



GLENCORE

LENDELL CONTINUED OPERATIONS PROJECT

Response to Environmental Defenders Office
(EDO) Submissions to the IPC

FINAL

April 2022

GLENCORE

LENDELL CONTINUED OPERATIONS PROJECT

Response to Environmental Defenders Office (EDO)
Submissions to the IPC

FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Glencore

Project Director: David Holmes
Project Manager: Bridie McWhirter
Report No. 4166/R33
Date: April 2022



QMS Certification Services

This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	D. Holmes	04 April 2022	B. Crossley	04 April 2022

Table of Contents

Introduction and Overview	1
References	9

Attachments

Attachment 1	ACHM Response
Attachment 2	OzArk Response
Attachment 3	Section 8.2.4 of the ACHAR - Recommendations
Attachment 4	Ashurst Response
Attachment 5	Feasibility of the Intact Move Option - Mammoth Movers
Attachment 6	Groundwater Response
Attachment 7	Climate Change Response
Attachment 8	Land Use Transition Response
Attachment 9	Economics Response

Introduction and Overview

During the Independent Planning Commission (IPC) Public Hearing for the Glendell Continued Operations Project (the Project) held on 21 March 2022, presentations were given by experts engaged by the Environmental Defender's Office (EDO) on behalf of the Plains Clan of the Wonnarua People (PCWP) including:

- Neale Draper
- Mark Seymour
- Steven Pells
- Penny Sackett
- Liam Phelan
- Alistair Davey.

This response addresses the matters raised by these experts listed above (EDO Experts) in their presentations and subsequent written submissions. It is noted that while Mark Seymour did not provide a written submission, we respond to his oral submission from the transcript of the hearing.

It is also noted that there is crossover between the matters raised by these EDO Experts, and addressed in this response, and issues raised in other submissions received by the IPC. To avoid repetition and duplication, we have attempted not to rehash issues that we have already covered in previous project documentation. Nevertheless, in order to coherently respond to the EDO Expert's submissions, some of those issues addressed in previous Glencore responses are covered by the key themes addressed in this response. We request that all of Glencore's responses to IPC submissions be read and considered collectively.

We do not consider that the responses provided in this document provide any new evidentiary material for consideration by the IPC.

A high level summary of the information provided in the Attachments, is provided below.

HERITAGE

The Neale Draper submission dated 21 March 2022 (Draper Submission) relates to the assessment of Aboriginal cultural heritage values for the Project. Dr Shaun Canning, ACHM, who prepared the ACHAR for the Project, has provided a response to these issues, provided as **Attachment 1**. Further, the Draper Submission makes claims that 'numerous conflict graves and reprisals with accompanying fatalities in most places took place on the Ravensworth Estate...' (page 13). Ben Churcher, Principal Archaeologist at OzArk, undertook the Aboriginal Archaeological Impact Assessment (AAIA) for the Project, rejects these claims in his response provided in **Attachment 2**.

In summary, the responses from Dr Canning and Mr Churcher, reinforce that:

- Extensive survey effort and assessment has been undertaken in the Project area and surrounds over the course of many years. For this Project, exhaustive historical research and extensive archaeological investigations, along with a long program of involvement of the 32 Registered Aboriginal Parties (RAPs), has led to a comprehensive ACHA process which not only meets all relevant guidelines but is also considered best practice.
- The Draper submission for the Plains Clans of the Wonnarua People (PCWP) for GCOP, presents the views of just 1 of the 32 RAPs, representing a small sub-section of the broader Wonnarua community – views which are categorically unsupported by the hundreds of other Wonnarua people represented and consulted via the Registered Aboriginal Party process throughout the current and previous processes.
- Despite claims to the contrary, there has been no credible historical or scientific evidence of any kind presented to support the contention that there are Aboriginal massacre sites or associated unmarked graves at Ravensworth Homestead and the surrounding estate. Further,
 - At no time did any participant in the Glendell ACHA process (other than PCWP) raise any purported massacre site(s) on Ravensworth Estate as being of specific concern.
 - Representatives of the PCWP, including Mr Scott Franks when surveying landforms only 500 metres south of Ravensworth Homestead (within Ravensworth Estate), never mentioned the possibility of burials during the archaeological survey or the test excavation program
 - OzArk advise that this claim is not supported by any available evidence and it is extremely unlikely that any grave exists in the Project Area due to the extensive survey completed in the Ravensworth Estate since the 1970s, with no evidence of burials having been recorded.
 - In 2013, as part of the assessment of the adjoining Mt Owen Continued Operations Project, the PCWP's own culture values report (Cotter (2013) specifically states that the purported reprisal massacre of Scott and his party was likely to have occurred at some distance from the Ravensworth Estate and that it is *'unlikely that the immediate area nor its surrounds constitute an Aboriginal massacre site that could be associated with this event'*.
 - No subsequent physical or historical evidence has come to light since 2013, relevant to this position. Yet, only a few years later in Draper's (2020) PWCP report, views to the contrary are presented.
 - Dr Canning also notes that *'Draper's (2020) PCWP report is also puzzling in that it records the events associated with the violence we are concerned with as commencing at the 'Pocket' below Mt Arthur and spreading to Ravensworth from there, rather than the other way around (Draper, 2020:40).'*
- Heritage NSW provided advice to the DPE in late October 2020, as part of their assessment of the EIS and Response to Submissions, specifically stated:
 - 'while there is historical evidence of conflict between the Wonnarua and the European settlers on several local properties along the Hunter River, Bowmans Creek and Fal Brook (Glennies Creek) inside and outside of the GCOP SSD-9349 project area (ACHM 2020, Draper 2020, Dunn 2019 and PCWP 2020), there is no material evidence to show that the current Ravensworth Homestead itself, which was built in 1832, was specifically the site of such conflict' (Dunn 2019). And importantly, Heritage NSW concluded that it was:

- ‘...satisfied that the significance assessment of the Aboriginal cultural heritage values of the project area have been adequately assessed, as well as management measures to mitigate any potential impacts on those values’.
- ‘...satisfied that the significance assessment of the archaeological or scientific values of the project area have been adequately assessed and are consistent with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2010) as well as any potential impacts on those values’, and
- ‘.... satisfied that consultation with the Aboriginal community has been undertaken in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010. HNSW notes that GCOP have provided multiple opportunities for RAP involvement on all aspects of the project and consultation regarding their Aboriginal cultural values for the project area...’.

It is also noted that proposed management measures have been provided in Section 8.2.4 of the Revised ACHAR. These measures were developed from the management and conservation recommendations proposed by the RAPs and Knowledge Holder groups during the ACHA undertaken for the Project. These recommendations were subject to two rounds of consultation. The Project has drawn out consistent themes from the RAPs and have developed measures to be undertaken in the event of approval, which address these key themes. **Attachment 3** contains a copy of the recommendations contained in Section 8.2.4 of the Revised ACHAR (ACHM, 2020). The themes and commitments of these recommendations include:

- Education
 - Existing commitments to education such as the Singleton Clontarf Academy
- Employment
 - A commitment to assisting a land management traineeship
 - At the time of ACHAR development, Glencore were developing the NSW Indigenous Employment Pathways Program – this program is now in place and in its second year in the Hunter Valley.
- Land Management
 - Provision of opportunities to tender for land management works at the site
- Bringing People Together
 - Funding for Programs around bringing people and community together and cultural experiences
- Cultural Awareness & Education
 - Funding regarding: “Glendell offer to assist to develop interactive and interpretive materials documenting the early history between Aboriginal people and European settlers in the local area. Materials to be developed could include timelines, maps, oral recordings and re-enactments, and could be provided to schools and libraries for use as an educational/general interest resource. Alternatively, these could be kept as community resources package”
 - Funding regarding: “During the ACHAR preparation, RAPs and Knowledge Holders raised values regarding a number of culturally sensitive places and sites in the broader region. Glendell would provide support to local Aboriginal groups seeking to undertake conservation projects at these

places and sites in the region, in consultation with the applicable Government bodies and landholders.”

Attachment 4 provides a response to the presentation provided by Mark Seymour, instructed by the Environmental Defenders Office acting for Mr Scott Franks and Mr Robert Lester, during the second day of the IPC Public Hearing. The response in **Attachment 4** was prepared by Ashurst Lawyers on behalf of Glencore and provides thorough advice on the matters raised by Mr Seymour, including:

- Whilst the ICOMOS Burra Charter is appropriately considered in the ACHAR, it is not legally sound for the IPC to adopt the ICOMOS Burra Charter as the ‘proper analytical framework’ for the determination of the Project.
- It is inconsistent with relevant NSW legislation to claim that places of cultural heritage significance must be conserved under the Burra Charter, and it is, therefore, unacceptable for the proposed development to materially impact such places. In fact, the relevant legislation clearly recognises that approved State significant development projects may have material impacts on a place or places of cultural heritage significance and provides for those impacts to be managed in accordance with the development consent granted under the EP&A Act.
- Further response in relation to matters of legal argument raised in Mr Seymour’s submission.

Further we provide the following clarification in relation to matters regarding the proposed relocation of the Ravensworth Homestead.

Proposed Relocation of Ravensworth Homestead - Non-building items to be salvaged

A detailed schedule of non-building items (e.g. trees, plants and landscape materials) for salvage and working into the relocation proposal is provided in the document ‘Vegetation and Landscape Feature Relocation Schedule’ prepared by Geoffrey Britton and LSJ (22 October 2019) and was included as Appendix E of the Ravensworth Homestead Relocation Option Identification and Assessment Report, which is Appendix 23f of Appendix 23 Heritage Assessment. The report identifies plants located adjacent to and within the immediate surrounds of the Homestead that are to be either relocated, first to a temporary nursery and then planted out at the new relocation site, or propagated so the genetic stock is not lost. In addition, site features with historic links to the colonial period of the Homestead are to be salvaged and relocated to the new recipient site.

For the Ravensworth Farm site, there are a number of mature plantings that relate to the history of the property that are proposed to be salvaged and incorporated into the proposed landscape scheme at this location. Proposed landscape drawings prepared by Geoffrey Britton for the Ravensworth Farm and Broke relocation options are provided in Appendix E of Appendix 23g and 23h respectively.

