the Stage 2 tailings management strategy. Any future Stage 2 tailings management strategy proposed by Glencore would be subject to a separate assessment and approvals process.

3. STATUTORY CONTEXT

3.1 Section 75W

Liddell Colliery (DA 305-11-01) and Ravensworth East Mine (DA 52-03-99) were granted approval under the former section 76(A)9 & section 80 of the EP&A Act, on 20 November 2002 and 2 March 2000, respectively. Ravensworth Operations Project (MP 09_0176) was granted approval under section 75J of the EP&A Act, on 11 February 2011. As such, in accordance with Clause 8J(8) of the *Environmental Planning and Assessment Regulation 2000* and the transitional arrangements under Schedule 6A of the EP&A Act, the proposed modifications are to be determined under the former section 75W of the EP&A Act.

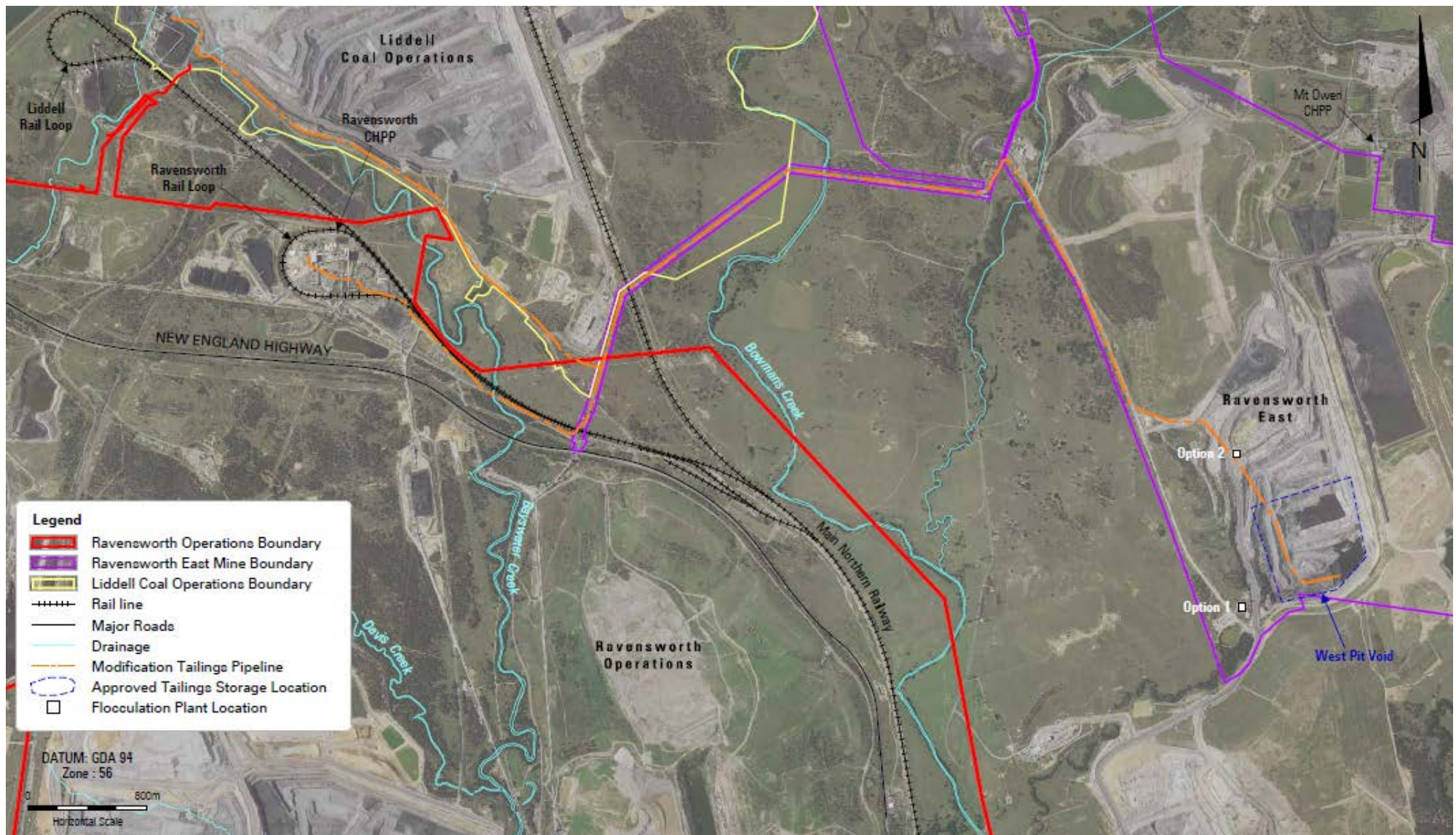


Figure 2: Greater Ravensworth Area proposed tailings pipeline

The Department is satisfied that the proposals can be characterised as modifications to the existing development consents and project approval, under section 75W. The modifications would not result in any change to the core elements across each operation, such as:

- total coal production rates, mining footprint or duration of mining;
- existing method of mining or destination of ROM and product coal;
- the character of the currently approved infrastructure components;
- already approved final landforms; and
- existing manning levels or operational hours.

The Department is therefore satisfied that the proposed modifications are within the scope of section 75W, and may be determined accordingly.

3.2 Approval Authority

The Minister for Planning is the approval authority for the application. However, as Glencore has not made any reportable political donations, the relevant Councils do not object to the proposal, and there were no public objections, the Director, Resource Assessments, may determine the applications under the Minister's delegation of 16 February 2015.

3.3 Environmental Planning Instruments

A number of environmental planning instruments (EPIs) apply to the modification, including:

- SEPP (*Mining, Petroleum and Extractive Industries*) 2007 (the Mining SEPP);
- SEPP (*Infrastructure*) 2007 (the Infrastructure SEPP);
- SEPP (*State and Regional Development*) 2011;
- SEPP No. 33 – *Hazardous and Offensive Development*;
- SEPP No. 44 – *Koala Habitat Protection*;
- SEPP No. 55 – *Remediation of Land*;
- *Singleton Local Environmental Plan 2013*; and
- *Muswellbrook Local Environmental Plan 2009*.

The Department has assessed the modification against the relevant provisions of these EPIs and reviewed Glencore's consideration of these matters in its EA. Based on this assessment, the Department is satisfied that the proposed modification can be carried out in a manner that is consistent with the aims, objectives and provisions of these EPIs.

4. CONSULTATION

After accepting the EA for the proposed modifications, the Department:

- exhibited the EA from 24 November 2015 until 8 December 2015:
 - on the Department's website and at the Department's Information Centre;
 - at Singleton Council's office;
 - at Muswellbrook Council's office; and
 - at the Nature Conservation Council's office.
- notified relevant State government authorities, and Singleton and Muswellbrook Councils; and
- advertised the exhibition in the Newcastle Herald.

In response to this exhibition, the Department received 6 submissions, all from Government agencies and Councils. Only the **Office of Environment and Heritage** (OEH) and the **Department of Primary Industries - Water** (DPI Water) provided comment. A summary of the residual issues raised in these submissions are provided below. No other agencies or either Council (Singleton and Muswellbrook) raised any issues with the proposed modifications. No public or special interest group submissions were received during the exhibition period. Copies of agency submissions and a copy of Glencore's Response to Submissions (RTS) are included at **Appendix B** and **Appendix C** respectively.

OEH was satisfied with the proposed management of Aboriginal heritage sites and indicated that the likely impacts on these sites could be managed under existing consent conditions and amended Aboriginal Cultural Heritage Management Plans.

OEH noted that there was no discussion of biodiversity offsetting policy or the offer of any offsets within the EA. OEH assessed the proposal using the *OEH principles for the use of biodiversity offsets in NSW*. Following consultation with Glencore, OEH amended its advice to acknowledge a misunderstanding of the on-ground disturbance, and the unlikely need for a biodiversity offset.