Ranking of significance before and after relocation

LSJ (2019) have provided an opinion, that mitigation of loss of heritage significance will vary dependent on the relocation option selected. According to LSJ, relocation to Ravensworth Farm provides the most mitigation from a heritage perspective, as this relocation option puts the buildings in an appropriate setting, involves the least damage to the significant fabric and provides the most likelihood of ongoing sympathetic use, treatment and maintenance. This is preferred by LSJ as compared to relocation to Broke Village which, in their opinion, provides less avenue for mitigation.

Table 4.3 of the Response to Submissions Part B Report provides LSJ's opinion of the significance of the Ravensworth Homestead Complex group of buildings before and after relocation, considering both relocation to Ravensworth Farm and Broke Village. This analysis is discussed further by LSJ in Section 2.6 of Appendix 2 of the RTS Part B Report. Following relocation, it would be the role of the Heritage Council and Heritage NSW to assess the Homestead against their significance criteria in order to determine whether it would be eligible for State or local listing or otherwise. We note that LSJ are of the view that the relocated Ravensworth Homestead has strong potential to be assessed at a State level significance.

Feasibility of the Intact Move Option

We note the queries raised by the IPC in regard to the feasibility of the intact move methodology proposed for the Ravensworth Farm option and specifically in relation to the ability to successfully apply this methodology to the moving of Ravensworth Homestead. These matters have been addressed in both the EIS and information provided to DPE as part of the assessment process. Mammoth Movers have prepared a response addressing key feasibility considerations. The Mammoth Movers response is provided in **Attachment 5** and includes an outline of previous intact moves completed, the experience of the team that would undertake the intact move, diligence completed to assess the viability of moving the buildings using the intact move methodology, and mechanisms in place for monitoring the behaviour of the buildings and equipment during the move.

Long Term Preservation of Homestead

Glencore believes that the most effective way to preserve the Homestead in the long term is through its relocation to either Ravensworth Farm or Broke Village, with subsequent repurposing of the buildings to suit the proposed end use.

Relocation of the buildings provides an opportunity to place the buildings on new engineered footings and undertake other structural remediation works and appropriate adaptation works that would otherwise not be undertaken if the buildings were to remain in-situ. These works would further extend the life of the buildings long into the future.

Relocation of the Homestead would enable the buildings to have a life into the foreseeable future and, depending on the relocation option determined, would make public access much more likely, and thus provide an on-going community benefit. The relocation could be viewed as providing a community value simply through extending the life of the buildings and providing greater certainty for the future use and maintenance of the buildings compared to the Homestead remaining in-situ.

For example, under a local intact move (Ravensworth Farm option), the Homestead would initially be integrated into the Glendell mine and used as an administration facility. A new owner would be found post-mining and the Homestead could be attached to remaining Bowmans Creek flats and other useful land making a potentially viable agricultural unit. Alternatively, the ready access from the Highway also provides for tourism, rural residential living, or other alternative land uses. This relocation option provides an opportunity to retain the majority of heritage attributes and values and landscape context.

For the Broke Village option, the Homestead would form a needed 'village square' into the foreseeable future and offer a community-based use that is publicly accessible.

There are significant disadvantages of leaving the Homestead in its current location including the imposition of inefficiencies on any future mining operation, the sterilisation of coal reserves and loss of significant revenue for the state of NSW, the reduction in economic benefits to the regional and state economies, the loss of employment opportunities for up to 690 personnel and the reduced revenue for mining support businesses in addition to the ongoing lack of public access and the questionable postmining future for the Homestead.

The Homestead is already in a landscape associated with mining. If the Homestead remains in-situ and without substantial investment in restoration, renovation and repurposing, it is reasonable to conclude that it would probably not attract a new owner. Hence, the buildings would likely remain unused in perpetuity.

Whilst relocating the Homestead does incur the loss of some heritage values, the proposed mitigation measures are considered first class and would maximise the retention of many heritage values depending on the relocation option finally determined, and the relocation provides far greater certainty for the future use and maintenance of the Homestead.

Finally, the relocation can be viewed as providing a community benefit simply through extending the life of these heritage buildings, which could be under threat of decay should they remain in-situ.

GROUNDWATER

The submission by Dr Steven Pells on behalf of the EDO dated 28 March 2022 (Dr Pells Submission) raises a number of matters regarding the groundwater impacts of the Project including model design, mapping of highly productive groundwater and the assessment of cumulative impacts.

Attachment 6 of this report contains a more detailed response to each of the matters raised in Dr Pells Submission.

In summary, each of the matters raised by Dr Pells are addressed in either the Groundwater Impact Assessment prepared for the Project, The Assessment of Commonwealth Matters Report and/or the Response to the Independent Expert Scientific Committee Advice. Additionally, it is noted that the GWIA was peer reviewed by Dr Noel Merrick and this Peer Review report is included as Appendix B of the GWIA. The assessment has been assessed by the Independent Expert Scientific Committee and NSW Department of Planning, Industry and Environment – Water Branch and the findings of these assessments have been considered by the DPIE in their Assessment Report for the Project.

CLIMATE CHANGE

The Submission by Dr Penny Sackett on behalf of the EDO dated 28 March 2022 (Dr Sackett Submission) makes a number of claims regarding the Project's predicted climate change impacts and the assessment of these issues.

The issues raised in Sections 8 and 9 of the Dr Sackett Submission have largely been dealt with in Section 2.0 and 3.9 of the Response to Submissions Made to IPC Public Hearing (Umwelt 2022a), the Response to IPC Questions dated March 2022 (Umwelt 2022b) and various aspects of the EIS, Response to Submissions Report Part A and other material provided to the Department of Planning and Environment (DPE) throughout the assessment processes. **Attachment 7** of this report contains further details regarding specific issues that have been addressed in the existing documentation.

Due to the nature of the Submissions made by Dr Sackett, additional discussion regarding the following matters are provided:

- Appropriateness of the use of carbon budget in decisions regarding the approval of individual projects; and
- The application of the Precautionary Principle and Inter-generational equity considerations in relation to climate change impacts.

In relation to both of the above issues, the NSW Government has developed a comprehensive climate change policy framework which specifically contemplates the ongoing role that coal mining has in the NSW economy. As detailed in Section 2.2 of the Response to Submissions Made to IPC Public Hearing, the Project is entirely consistent with NSW climate change policies including the NSW Government's Net Zero Plan.

Dr Sackett's Submission also asserted that the Project's Scope 3 greenhouse emissions should be considered in the cost benefit analysis (CBA) of the Project. This issue is addressed in **Attachment 7** of this Response. Scope 3 greenhouse gas emissions are explicitly excluded from being required to be considered in the CBA by the Guidelines for the Economic Assessment of Mining and Coal Seam Gas proposals (NSW Government (2015) (Economic Assessment Guidelines) and the accompanying Technical Notes Supporting the Economic Assessment Guidelines (NSW Government, 2018) (Technical Notes). This analysis revealed the Project would still deliver significant economic benefits to the State (in excess of \$395 million in NPV terms) even if Scope 3 emissions costs were included in the CBA assessment.

It is important to recognise that the Project does not create the demand for the coal mined by the Project. That is, if the coal is not mined at the Glendell Mine, the demand for this product would be met through coal mined elsewhere which would still be burnt and would still produce CO₂ emissions with the same corresponding climate change impacts to NSW, or arguably more emissions depending on the quality of the alternative coal source. In this regard, the Project's net increase in climate change related costs (either globally or to NSW) relative to the base case of the project not proceeding are zero. It is primarily for this reason that Scope 3 emissions are, appropriately, excluded from consideration in the CBA required by the Economic Assessment Guidelines.

LAND USE TRANSITION

The Liam Phelan submission dated 28 March 2022 (Phelan Submission) raises concern in relation to workforce transition of coal industry jobs in the Hunter region, and the potential impacts of continuing mining leaving the workforce and their local communities vulnerable due to an increasing uncertain future. Clarification regarding these matters is provided in **Attachment 8**.

ECONOMICS

Dr Pavey's submission was primarily directed to the consideration of whether the Project would be viable under different coal price scenarios, including 2021 World Bank forecasts. Ernst & Young have prepared a response to this issue which is enclosed as **Attachment 9**.

As detailed in the Response to Minecraft Report dated April 2021 and the EY Addendum C, the Project is estimated to provide a net benefit to NSW of \$1,121.3 million in NPV¹ terms (or \$2,654.9 million in undiscounted terms). The estimated net benefit is comprised of \$369.4 million and \$754.3 million in potential direct and indirect benefits respectively. As described in **Attachment 9**, the predicted NPV of the Project remains significant even under the most conservative assumptions regarding indirect benefits and greenhouse gas costs.

¹ NPV figures reported are in 2019 Australian dollars based on a 7 per cent real discount rate (unless otherwise stated), as required by the Guidelines.

References

ACHM, 2020. Glendell Continued Operations Project. Revised Aboriginal Cultural Heritage Assessment Report.

Cotter, 2013. Beginning & Belonging: The traditional, historical & contemporary cultural landscape of the Mount Owen Continued Operations Project Area: A Plains Clans of the Wonnarua Peoples Perspective.

LSJ, 2019. Glendell Mine Extension Ravensworth, NSW Statement of Heritage Impact

NSW Government, 2015. Guidelines for the Economic Assessment of Mining and Coal Seam Gas proposals, December 2015.

NSW Government (2018) Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals, April 2018.

<https://majorprojects.accelo.com/public/62c0556c0389a357fbc1f3aac4730331/TAI%202015%20NSW%20Mining%20CBA%20guidelines%20submission%20FINAL.pdf>

Umwelt, 2022a. Glendell Continued Operations Project Response to Submissions made to IPC Public Hearing.

Umwelt, 2022b. Glendell Continued Operations Project Response to IPC Questions.



ATTACHMENT 1

ACHM Response

30 March 2022

Shane Scott
Project Manager
Glencore

Dear Shane,

RE: Aboriginal Cultural Heritage Assessment Completeness

I write to provide some closing comments regarding the completeness of the Aboriginal Cultural Heritage Assessment (ACHA) process in relation to the Glendell Continued Operations Project, and address some comments made by Neale Draper at the recent Independent Planning Commission (IPC) Public Hearing on 21 March 2022 and his subsequent submission as an EDO Expert dated 21 March 2022.

I make the comments and observations below based on my relevant expertise and over 20 years of experience. I hold a PhD in Australian Prehistory along with undergraduate qualification in archaeology, anthropology, and heritage management. I am an expert member of the International Council on Monuments and Sites (ICOMOS) International Committee on Archaeological Heritage Management (ICAHM), a Fellow of the Australian Anthropological Society (F.AAS), a full member of Australia ICOMOS (M.ICOMOS), a full member of the Australian Association of Consulting Archaeologists (M.ACCAI), a Certified Environmental Practitioner (CenvP) through the Environment Institute of Australia and New Zealand (EIANZ) and an Honorary Research Associate of the archaeology program at La Trobe University.

At this stage of proceedings, I see no value in engaging in 'tit for tat' rebuttals of every aspect of Draper's broadly unsupported work, but rather I would specifically draw your attention to the following crucial points that warrant strong consideration by the IPC:

NSW Aboriginal Cultural Heritage Consultation Requirements

Over a period of some 10 years, I have been fortunate to lead the development of several ACHA's for various Glencore Projects in the Hunter Valley (most notably the Mount Owen Continued Operations (MOCO) completed in 2013 and the Glendell Continued Operations Project (GCOP)). The MOCO and GCOP footprints both encompass the former Ravensworth Estate.

At every step, the ACHA's developed by ACHM utilised the Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010) as the minimum standard. Throughout the assessment processes, the consultation requirements have been continually and voluntarily exceeded by the proponent. For example, additional time beyond any recommended 28-day consultation periods has been provided to any Registered Aboriginal Party on request.

In Draper's work for the Plains Clans of the Wonnarua People for GCOP, he presents the views of one small sub-section of the broader Wonnarua community – views which are categorically unsupported by the hundreds of other Wonnarua people represented and consulted via the Registered Aboriginal Party process throughout the MOCO and GCOP ACHA process. It is somewhat ironic that Draper criticises the ACHA

process we have followed as being deficient and with fault, while only consulting with one very small subset of the broader Wonnarua community.

Reputed Massacres and the work of Dr Mark Dunn

Despite claims to the contrary, there has been no credible historical or scientific evidence of any kind presented to support the contention that there are Aboriginal massacre sites or associated unmarked graves at Ravensworth Homestead and surrounding estate.

The impeccably researched historical work of Dr Mark Dunn and the extensive and rigorous archaeological investigations conducted by both Casey and Lowe and OzArk leave no room for doubt. The lack of physical or historical evidence, combined with the lack of support for the presence of burials within the project area from the broader Aboriginal community engaged in the ACHA is absolutely damning.

All concerned should understand presenting hearsay as fact does not make it so.

Breadth of Aboriginal Community Consultation

The ACHA consultation processes followed for the Glendell Continued Operations Project (and the Mount Owen project before it) were conducted in a wholly inclusive and non-confrontational manner. RAPs were consulted in a variety of ways, at their discretion and choice. These methods included face-to-face meetings, workshops, emails, letters, and phone calls over several years.

The project team deliberately and methodically worked to ensure that no one set of values or views was privileged above any other. The ACHA for GCOP had 32 Registered Aboriginal Parties (RAP's) including the Plains Clans of the Wonnarua People. The RAPs were further categorised as being made up of either individuals or one of the two knowledge holder groups that had registered on behalf of their constituent members as a corporate entity (including PCWP and Wonnarua Nation Aboriginal Corporation as single RAP registrations each). By consulting broadly and without favour, the GCOP Aboriginal cultural heritage assessment process captured a wide range of values and opinions from both small numbers of individuals (i.e., PCWP) and organisations with memberships in the hundreds (i.e., Wonnarua Nation Aboriginal Corporation reports some 500 members – see attachment).

At no time did any participant in the ACHA process (other than PCWP) raise any known historical conflict event or purported massacre site(s) on Ravensworth Estate as being of specific concern. In fact, the opposite is the case.

For example, in August 2020, the Chairman of the Wonnarua Nation Aboriginal Corporation (Mr Laurie Perry) wrote to the Project in support of the ACHA process and commented that:

“The Nation acknowledges that there were a number of skirmishes between our ancestors and white settlers throughout the Hunter Valley. We do not believe that there was anything more significant about the Project Area than other places. If there were massacres at Ravensworth, our genuine traditional ancestral structures would have known this, and we would object to any proposal to mine”.

Perry concluded that:

The PCWP report is inaccurate, contains no real local Aboriginal oral history that we have from our ancestors and elders living today.

In my considerable experience working with Aboriginal communities across Australia, I would consider it to be highly irregular for something as profound as massacre sites to be the cause of fundamental disagreement of facts between Aboriginal groups. Political differences or personality clashes would usually be put aside to protect any significant place which was universally known and accepted to be so.

That is simply not the case at Ravensworth Estate, where the views of the RAPs diverge completely.

Where there is such fundamental disagreement of fact, the weight of opinion and knowledge of the many (the individual RAP's and the large numbers represented by WNAC) should outweigh the scientifically and historically unsubstantiated views of a few (the members of the smaller PCWP group).

Shifting Views

The two separate cultural values reports written by the PCWP, at the invitation of Glencore, and presented in firstly the Mt Owen Continued Operations Project and then later the Glendell Continued Operations Project ACHA, are essentially the same report repurposed from the former to the latter project.

There is no mention of any massacres on the Ravensworth Estate in either the MOCO or GCOP submissions written by PCWP. In fact, on Page 56 of the 2013 iteration of the PCWP cultural values report for the MOCO project it specifically states that the purported reprisal massacre of Scott and his party was likely to have occurred at some distance to the Ravensworth Estate. Cotter (2013) for the PCWP states that:

"The PCWP acknowledge that the above-described distance of 20 miles from Alcorn's Hut is well beyond the Mt Owen Project area and it is unlikely that the immediate area nor its surrounds constitute an Aboriginal massacre site that could be associated with this event. Whilst others (e.g., Gollan, 1987) have intimated that the reprisal shootings undertaken by Scott and his party of Mounted Police are associated with Mt Arthur to the west, the ready and accessible route into the mountains provided by Glennies Creek makes it equally probable that the deaths of the Aboriginals who attacked Alcorn's Hut occurred somewhere in the mountainous terrain of bordering Mt Royal" (Cotter, 2013:56).

No subsequent physical or historical evidence has come to light since 2013 which would materially change this position. Assuming that the facts were known and understood by the main informant, it is inconceivable to me that an issue as important and culturally significant as a purported massacre at Ravensworth Estate was not documented fully by PCWP in 2013. The opposite is the case – the purported massacre was categorically reported as having happened elsewhere.

How is it that only a few short years later, this non-event in 2013 has evolved into a major issue in the 2020 reporting, when it is the same informants involved in both PCWP cultural values reports? Where is the new evidence that shifts the focus of the alleged massacre from over *"20 miles from Alcorn's Hut"* back to the Project Area?

Draper's (2020) PCWP report is also puzzling in that it records the events associated with the violence we are concerned with as commencing at the 'Pocket' below Mt Arthur and spreading to Ravensworth from there, rather than the other way around (Draper, 2020:40).

The same person was the main informant in 2013 and 2020.

It is hard not to conclude that the PCWP accounts of the presence of massacre sites and the significance of Ravensworth Estate has evolved the longer the GCOP project assessment has been running and is at best factually inconsistent.

Ethnography or Advocacy

Draper has asserted that the Glendell ACHA consultation process has been insufficient and has been deficient in both a lack of adherence to the guidelines and a failure of wider professional practice (i.e., not following the Burra Charter). Draper's intent is to show that the ACHA process has somehow *'missed'* the fundamental issues (the existence of massacre sites) and that his reporting highlights the significant matters that everyone else has failed to uncover.

However, it is disappointing that Draper has failed to present an account of Wonnarua heritage or history with any ethnographic objectivity. The material presented by Draper is an almost verbatim account of the

opinions of one small group of informants (PCWP) without objective reference to, or interrogation of the broader ethnographic and historical literature relating to the Project Area. The material written by Draper weaves together the narrative in such a manner that has us feeling that once it is on paper, *ipso facto*, it is the only version which must be accepted as true. Draper's work is not an objective documentation of the facts as presented. It is simply advocacy for the position of a client, advocating the views of one group of Aboriginal informants above all others in a highly contentious political landscape.

Heritage NSW Advice to DPIE

In late October 2020, Dr Samantha Higgs (Senior Team Leader, Aboriginal Heritage Regulation Branch – North, Heritage NSW) wrote to the Department of Planning, Industry and Environment (DPIE) (letter attached) in response to the referral of documents for the Glendell Project. Heritage NSW reviewed the following Aboriginal heritage information 'response to submission' documents:

- Glendell Continued Operations Project Response to Submissions Part B report prepared by Umwelt, dated 2 September 2020 (redacted version); and
- Glendell Continued Operations Project Aboriginal Cultural Heritage Report (ACHAR) associated updates prepared by ACHM 2 September 2020;
- Glendell Aboriginal Cultural Values Assessment Report prepared by Tocomwall Pty Ltd on behalf of the Plains Clans of the Wonnarua People (PCWP) dated 25 June 2020;
- Glencore Glendell Continued Operations Coal Project, Aboriginal Cultural Heritage Assessment Anthropology Report on PCWP Cultural Values prepared by Associate Professor Neale Draper dated 12 June 2020 and appended to the PCWP report;
- Ravensworth Contact History prepared by Dr Mark Dunn Historian dated August 2019; and
- Correspondence from Dr Maria Cotter of Armidale dated 14 February 2020 providing additional commentary.