OEH recommended conditions of consent for offsetting the clearance of any mature River Oak trees, by planting 10 trees for every one cleared in the Bowmans Creek catchment. Glencore's RTS estimated that about 10 semi-mature River Oak trees may be impacted and committed to replant 100 individuals of this species in a location on Bowmans Creek deemed suitable by a qualified ecologist (see **Section 5.3**).

DPI-Water noted that works taking place on or under waterfront land, as defined in the *Water Management Act 2000*, are controlled activities under that Act. While the *Water Management (General) Regulation 2011* provides exemption from the requirement to obtain and hold approvals for controlled activities carried out under an authorisation under the *Mining Act 1992*, such activities should be conducted in accordance with DPI-Water's *Guidelines for Controlled Activities*. Glencore has noted DPI-Water's advice.

5. ASSESSMENT

In assessing the merits of the proposal, the Department has considered the:

- EISs and EA for the original proposals;
- existing conditions of consent/approval for all three sites;
- EA for the proposed modifications;
- relevant EPIs, policies and guidelines; and
- the requirements of the EP&A Act, including the objects of the Act.

The Department considers the key issue for the proposal is potential impact on water resources. Consideration of this issue is provided below, with consideration of other impacts provided in **Table 1**.

5.1 Water Resources

5.1.1 Background

The GRA operations have an integrated water management system referred to as the Greater Ravensworth Water Sharing System (GRWSS), which enables water transfers and water sharing between the mining operations. Water can currently be transferred between the Mt Owen Complex, Ravensworth Operations and Liddell Coal Operations via a network of pipelines and pumps that connects each of the water storage facilities. The GRWSS provides for the efficient use of water by ensuring the maximum amount of water is recycled/reused on site, minimising the amount of water that needs to be drawn from external sources such as surface water allocation licences and reducing the amount of water that may need to be discharged in accordance with relevant Environmental Protection Licences and the Hunter River Salinity Trading Scheme.

5.1.2 West Pit Void

Staged Emplacement of Tailings

It is proposed to use West Pit Void for the staged emplacement of tailings generated by Ravensworth Operations (approximately 12.5 million cubic metres (Mm³) wet tailings between 2017 and 2021) and Liddell Coal Operations (approximately 2 Mm³ wet tailings between 2018 and 2020).

Mine water is currently distributed through interconnected management infrastructure to maximise its efficient use and re-use. This existing system would also be used to distribute return water recovered from the West Pit Void tailings emplacement. The Department notes that some upgrades would be required to ensure efficient re-use of return water; however it is satisfied that these can be achieved under existing approval and regulations.

The West Pit Void is currently approved for the emplacement of tailings under the Ravensworth East Mine development consent. Previous environmental assessments indicate that the West Pit Void does not receive significant quantities of groundwater inflow and is generally considered a dry pit. Furthermore, no beneficial aquifers or privately owned bores are predicted to be impacted by the currently-approved operations.

The Department notes that the proposed modification would not alter the use of the West Pit Void as a tailings emplacement facility, nor would it increase the overall amount of tailings emplaced or alter the final currently-approved landform. As such, the Department is satisfied that there are no further impacts beyond those currently approved under existing consents.

Secondary Flocculation Plant

Glencore is seeking approval for the construction of a flocculant plant within the vicinity of the West Pit Void at Ravensworth East to allow flocculants to be mixed with tailings immediately prior to deposition in the emplacement area, a process known as secondary flocculation.

The proposed introduction of pipe head flocculation would result in more efficient use of water onsite by extracting more water from the tailings slurry. This improved water efficiency would lead to a more robust long-term consolidation of the tailings material due to increased initial density, enabling the tailings facility to be rehabilitated more readily following the completion of mining and reducing the time for recovery of depressurisation in the hard rock aquifers, thereby providing a positive environmental outcome.