Heritage NSW specifically commented that *'while there is historical evidence of conflict between the Wonnarua and the European settlers on several local properties along the Hunter River, Bowmans Creek and Fal Brook (Glennies Creek) inside and outside of the GCOP SSD-9349 project area (ACHM 2020, Draper 2020, Dunn 2019 and PCWP 2020), there is no material evidence to show that the current Ravensworth Homestead itself, which was built in 1832, was specifically the site of such conflict' (Dunn 2019).*

Importantly, Heritage NSW concluded that it was

1. *'...satisfied that the significance assessment of the Aboriginal cultural heritage values of the project area have been adequately assessed, as well as management measures to mitigate any potential impacts on those values'.*
2. *'...satisfied that the significance assessment of the archaeological or scientific values of the project area have been adequately assessed and are consistent with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2010) as well as any potential impacts on those values', and*
3. *'... satisfied that consultation with the Aboriginal community has been undertaken in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010. HNSW notes that GCOP have provided multiple opportunities for RAP involvement on all aspects of the project and consultation regarding their Aboriginal cultural values for the project area. A search of the Native Title Register on the 30 October 2020 confirmed that Native Title has not been awarded over the proposed GCOP SSD-9349 project area'.*

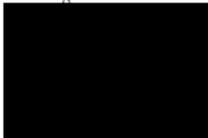
Conclusion

Since 2012, thousands of pages have been written on the Ravensworth Estate and surrounds as components of the Mt Owen and Glendell Continued Operations Projects. Huge quantities of time and money have been expended in attempting to understand the cultural and historical significance of the

project impact areas. No avenue has remained unexplored in the pursuit of an objective assessment of the scientific, historic, and cultural values of the project area. An ACHA process that has had few, if any, parallels in NSW, combined with exhaustive historical research and extensive archaeological excavations has literally left no stone unturned. The wide range of investigations undertaken have been best practice at every turn.

While all concerned with this project have no doubt that frontier violence claimed the lives of countless Aboriginal people in the early days of colonial expansion, we have categorically demonstrated that there is no scientific or historical basis for claims of the existence of burial sites or massacre sites at Ravensworth Estate, nor that Ravensworth Estate was the epicentre of frontier violence at any point in time.

Yours faithfully



Dr Shaun Canning
Managing Director
Australian Cultural Heritage Management (Vic) Pty Ltd
25 Sydney Street, Kilmore, VIC, 3764
Phone: 1300 724 913
Fax: (03) 5781 0860
Web: www.achm.com.au



Wonnarua Nation Aboriginal Corporation
Ground Floor 254 John St Singleton
PO Box 3066, Singleton Delivery Centre NSW 2330
Phone: 02 6571 8595 **Fax:** 02 6571 8551
Mobile: 0412 593 020
Web Site: www.wonnarua.org.au
Email: wonnarua@bigpond.com
ABN: 50 012 829 925

Mr Shaun Canning
ACHM by email
Cc: Shane Scott, Brad Sneddon and Tim Walls at Glencore by email.
Date: 19/08/2020
Re: Glendell Mine ACHA

Dear Shaun,

The Wonnarua Nation Aboriginal Corporation is a registered Aboriginal Corporation with over 500 members across the Upper Hunter Valley, NSW.

WNAC represents descendants of key apical ancestors across the Hunter Valley Region and a far.

We were invited to participate in the Aboriginal Cultural Heritage Assessment you undertook for Glencore's Glendell Continued Operations Project, and we took the opportunity to provide cultural heritage values of the Hunter and in-particular those values of the Project area and nearby vicinity.

We advised Dr Canning of our cultural links to the Hunter, and pointed out how we have established a facility at the former St Clair Mission (Registered Aboriginal Place) in the adjacent Glennies Creek catchment nearby to the Project.

We have commenced developing this place as a resource for community events, including cultural healing and wellbeing events.

We have also received a recent report by the Plains Clan of the Wonnarua People (PCWP) including work by Dr N Draper which identifies PCWP views of historical impacts to Aboriginal heritage in the early 1820s. Please note that the WNAC does not recognise the PCWP, who are not a Native Title Claimant, and only represent a small number of family members of a break-away group, some of whom were previously members of the Nation.

The PCWP report is inaccurate, contains no real local Aboriginal oral history that we have from our ancestors and elders living today.

The Nation acknowledges that there were a number of skirmishes between our ancestors and white settlers throughout the Hunter Valley. We do not believe that there was anything more significant about the Project Area than other places. If there were massacres at Ravensworth, our genuine traditional ancestral structures would have known this, and we would object to any proposal to mine the area. But there were none. The recorded skirmishes were all tragic events for our ancestors, and for us today.

In fact, the destruction of our culture continued from the early colonial settlement times through to the 1950 and 1960s. There are many more significant important places to our membership than Ravensworth.

The St Clair Mission carries stronger associations with the impacts on Aboriginal people caused by the government and settler attacks on our ancestors and the impacts on our culture.

The other key cultural places include Biaime Cave Aboriginal Protected by WNAC, Lizard Rock and Redbournberry Hill a former Aboriginal reserve where our ancestors were forced to live with clear evidence of occupation from noted Wonnarua Historian James Wilson Miller Book "Koori A will to Win". This land is now Aboriginal Protected as well by WNAC.

As such there is a lot of evidence that our community still suffer the pain of this loss of culture and loss of people, which presents itself today in current mental health issues, feelings of loss, lack of confidence, incarceration rates, unemployment, poor literacy and numeracy outcomes and intergenerational trauma etc. Therefore one of our key objectives is to establish programs, aligned with the Federal Government "Close the Gap" targets, that provide cultural healing for Aboriginal people and other mental health and wellbeing initiatives.

We have provided Glencore with outlines of these programs.

We believe that it would be appropriate for Glencore to provide mitigation measures for the Project that support the Nation in partnership to provide these ongoing services to the Aboriginal community, and therefore to address the long term loss of culture to our people across the Hunter Valley.

These include:

- Support for the development and maintenance of WNAC St Clair Mission to hold these cultural and mental health and wellbeing events.
- Support for the WNAC to hold cultural healing and mental health workshops for Aboriginal community members in the Hunter. This work is to be provided by Aboriginal service providers nominated by WNAC.
- Support for workshops for recent young offenders to identify and avoid incarceration.
- Funding for the development of the WNAC trial of a native food plants (bush tucker) supply business. This will include the cultivation of bush tucker produce to sell at local restaurants in the Hunter Valley tourist region and through markets. The objective of this program is to establish a sustainable business and provide long term employment opportunities for Aboriginal youth.

If you have any questions, please contact me by mobile 0412593020

Laurie Perry



CEO Wonnarua Nation Aboriginal Corporation



Our ref: DOC20/695489
Senders ref: SSD- 9349

Mr Joe Fittell
Senior Environmental Assessment Officer
Department of Planning, Industry & Environment

Email: joe.fittell@planning.nsw.gov.au

Dear Mr Fittell,

RE: Glencore, Glendell Continued Operations Project (SSD-9349)

Thank you for your referral dated 25 August 2020 inviting comments from Heritage NSW (HNSW) in relation to the proposed State Significant Development (SSD) at Glencore's Glendell Continued Operations Project SSD-9349 (GCOP SSD-9349) in the Singleton Local Government Area (LGA).

HNSW has reviewed the Aboriginal heritage information response to submissions documents and additional information supplied, including:

- *Glendell Continued Operations Project Response to Submissions Part B* report prepared by Umwelt, dated 2 September 2020 (redacted version); and
- *Glendell Continued Operations Project Aboriginal Cultural Heritage Report* (ACHAR) associated updates prepared by ACHM 2 September 2020;
- *Glendell Aboriginal Cultural Values Assessment Report* prepared by Tocomwall Pty Ltd on behalf of the Plains Clans of the Wonnarua People (PCWP) dated 25 June 2020;
- *Glencore Glendell Continued Operations Coal Project, Aboriginal Cultural Heritage Assessment Anthropology Report on PCWP Cultural Values* prepared by Associate Professor Neale Draper dated 12 June 2020 and appended to the PCWP report;
- *Ravensthorpe Contact History* prepared by Dr Mark Dunn Historian dated August 2019; and
- Correspondence from Dr Maria Cotter of Armidale dated 14 February 2020 providing additional commentary.

HNSW provides its comments and recommendations at Attachment A. If you have any questions, please contact Gillian Goode, Archaeologist at Heritage NSW, on [REDACTED] or gillian.goode@environment.nsw.gov.au.

Yours sincerely

Dr Samantha Higgs
Senior Team Leader
Aboriginal Heritage Regulation Branch - North
Heritage NSW

30 October 2020
Enclosure: Attachment A

Attachment A – HNSW comments and recommendations on Response to Submission and Review of Aboriginal Cultural Values for the GCOP SSD-9349

Previous comments by HNSW (then BCD) were provided in February 2020. BCD noted that consultation with one registered Aboriginal party (RAP) was ongoing and should conclude prior to the preparation of the response to submissions report. The *Glendell Continued Operations Project Response to Submissions Part B* report, prepared by Umwelt dated 2 September 2020 (redacted version), addresses issues in relation to specific heritage issues raised in agency, community and interest group submissions.

HNSW notes that while there is historical evidence of conflict between the Wonnarua and the European settlers on several local properties along the Hunter River, Bowmans Creek and Fal Brook (Glennies Creek) inside and outside of the GCOP SSD-9349 project area (ACHM 2020, Draper 2020, Dunn 2019 and PCWP 2020), there is no material evidence to show that the current Ravensworth Homestead itself, which was built in 1832, was specifically the site of such conflict (Dunn 2019).

The ACHAR notes the location of the Upper Hunter Valley Massacre Site (AHIMS 37-3-0390), is outside of the GCOP SSD-9349 Project Area. Based on their research over the past 15 years, Umwelt concluded that registered site AHIMS 37-3-0390 cannot have been within the area now defined as the Ravensworth Estate (Umwelt 2004 and 2013, in ACHM 2020) nor within the GCOP SSD-9349 Project Area (ACHM 2020). There have been numerous archaeological surveys, surface salvage and excavations conducted across the GCOP SSD-9349 Project Area and surrounding area including test excavation within the Ravensworth Homestead precinct and Ravensworth Estate. No burials or human remains have been recorded within the GCOP SSD-9349 Project Area nor at the Ravensworth Estate or the Ravensworth Homestead area.

However, HNSW further notes that the RAPs consider the local area around Ravensworth, as well as the broader regional area, to be of high cultural significance. Many of the values expressed by RAPs included a sense of loss and longing, expressions of 'connectedness' and 'belonging' to landscapes, waterways, vegetation and animal communities. They expressed strong connection to highly significant places within the local and regional area. The PCWP identify both intangible and tangible for the local Ravensworth area. HNSW notes that the project's direct and indirect impacts will further contribute to the cumulative impacts and loss of Aboriginal cultural heritage values and sites in the local area and the region.

Following review of the provided material HNSW Recommends:

1. Glencore should continue to provide the RAPs with opportunities to be involved in management and mitigation measures associated with Aboriginal cultural values and impacts to Aboriginal cultural heritage.
2. In order to reduce disturbance to archaeologically sensitive areas and to avoid impact to significant Aboriginal sites a no impact buffer area of a minimum of 200 metres should be made either side of Bowmans Creek.
3. All Aboriginal objects within the project area, but outside of the disturbance footprint, should be conserved.

4. Salvage of Aboriginal objects within the disturbance footprint and additional archaeological excavation should be undertaken in consultation with the RAPs as recommended in the ACHM 2020 report.
5. The *Mt Owen Open Cut, Aboriginal Cultural Heritage Management Plan, V4* (XMO SD PLN 0060), 29 May 2018 should be updated to include all Aboriginal sites, cultural values and proposed management actions.
6. HNSW is satisfied that the significance assessment of the Aboriginal cultural heritage values of the project area have been adequately assessed, as well as management measures to mitigate any potential impacts on those values.
7. HNSW is satisfied that the significance assessment of the archaeological or scientific values of the project area have been adequately assessed and are consistent with the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2010) as well as any potential impacts on those values.
8. HNSW is satisfied that consultation with the Aboriginal community has been undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010*. HNSW notes that GCOP have provided multiple opportunities for RAP involvement on all aspects of the project and consultation regarding their Aboriginal cultural values for the project area. A search of the Native Title Register on the 30 October 2020 confirmed that Native Title has not been awarded over the proposed GCOP SSD-9349 project area.



ATTACHMENT 2

OzArk Response



OzArk Environment & Heritage

ABN 59 104 582 354

Dubbo
Queanbeyan
Wollongong
Newcastle

T: 02 6882 0118
enquiry@ozarkehm.com.au
www.ozarkehm.com.au

145 Wingewarra St
PO Box 2069
DUBBO NSW 2830

01 April 2022

Shane Scott

Coal Assets Australia, Glencore

RESPONSE TO IPC SUBMISSION GLENDELL CONTINUED OPERATIONS PROJECT

Dear Shane,

OzArk Environment & Heritage (OzArk) has been asked to provide comment on a specific submission made by Mr Neale Draper to the Independent Planning Commission (IPC) on 21 March 2022 (P-13: Paragraph 20):

Numerous conflict graves and reprisals with accompanying fatalities in most cases took place on the Ravensworth Estate, which had two main roads passing through it and was one of the earliest and largest of such enterprises in the Hunter Valley in the 1820s and the 1830s.

OzArk was engaged to undertake the Aboriginal archaeological impact assessment (OzArk 2019) for the Glendell Continued Operations Project (GCOP) that involved extensive field survey of the project area, as well as a broad ranging test excavation program at several locations within the project area. One of these locations was just outside the perimeter fence to the west of the Ravensworth Homestead (between the homestead and Yorks Creek). Another consultancy, Casey and Lowe Pty Ltd, undertook archaeological excavation within and near the perimeter fence of the homestead, to inform their Historical Archaeological Test Excavation Report and Impact Statement for the Core Estate Lands (November 2019).

The OzArk investigations, and that of Casey and Lowe, recorded no evidence of burials (or indeed any evidence of conflict/skirmishes) in or around the Ravensworth Homestead, or within the broader project area. Further, the extensive pedestrian survey that took place across the landscape in which the homestead is located, which is at the centre of the Ravensworth Estate, did not record any evidence of burials (OzArk 2019:329). All archaeological investigations for the GCOP involved representatives of the Registered Aboriginal Parties (RAPs) including representatives of the Plains Clans of the Wonnarua People (PCWP).

The OzArk assessment concluded that the potential for burials within the project area is very low due to:

- The large number of surveys that have taken place across most areas of the former Ravensworth Estate since the late 1970s that have not recorded evidence of burials. OzArk notes that there are a few rare instances of burials in the wider region including the discovery of ancestral remains at Mt Arthur, which is approximately 23 kilometres from the project area (Donlon and Kuskie 2003), and at Mt Olive associated with the mission site (AHIMS #37-3-0020), which is approximately 15 kilometres from the

project area. The extent of this past survey effort across Ravensworth Estate and the Mount Owen Complex more broadly is shown on **Figure 1**. It should also be borne in mind that this figure could be supplemented by showing further long-running archaeological investigations at the Liddell Coal mine to the north, at Ravensworth Operations to the west, at Ashton Coal to the south, and at Integra Underground Mine/Rix's Creek Coal mine to the southeast. This portion of the upper Hunter Valley has had very intensive archaeological investigation over a period of more than four decades and recordings of Aboriginal burials have not been made at any of the mines listed above.

- The region of the former Ravensworth Estate within the project area is characterised by extensive soil loss due to the nature of the dispersible soils of the area and the long-term impact of vegetation clearing and grazing which has resulted in almost the complete loss of A-Horizon soils. The archaeological implication is that shallow burials, if they had been present, may have become exposed (and dispersed?) early in the history of European occupation and no longer exist, or, if deeper burials were present, the soil loss would allow at least some burials to become exposed and recorded by the successive archaeological surveys that have taken place.

OzArk notes that Tocomwall (on behalf of the PCWP and the primary informant for Mr Draper) provided comment on 29 March 2018 regarding the survey methodology for the project area after it had been issued to all RAPs on 19 February 2018.

Tocomwall stated in part, *"I cannot support the approach as by its own design is it (sic) a science based assessment and clearly know (sic) real cultural assessment attached to it."* No details of what cultural values needed to be considered were provided and the response did not specifically mention any values associated with the Ravensworth Homestead or the potential for burials. This would have been an ideal opportunity to raise any knowledge about burials in the project area had this been known at the time. Nor did any of the other 31 RAPs involved with the GCOP raise the issue of potential burials at any time during the investigations.

The test excavation methodology was issued to all RAPs on 19 September 2018 and Tocomwall did not provide any comment on either the adequacy of the methodology nor any cultural concerns about where the test excavation was proposed to be carried out.

Further, representatives of the PCWP, including Mr Scott Franks when surveying landforms only 500 metres south of Ravensworth Homestead (within Ravensworth Estate), never mentioned the possibility of burials during the archaeological survey or the test excavation program. OzArk is not aware that the issue of potential burials was raised during the broader consultation process for the GCOP at the time of the field investigations.

OzArk also note that Heritage NSW in their review of the adequacy of the Aboriginal Cultural Heritage Assessment Report (ACHAR) for the GCOP (30 October 2020) note:

The ACHAR notes the location of the Upper Hunter Valley Massacre Site (AHIMS 37-3-0390), is outside of the GCOP SSD-9349 Project Area. Based on their research over the past 15 years, Umwelt concluded that registered site AHIMS 37-3-0390 cannot have been within the area now defined as the Ravensworth Estate (Umwelt 2004 and 2013, in ACHM 2020) nor within the GCOP SSD-9349 Project Area (ACHM 2020). There have been numerous archaeological surveys, surface salvage and excavations conducted across the GCOP SSD9349 Project Area and surrounding area including test excavation within the

Ravensworth Homestead precinct and Ravensworth Estate. No burials or human remains have been recorded within the GCOP SSD-9349 Project Area nor at the Ravensworth Estate or the Ravensworth Homestead area.

In conclusion, the statement by Mr Draper that there are “*numerous conflict graves*” in the Ravensworth Estate is not supported by any available evidence apart from the stated belief of one RAP. In the opinion of OzArk, it is extremely unlikely that any grave exists in the GCOP project area, other than the known grave of a ‘Miss White’ who is buried within the grounds of the Ravensworth Homestead. In the unlikely event that there happens to be an unidentified grave in the project area, consistent with current processes applied to all modern approvals, there will be procedures in the post-approval *Aboriginal Cultural Heritage Management Plan* to ensure that the grave is treated with respect and involve the relevant authorities, and if the grave contains Aboriginal ancestral remains, full consultation with the Aboriginal community will take place.