5.1.3 Narama Void

The proposed modification seeks approval of interim use of the Narama Void as a water storage facility for the GRA prior to it being backfilled to conform to the existing approved final landform for Ravensworth Operations. This proposal would provide a more flexible water management approach across the GRA. The water in the void would be allowed to accumulate from mine surface runoff collected in the mine water management system and dewatering from various mining areas. Water would be distributed to the GRA operations for day to day operations, predominantly dust suppression (~32%) and coal processing (~48%).

The Department sought additional information from Glencore regarding the proposed use of Narama Void for water storage, in particular storage capacity, proposed operational level and potential for spills and/or leaks. The Narama Void has the capacity to hold up to approximately 11 GL if allowed to fill to RL 25 m. However, as part of the proposed modification, Glencore is proposing to maintain an operational level of RL 15 m which would hold approximately 6 GL. This would allow for 10 m of freeboard within the void. The Department is satisfied that the maintenance of a RL 15 m operating level would ensure that the possibility of the void overflowing would be highly unlikely.

Leakage of water into the surrounding environment is not anticipated due to the configuration of the void and the impermeable nature of the end wall. If leakage were to occur it would be fully maintained within the current mining footprint and not released offsite.

The proposed longer-term integrated tailings management strategy (see **Section 2**) may negate the need for tailings emplacement in the Narama Void as currently approved. There is potential for this void to be maintained as a water storage facility if approvals are sought and gained in future for greater integration of tailings management within the GRA. However, the Department notes that the current modifications are not seeking to surrender the approval to emplace tailings in this void, in order to provide maximum flexibility for future mining operations.

5.1.4 Tailings Pipeline

The proposed pipeline would cross a number of ephemeral waterways including Bowmans Creek, York Creek and Bayswater Creek.

Where possible, the proposed pipeline would follow existing infrastructure and utilise existing bridges and waterway crossings. Where this is not feasible, Glencore proposes to implement the following measures:

- burying pipelines across minor creeks and drainage lines where possible. Where burial is not possible or in the case of existing pipelines suspended across creeks, measures are to be implemented to confirm that they are adequately supported to prevent damage from creek flows and flood debris;
- double-skinning or sleeving to minimise physical damage and to contain potential leakages;
- installing differential flow meters or other similar mechanisms to detect any leaks or spillages;
- use of containment measures such as scour pits and bunding; and
- implementing an inspection regime consistent with Glencore's Pipeline Management Protocol.

Furthermore, during the construction of the proposed pipeline Glencore is proposing to implement a number of erosion and sediment control measures such as clean-water diversion drains and banks, catch drains, silt fences and sediment basins. These measures would be designed in accordance with the relevant guidelines, existing Erosion and Sediment Control Plans and Glencore standards.

5.1.5 Conclusion

The existing surface water and groundwater monitoring network and programs for the GRA would continue to be implemented in accordance with approved management plans and programs. Water monitoring including water usage and balances for the GRA operations would be updated accordingly for each respective operation and reported in Annual Reviews as required under existing conditions of consent.

The Department is satisfied that the proposed management and mitigation measures are adequate to manage and monitor the potential impacts to water resources as a result of the proposed modification.

5.2 Other impacts

The Department is satisfied that the other impacts of the proposed modifications are likely to be minor. The assessment of other impacts is summarised in **Table 1** below.

Table 1: Assessment of other impacts

Issue	Consideration and Assessment	Recommendation
Biodiversity	<ul style="list-style-type: none"> An ecological assessment for the EA was prepared by Forest Fauna Surveys Pty Ltd and Eastcoast Flora Survey. Including a 10 m wide buffer, the proposed 11 km tailings pipeline would potentially disturb approximately 14.3 hectares (ha). The majority of this area consists of derived grassland resulting from historic and current land uses. Where possible, Glencore has designed the route to avoid remnant vegetation, habitat areas, creeks and riparian areas. Four vegetation communities were identified during field surveys, all of which were severely disturbed and/or are in an early colonising phase following previous land clearing. However, isolated trees and small regenerating patches of <i>Eucalyptus crebra</i> and <i>Eucalyptus maluccana</i> relate to <i>Central Hunter Grey Box – Ironbark Woodland</i>, recently listed as a Critically Endangered Ecological Community under the Commonwealth's <i>Environment Protection and Biodiversity Conservation Act 1999</i>. The Department notes that these patches are small and highly unlikely to be disturbed during ground works. It is also noted that riparian River Oak vegetation along Bowmans Creek probably relates to <i>River-Flat Eucalypt Forest on Coastal Floodplains Endangered Ecological Community</i>, listed under the <i>Threatened Species Conservation Act 1995</i>. However, the lack of eucalypts and dominance by <i>Casuarina</i> precludes this vegetation as falling within the formal listing of this community. The proposed pipeline crosses two areas of riparian habitat including Foy Brook and Bowmans Creek. Both creeks have existing metal bridge crossings which the pipeline is proposed to traverse. This would generally avoid disturbance to riparian habitats within the creeks. However, construction of the pipeline may still require clearing several River Oaks. OEHL recommended that Glencore plants 10 River Oak trees along the bank of Bowmans Creek for each River Oak removed during construction of the pipeline. Glencore's RTS estimated that approximately 10 semi-mature River Oak trees may be impacted and committed to replant 100 individuals of this species in a location on Bowmans Creek deemed suitable by a qualified ecologist. The proposed pipeline would be constructed close to three farm dams, which may impact upon movement of fauna between ponds. Glencore has committed to either elevating or burying the pipeline for short distances around the three dams to allow for terrestrial faunal movement. The Department is satisfied that, with implementation of these management measures and subject to existing and recommended conditions of consent/approval, the impacts of the proposed modification can be appropriately managed and mitigated. 	The Department supports the nominated ratio of replanting 10 River Oak individuals for every one removed. The Department notes the commitment from Glencore to plant 100 individual River Oaks. If more than 10 River Oaks are removed during construction, then Glencore should be required to replant in accordance with the 10:1 ratio. The Department has recommended a condition to this effect.
Aboriginal Heritage	<ul style="list-style-type: none"> An Aboriginal archaeological due diligence assessment was undertaken by OzArk Environmental and Heritage Management. A search of OEHL's Aboriginal Heritage Information Management System (AHIMS) returned 28 records for Aboriginal heritage within 100 m of the proposed modification area. Three of these sites were recorded as extant, of which two (Nardell N2 and Nardell N4) are stone artefact scatters and are fenced, and the other (Rav East 25) is an isolated find located approximately 70 m from proposed impacts. During inspections, no new sites of Aboriginal cultural heritage were recorded. However, two areas of potential archaeological 	No additional conditions necessary.