Yours sincerely,



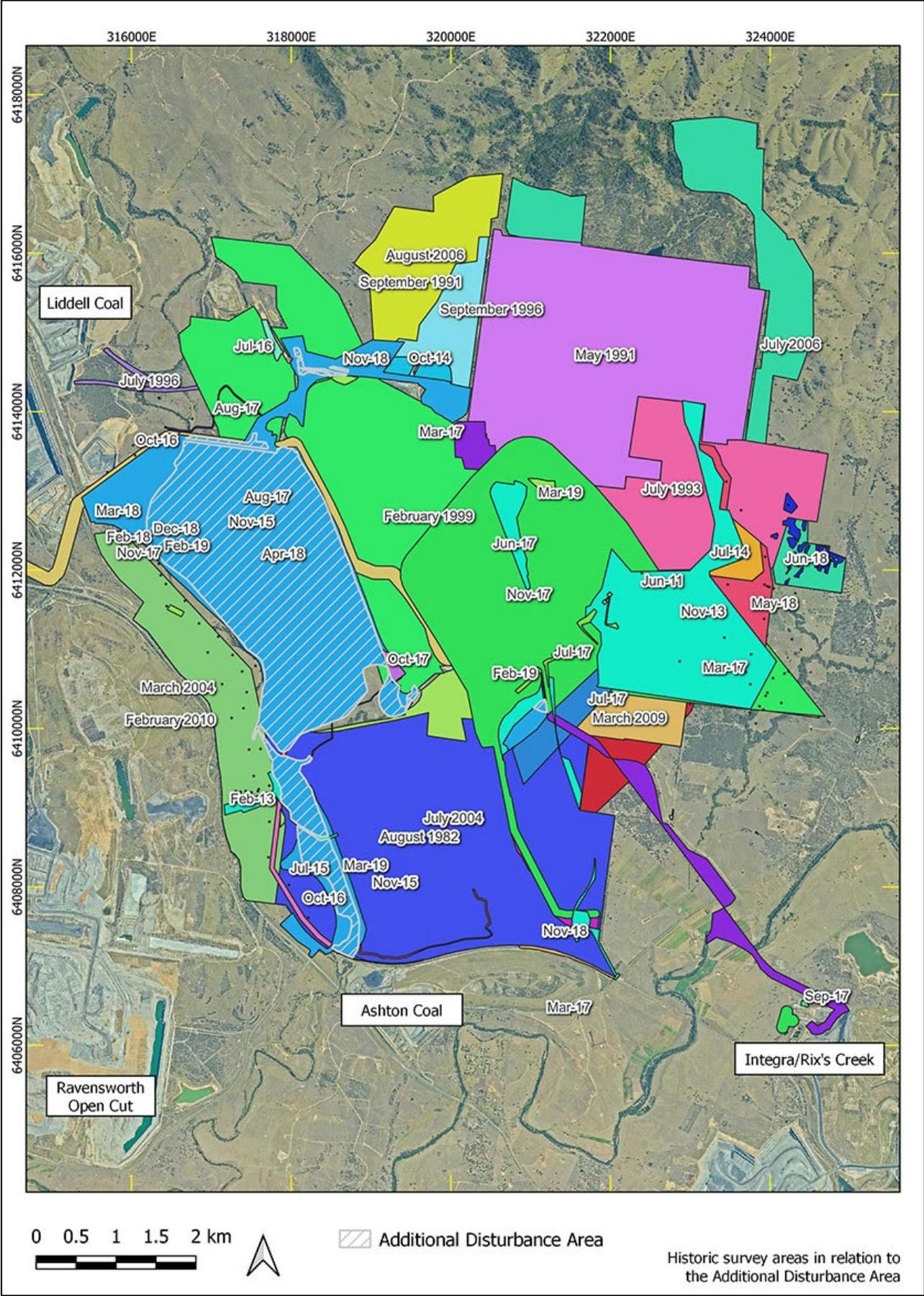
Ben Churcher
Principal Archaeologist

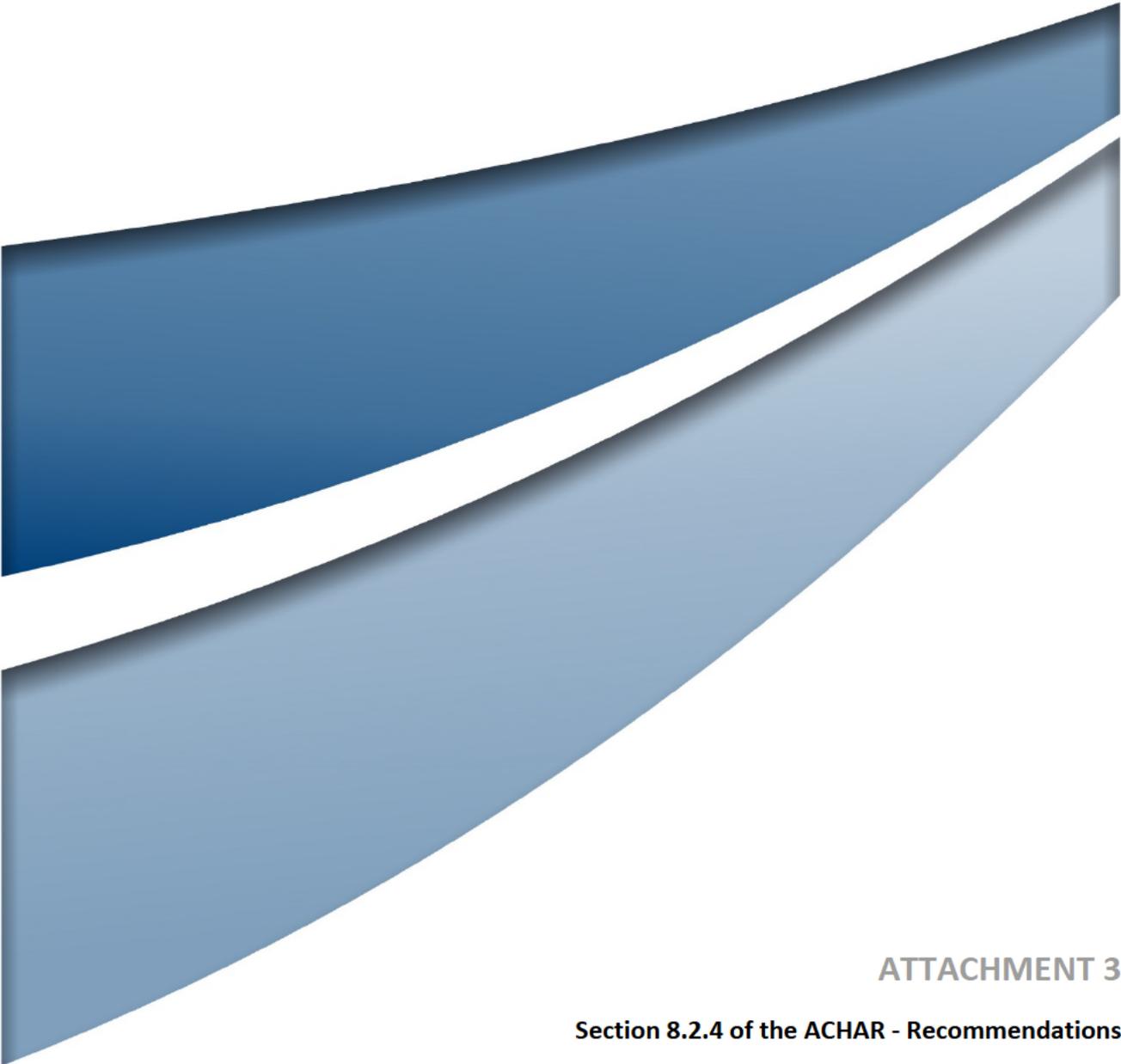


Endnotes

- Donlon and Kuskie 2003 Donlon, D. and Kuskie, P. 2003. *Traditional Aboriginal Burial at Mount Arthur North Hunter Valley, New South Wales*. A Report to the Wonnarua Elders and Mount Arthur North Project.
- OzArk 2019 OzArk Environment & Heritage. *Aboriginal Archaeology Impact Assessment [AAIA]. Glendell Continued Operations Project*. November 2019. Report for Glendell Tenements Pty Ltd.

Figure 1: Historical survey areas at the Mt Owen Complex.





ATTACHMENT 3

Section 8.2.4 of the ACHAR - Recommendations

Table 8-6: Proposed On-Site Management Measures from the Project

Element	Action No	Action Item	Project Management Measure
Aboriginal Cultural Heritage Management Plan (ACHMP)	R01	Update ACHMP	<p>The existing Mt Owen Complex ACHMP will be reviewed and update to include the Project within 12 months of Project Approval to outline all Aboriginal heritage management measures for the Project, responsibilities of all parties and the timeframe for required heritage works.</p> <p>The ACHMP will include a staged approach to the required research and salvage works to ensure that areas required for earliest disturbance are completed as a priority.</p>
	R02	Cultural Awareness Package for Glencore Staff, Operators and Contractors	<p>To assist in providing our workforce a broader understanding of the cultural values identified in the ACHAR in relation to the Project area we propose the following cultural awareness package.</p> <p>Glendell would develop a cultural heritage awareness package for staff, operators and contractors working on clearing works associated with Project and the Ravensworth Homestead relocation. This would include technical archaeological input, as well as a video discussing the Cultural Heritage Values of the area as told by local Aboriginal people.</p> <p>As part of this project, RAPs and Knowledge Holders would be given the opportunity to submit videos for the awareness package. Glendell would fund a third-party videographer and editor to assist the community in the development of their contribution to the package. RAPs and Knowledge Holders that would prefer their values to not to be disclosed to other parties (other than those involved in the works above) would have this option available, should they wish. The videos could also contribute to the history project in the Off-site measures (R17) below.</p>
	R03	ACHMP Dispute Resolution process	The revised ACHMP will include specific provisions regarding ongoing engagement with the RAPs and would include mechanisms for dispute resolution and communications protocols.
Survey, collection and analysis	R04	Survey, collection and Analysis	Salvage (excavation, analysis and collection) as per the recommendations of the OzArk Aboriginal Archaeology Impact Assessment Report for the salvage of the archaeological sites to be harmed within the Additional Disturbance Area.
	R05	Discovery of previously unknown cultural heritage items	<p>The Project agrees to follow all relevant NSW Government guidelines regarding the location of human skeletal remains. The Project will apply the precautionary principle to the development of management measures for the Additional Disturbance Area.</p> <p>This approach will include the development of culturally appropriate management measures for the management of human remains, should this occur during the Project life. Protocols and approach will be developed in consultation with RAPs and updated in the revised ACHMP</p>
	R06	Recording of Archaeological Sites	The ACHMP will be revised to include the new sites identified in the Aboriginal Archaeology Impact Assessment Report completed for the Project
Care and Control	R07	Care and Control Measures regarding Aboriginal Objects	Care and control management measures will be developed and included in the ACHMP for Aboriginal objects recovered through the Archaeological research and salvage program implemented for the Project and for long term storage of artefacts recovered from previous research and salvage programs. The care and control management measures will have regard to cultural considerations. Glencore propose to store artefacts from the salvage program at the soon to be constructed Wollombi Brook Regional Keeping Place.
	R08	Repatriation of artefacts from Project Area	Glencore propose to store artefacts from the salvage program at the soon to be constructed Wollombi Brook Regional Keeping Place. GCO Project will consider the repatriation of artefacts across rehabilitation areas as part of a closure planning process at the cessation of mining.

Element	Action No	Action Item	Project Management Measure
	R09	Sites not to Be Impacted	Glencore will implement the Aboriginal archaeological management measures program for sites in the Project Area that will not be impacted by the Project as recommended in the Aboriginal Archaeology Impact Assessment report for the Project. These measures will be further outlined in the updated ACHMP.

Table 8-7: Proposed Off-Site Management Measures. The following are indicative off-site management measures and more detailed measures are being developed as the ACHAR process continues.

	Action No	Action Item	Project Proposed Management Measure
Intergenerational Equity	R10	Cultural Awareness and Education	<p>Currently Glencore Coal Assets Australia (GCAA) through its voluntary Community Investment Program has included:</p> <p>The Galuwa Aboriginal School scholarship program which currently supports 30 scholarships for Aboriginal students from the Upper Hunter in years 6, 7 and 8 to support their academic progress, cultural identity and career aspirations.</p> <p>Singleton Clontarf Academy supporting 80 Aboriginal boys and 4 staff at Singleton High School to support the personal development and education of these boys.</p> <p>GCAA's approach to supporting Aboriginal education is to work closely with NSW Department of Education to provide meaningful and needed Aboriginal education support that compliments and does not duplicate existing initiatives within NSW Education and other providers who support Aboriginal Education.</p> <p>Other initiatives and programs that will be considered for support as part of the GCO Project include:</p> <ul style="list-style-type: none"> • Young Mob (a World Vision program) which aims to increase the cultural identity and connection to country of Indigenous youth through youth camps. A strong identity and connection to country have been identified as being vital to the health, social and emotional wellbeing of Indigenous youth. • The Girls Academy which develops and empowers Aboriginal girls through leadership training, mentoring, sport and extra-curricular programs with the goal of creating an environment within schools where Aboriginal girls receive the support and programs needed to help them realise their full potential.
	R11	Bringing people together	<p>Knowledge holders and RAPs raised a range of issues and potential mitigation strategies with regards to cultural loss, these included:</p> <ul style="list-style-type: none"> • A desire for community (or groups) to come together outside of development application/disturbance processes, and • A desire for a range of cultural experiences (such as cultural camps, Elders Camps, teaching to younger generations) <p>The GCO Project would consider supporting a program or activities to assist in promoting cultural awareness and education for young people.</p>
	R12	Employment	<p>Through the ACHAR and SIA processes for a number of recent programs, and ongoing consultation with local Aboriginal parties, Glencore has heard the recommendations for a work experience program for local Aboriginal people in the Hunter Valley. Separate to the GCO Project, Glencore are currently planning for the roll out of a Program in 2020.</p>
	R13	Land Management	<p>As part of the GCO Project, Glendell proposes to fund a traineeship or a work experience position in the area of cultural heritage management, biodiversity or land management, ecology, rehabilitation or other appropriately related field, through a third-party provider. Glendell will first approach the National Parks and Wildlife Service (NPWS) who offer a 2 year field officer traineeship in land management. In the event that this cannot be secured, Glendell would seek an alternate provider.</p> <p>As part of the ACHMP development a process and criteria for the application for this support would be developed.</p>
	R14	Land Management	<p>During the ACHAR preparation and in on-going consultation, RAPs and Knowledge Holders expressed values regarding a desire to be involved in the healing of land and land management activities. Ongoing consultation has also raised feedback associated with the development of Aboriginal land management businesses.</p> <p>Glendell would provide opportunities for local Aboriginal businesses to tender for revegetation and land management works at the Mt Owen Complex.</p>
	R15	Land Management	<p>Yorks Creek realignment to receive appropriate riparian vegetation treatment post earthworks.</p>

	R16	Cultural Awareness and Education	<p>Through the consultation process, a range of values have been expressed regarding the early settlement history of the local area.</p> <p>Glendell offer to assist to develop interactive and interpretive materials documenting the early history between Aboriginal people and European settlers in the local area. Materials to be developed could include timelines, maps, oral recordings and re-enactments, and could be provided to schools and libraries for use as an educational/general interest resource. Alternatively, these could be kept as community resources. This could link with the process to develop the cultural awareness package discussed in R02 above.</p>
	R17	Cultural Awareness and Education	<p>During the ACHAR preparation, RAPs and Knowledge Holders raised values regarding a number of culturally sensitive places and sites in the region.</p> <p>Glendell would provide support to local Aboriginal groups seeking to undertake conservation projects at these places and sites in the region, in consultation with the applicable Government bodies and landholders.</p> <p>Funding for these conservation projects would be assessed on a case by case basis with the ACHMP update to include details on the application process and assessment criteria.</p>
<p>Timing and Support for the Research, Caring for Land, Bringing People Together and Cultural Awareness and Education Programs</p>			<p>The support for these programs would be available for applications from the local Aboriginal community for a period of 3 years from the commencement of the Project.</p> <p>As part of the ACHMP development a process and criteria for the application for this support would be developed. A total budget of \$600,000 will be allocated for these programs, subject to approval of the Project.</p>



ATTACHMENT 4

Ashurst Response

Our ref: 1000-081-171
Partner: Mark Brennan
Direct line: [REDACTED]
Email: [REDACTED]

Ashurst Australia
Level 11
5 Martin Place
Sydney NSW 2000
Australia

4 April 2022

GPO Box 9938
Sydney NSW 2001
Australia

BY EMAIL

Dianne Leeson
Chair of the Glendell Continued Operations
Project Panel
Independent Planning Commission

Tel +61 2 9258 6000
Fax +61 2 9258 6999
DX 388 Sydney
www.ashurst.com



Dear Ms Leeson

Glendell Continued Operations Project (SSD 9349) – Response to Environmental Defenders Office submissions by Mark Seymour

We act for Glencore Coal Pty Limited (**Glencore**) in relation to the Glendell Continued Operations Project (SSD 9349) (**Project**).

We refer to the presentation by Mark Seymour of counsel, instructed by the Environmental Defenders Office acting for Mr Scott Franks and Mr Robert Lester, during the second day of the Independent Planning Commission (**Commission**) public hearing into the Project. This presentation is recorded in the Day 2 (21.3.2022) Transcript on pages 38-50 (**Presentation**).

We respond to the submissions made in the Presentation as follows:

1. The Commission should not use or rely upon the Leo Report

Mr Seymour submitted that the Commission should *"attempt to have regard to the Leo Report"*.¹

For the reasons given in our client's letter to the Commission of 18 March 2022, our client disagrees with this submission and maintains its position that the Commission should not consider or rely upon the Leo Report.

2. Submission as to a "proper analytical framework"

Mr Seymour submitted (emphasis added):

"In my submission, when the Commission adopts a proper analytical framework, the impacts of the project on Aboriginal and European heritage values of the site are so unreasonable to warrant refusal of itself.

In my submission, the need for the Commission to adopt a proper analytical framework on this issue arises in two respects. The first is from principles of ecologically sustainable development, and in particular the principle of intergenerational equity. Clearly that is a matter that the Commission must take into account as a part of the public interest that's manifest in the statute. And secondly, when the Commission comes to assess

¹ Transcript of Proceedings, P-47 [37].

likely impacts in section 4.15, in my submission, the Commission would do that – that is, assess a likely impact – by reference to an applicable and relevant standard.

And the relevant and applicable standard that we have is the ICOMOS Burra Charter, an instrument that in itself gives effect to Australia's international law obligations under the World Heritage Convention from 1972."²

With respect to the Burra Charter, Mr Seymour submitted:

"So in my submission, giving effect to the Burra Charter gives effect to Australia's international law obligations under the convention, and failing to give effect to the charter would put Australia in breach of its obligation under the convention. The community would have the legitimate and entirely reasonable expectation that the Commission would adopt the charter as the relevant framework for assessment of likely impacts on a place of cultural significance, and that it would make its decision mindful of the requirements to give effect to intergenerational equity and to avoid unreasonable impacts as determined by reference to a standard like the charter."³

After claiming that the Burra Charter is *"in essence a planning standard"*, Mr Seymour proceeded to refer to various articles in the Burra Charter in contending that:

1. the proposed relocation of the Homestead structures would adversely impact a place of cultural significance and be inconsistent with the Burra Charter; and
2. the Project would result in *"the complete destruction"* of a place of cultural significance, which is entirely contrary to the conservation principles under the Burra Charter.

While the basis of Mr Seymour's submission on *"the need for the Commission to adopt a proper analytical framework"* and the Burra Charter are somewhat unclear, in our view:

1. the Commission is not required under the *Environmental Planning and Assessment Act 1979* (NSW) (**EP&A Act**), or any other relevant legislation, to adopt any specific *"analytical framework"* to assess the heritage impacts of the Project;
2. the Commission is not required under the EP&A Act, or any other relevant legislation, to apply the Burra Charter as a standard to determine whether the heritage impacts of the Project are acceptable;
3. as recognised in the Planning Secretary's Environmental Assessment Requirements for the Project, the Burra Charter is only one of a number of policies or guidelines that may be relevant to the assessment of the heritage impacts of the Project;
4. the Burra Charter is not a legal instrument, statutory planning standard or a Government policy document;
5. the purpose of the Burra Charter is clearly not to prescribe how a consent authority is to determine whether the heritage impacts of a State significant development project under the EP&A Act are acceptable. The Burra Charter is a document which focuses on the conservation and management of places of cultural significance, *"provides guidance for the conservation and management of places of cultural significance (cultural heritage places)"*, and *"sets a standard of practice for those*

² Transcript of Proceedings, P-39 [28] to P-40 [1].

³ Transcript of Proceedings, P-40 [14]-.

who provide advice, make decisions about, or undertake works to places of cultural significance ..." (Preamble);

6. the Commission does not have a legal obligation to "give effect" to the Burra Charter; and
7. the Commission would misdirect itself from the task of properly assessing the likely impacts of the Project under the EP&A Act if it were to:
 - a. assess the heritage impacts of the Project on the basis that the Commission must adopt a particular "*analytical framework*" (including an analytical framework derived from the Burra Charter);
 - b. assess the Project on the basis that the Project must comply with specific articles in the Burra Charter (as if the Burra Charter is a statutory instrument which imposes heritage-related preconditions to approval); or
 - c. give excessive weight to the Burra Charter in assessing the heritage impacts of the Project.

In this regard, we note that Mr Seymour did not identify any relevant legislative provisions which expressly provide for the consent authority to adopt any particular "*analytical framework*" for assessing the heritage impacts of a proposed development under the EP&A Act, or for the consent authority to assess the heritage impacts of a proposed development by relying on the Burra Charter "*as the relevant framework for assessment of likely impacts on a place of cultural significance*".⁴

While the Commission may have regard to the Burra Charter, for the reasons set out above, our client submits that the Commission should not adopt the approach advocated by Mr Seymour.