Issue	Consideration and Assessment	Recommendation
	<p>sensitivity (Sensitive Area 1 and Sensitive Area 2) were recorded adjacent to the proposed pipeline route.</p> <ul style="list-style-type: none"> Glencore has proposed the following mitigation and management measures: <ul style="list-style-type: none"> erection of fencing along the northern and southern boundaries of the modification area for the length of Sensitive Area 1; erection of fencing along the northern boundary of the modification area for the length of Sensitive Area 2; ensuring existing fences are visible and intact; erecting signage at regular intervals around the existing fenced sites to identify that access to these areas is restricted; and including information about the sensitivity of these areas and relevant restrictions in workforce inductions. The Department and OEH are satisfied with the proposed mitigation and management measures. Furthermore, the Department is satisfied that potential impacts to Aboriginal objects from the proposal would be appropriately managed under existing Aboriginal Cultural Heritage Management Plans (ACHMPs). The existing ACHMPs would be updated to include the proposed modification area. 	
<i>Historic Heritage</i>	<ul style="list-style-type: none"> The proposed modification is relatively close to three items of historical heritage. The Ravensworth Homestead is located 2 km from the West Pit Void at Ravensworth East and approximately 700 m from the proposed pipeline route. Heritage Site HH23 is within 1 km of the proposed pipeline. At these distances, the Department is satisfied that disturbance is unlikely. The Chain of Ponds Inn is within 65 m of the proposed pipeline. Current conditions of consent for Liddell Colliery require blasting to not cause loss of heritage value and structural integrity of this heritage item. Glencore proposes to avoid impacts to the Inn with ongoing monitoring and stabilisation works if required. The Department is satisfied that these measures would ensure that heritage values are maintained. 	No additional conditions necessary.
<i>Air Quality & Noise</i>	<ul style="list-style-type: none"> Some air quality and noise impacts may result from construction of the pipeline. However, the modifications are not expected to materially change the three mine's approved air quality and noise impacts. The Department considers that existing conditions of approval, including preparation and implementation of Noise and Air Quality Management Plans, are suitable measures to manage potential air quality and noise impacts. 	No additional conditions necessary.
<i>Visual and Lighting</i>	<ul style="list-style-type: none"> The proposed pipeline would mostly follow an existing easement that contains a pipeline and conveyor. The local visual landscape is already dominated by mining and power generation industries. Due to the low lying nature of the proposed pipeline and the proposed mitigation measures, no additional significant visual impacts are likely to occur. The existing consents/approvals contain requirements for Glencore to implement all reasonable and feasible measures to mitigate visual and off-site lighting impacts. Glencore has proposed to position infrastructure where practicable to maximise shielding by topographical features, fix external lights below the horizontal and colour all buildings potentially visible to the public in suitable natural tones. The Department is satisfied with these proposed measures. 	No additional conditions necessary.
<i>Rehabilitation</i>	<ul style="list-style-type: none"> The proposed modification would not increase the overall amount of tailings emplaced at the West Pit or Narama Voids and there would be no changes to the approved final landform. The Department notes that the proposed modification aims to improve rehabilitation outcomes by allowing consolidated tailings emplacement areas to be decommissioned and rehabilitated in an orderly sequence rather than having numerous smaller tailings areas across the GRA. 	No additional conditions necessary.

6. RECOMMENDED CONDITIONS

The Department has drafted three recommended notices of modification (see **Appendix D**) and consolidated versions of consent/approval as it is proposed to be modified (see **Appendix E**).

Glencore does not object to the recommended conditions.

7. CONCLUSION

The Department has assessed the merits of the proposed modification in accordance with the requirements of the EP&A Act. This assessment has shown that, with Glencore's proposed mitigation measures, implementation of minor amendments to existing conditions and continued implementation of existing management plans, the proposed modifications can be carried out with minimal environmental impact.


This modification would see sequential filling of already approved tailings emplacement areas and reduce the need for additional tailings facilities at Glencore mines in the GRA. Strategic tailings disposal activities would result in operational savings while also achieving better environmental outcomes.


The Department is therefore satisfied that the proposed modifications are in the public interest and should be approved, subject to conditions.

8. RECOMMENDATION

It is recommended that the Director, Resource Assessments, as delegate of the Minister:

- **considers** the findings and recommendations of this report;
- **determines** that the modifications are within the scope of section 75W of the EP&A Act;
- **approves** the modification applications, under section 75W, subject to conditions; and
- **signs** the notice of modifications at **Appendix D**.

 16/02/2016
Jessie Evans
A/Team Leader
Resource Assessments


Howard Reed
Director
Resource Assessments
16.2.16

APPENDIX A – ENVIRONMENTAL ASSESSMENT

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APPENDIX B – SUBMISSIONS

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APPENDIX C – RESPONSE TO SUBMISSIONS

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APPENDIX D – NOTICES OF MODIFICATION

APPENDIX E – CONSOLIDATED CONSENTS