We also note that the heritage management approach proposed for the Project was devised having regard to the principles and guidance of the Burra Charter.

In particular, the Burra Charter is considered in the Aboriginal Cultural Heritage Assessment Report (September 2019 and August 2020 (Revised)) prepared by Dr Shaun Canning, the Aboriginal Archaeology Impact Assessment (November 2019) prepared by Ben Churcher and the Statement of Heritage Impact (October 2019) prepared by Lucas Stapleton Johnson. By way of example only, the former report relevantly:

1. states as follows on pages vii-viii:

"The management measures proposed for the Project align to the Principles of the Burra Charter (ICOMOS, 1999) and to the Aboriginal Community Wellbeing toolkit and criterion from OEH (OEH 2012).

...

Further, the following key considerations also guide the GCOPs recommendations and management outcomes:

- *Alignment of the outcomes with the principles of the Strengthening Aboriginal Community Wellbeing Toolkit (OEH 2012) and the Burra Charter (2013);"*

⁴ Transcript of Proceedings, P-40 [18].

2. confirms on page 5 that:

"The identification of cultural values and the determination of cultural significance which are consistent with the guidance provided in the Burra Charter and Indigenous Cultural Heritage Management Practice Note (Australia ICOMOS, 2013)."

In this regard, it is relevant that:

1. Heritage NSW confirmed, in its letter to the Department dated 30 October 2020, that:

"6. HNSW is satisfied that the significance assessment of the Aboriginal cultural heritage values of the project area have been adequately assessed, as well as management measures to mitigate any potential impacts on those values.

7. HNSW is satisfied that the significance assessment of the archaeological or scientific values of the project area have been adequately assessed and are consistent with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2010) as well as any potential impacts on those values.

8. HNSW is satisfied that consultation with the Aboriginal community has been undertaken in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010. HNSW notes that GCOP have provided multiple opportunities for RAP involvement on all aspects of the project and consultation regarding their Aboriginal cultural values for the project area...."

2. the Planning Secretary's Environmental Assessment Requirements for the Project, the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* and the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* refer to the Burra Charter (and the Aboriginal cultural heritage assessment reports for the Project considered and applied this Guide and Code of Practice).

With respect to the relocation of the Homestead buildings in particular, we note that:

1. the Response to Submissions (Part A – May 2020) relevantly states on page 131:

"In light of the principles within the Burra Charter, other heritage conservation philosophies, and given the heritage significance of the Homestead buildings, the relocation of the Homestead is considered a mitigation measure that substantially retains those key heritage values as much as possible with a focus on recreating the Homestead in the most appropriate manner for a future useful life. Other options such as demolition were not considered appropriate and if the Homestead buildings are not relocated the mine is not able to be developed. An additional mitigation measure includes detailed investigation, recording and salvage of the archaeological deposits to be undertaken as part of the relocation proposal."

2. sections 2.3.1-2.3.7 (pp 17-26) of the Statement of Heritage Impact (October 2019) considered the proposed relocation by reference to the Burra Charter. The quality of this work was noted in the Review of Heritage Impacts (November 2021) by Hector Abrahams (commissioned by the Department), which stated:

"The impact assessment of the two relocation proposals undertaken by LSJ is so comprehensive and well founded as to not require reassessment in detail."

3. Submission that places of cultural heritage significance must be conserved

In our view, Mr Seymour's submissions are based on an incorrect premise that places of cultural heritage significance must be conserved under the Burra Charter and it is, therefore, unacceptable for proposed development to materially impact such places.

For example, Mr Seymour submitted:

"So the principles are clear and absolute, and article 2.1 requires that a place of cultural significance be conserved. Article 2.2, that the aim of that conservation is to retain the cultural significance of the place, and article 2.4, that the place of cultural significance should be safeguarded and not be put at risk or left in a vulnerable state.

And the process provisions then provide assistance to decision-makers like the Commission in the development of a policy for the use and management of that place of cultural significance. But that's on the basis that the requirement from article 2.1 is that the place is going to be conserved.

...

But understanding that the framework properly would mean that the removal of a work or an element of the place like the homestead structures to a different location is to the detriment of the place of cultural significance, and that would be inconsistent with the articles 2.1 to 2.4 of the charter."⁵

We consider that this position is inconsistent with the relevant NSW legislative framework, which clearly recognises that approved State significant development projects may have material impacts on a place or places of cultural heritage significance, and provides for those impacts to be managed in accordance with the development consent granted under the EP&A Act.

In this regard, we note that:

1. Part 6 of the *National Parks and Wildlife Act 1974* (NSW) (**NP&W Act**), which concerns the protection of Aboriginal objects and declared Aboriginal places, provides for the grant of *"Aboriginal heritage impact permits"* to authorise impacts to Aboriginal objects or Aboriginal places that would otherwise be prohibited;
2. by virtue of section 4.41(d) of the EP&A Act, an Aboriginal heritage impact permit is not required for State significant development that is authorised by a development consent, and the provisions of the NP&W Act that would prohibit the carrying out of the State significant development (i.e. because of its impacts on Aboriginal objects or declared Aboriginal places) without such a permit do not apply;
3. as such, section 4.41 of the EP&A Act clearly recognises that approved State significant development projects may have material impacts on a place or places of cultural heritage significance;
4. in our view, the reasons why an Aboriginal heritage impact permit is not required for approved State significant development are that:

⁵ Transcript of Proceedings, P-41.

- a. the Planning Secretary's Environmental Assessment Requirements for proposed State significant development projects will require the proponent to undertake an equally or more rigorous Aboriginal community consultation process to that undertaken for Aboriginal heritage impact permit applications;
 - b. the impacts of proposed State significant development on places of cultural heritage significance are adequately assessed as part of the comprehensive and transparent assessment process under the EP&A Act; and
 - c. State significant development consents contain conditions which provide for the preparation, approval and implementation of a detailed Aboriginal Cultural Heritage Management Plan, and the regulation of impacts on places of cultural heritage significance;
5. Part 4 of the *Heritage Act 1977* (NSW) (**Heritage Act**), which concerns the effect of interim heritage orders and an "item" (e.g. a place or building) being listed on the State Heritage Register, establishes an approval process for certain activities (e.g. to demolish a building or damage or despoil a place) to be carried out which would impact items subject to such an order or listing;
 6. by virtue of section 4.41(c) of the EP&A Act, an approval under Part 4 of the Heritage Act (or an excavation permit under section 139 of the Heritage Act) is not required for State significant development that is authorised by a development consent, and the provisions of the Heritage Act that would prohibit the carrying out of the State significant development without such an approval do not apply;
 7. while Division 8 of Part 6 of the Heritage Act provides for the making of orders to restrict harm to items (e.g. a place or building) in certain circumstances, section 4.41 of the EP&A Act makes it clear that this Division "*does not apply to prevent or interfere with the carrying out of State significant development that is authorised by a development consent...*"; and
 8. as such, section 4.41 of the EP&A Act also clearly recognises that approved State significant development projects may have material impacts on heritage items (e.g. a place or building).

4. Submission that the heritage impacts of the Project warrant refusal

Under the EP&A Act, the Commission is relevantly required to:

- a. consider:
 - i. all of the likely impacts of the Project, including the likely social and economic impacts (see s 4.15(1)(b));
 - ii. all of the matters relevant to the suitability of the site for the development (see s 4.15(1)(c)); and
 - iii. all of the matters relevant to the public interest (see s 4.15(1)(e));
- b. in particular, balance the Project's social and economic benefits against its likely adverse impacts in making its determination.

Mr Seymour submitted that if the Commission properly considers the heritage impacts of the Project, those impacts are so unreasonable that it would be open for the Commission to refuse the Project on this basis alone.

Our client rejects that the heritage impacts of the Project are unacceptable or warrant refusal of the Project.

In particular, we note that:

- a. the Department has recommended conditions of consent to appropriately manage the heritage impacts of the Project, including conditions to ensure that a comprehensive archaeological salvage of the core estate lands occurs prior to mining within 1 kilometre of the homestead; and
- b. the Department and Heritage NSW *"are satisfied that Glencore has explored and identified reasonable and feasible measures to minimise the Project's impacts on Aboriginal heritage value, and that the Project's residual impacts are unlikely to have a significant incremental or cumulative impact on the Aboriginal heritage values of the region"*.⁶

Further, our view is that it would be legally unreasonable for the Commission to determine whether to approve the Project on the basis of the Project's heritage impacts, without balancing those impacts against the Project's other impacts, including its significant social and economic benefits.

5. The Commission has sufficient information on heritage impacts

Mr Seymour submitted that the Commission has incomplete information as to the heritage impacts of the Project and that:

*"...the Commission should not be forced to act on incomplete information, and the usual course where there is incomplete information is to refuse an application."*⁷

Our client rejects this submission.

First, as a matter of proper process, if the Commission forms the view that it has insufficient information, the Commission should request the further information it needs to properly make its determination.

Secondly, the Commission does have sufficient information to properly assess the heritage impacts of the Project. In particular, our client relies on all of the following heritage-related documents forming part of the Project's Environmental Impact Statement:

- Appendix 22 - Aboriginal Cultural Heritage Assessment Report including Aboriginal Archaeology Impact Assessment;
- Appendix 23 - Heritage Assessment Part A;
- Appendix 23 - Heritage Assessment Part B;
- Response to Submissions Part A; and
- Response to Submissions Part B.

⁶ Assessment Report, paragraph 274.

⁷ Transcript of Proceedings, P-42 [34].

6. Submission regarding "unreasonable" conditions of site visit is incorrect

Mr Seymour stated in his submissions that his clients had sought to meet with the Commission panel onsite at the Ravensworth homestead and surrounds to explain some of the cultural heritage values to the panel while on country.⁸

In respect of this site visit, Mr Seymour then submitted that:

1. his clients were prevented from doing so by Glencore placing unreasonable conditions on the conduct of that meeting;⁹ and
2. the Commission made a finding that the conditions were "*unreasonable*" in the sense that they interfered with the Commission's usual functions.¹⁰

This is incorrect.

It is significant that Glencore did agree to provide Mr Seymour's clients and the Commission with access to the Ravensworth homestead and its immediate surrounds for the purpose of the site visit. Moreover, Glencore proposed to assist with the site visit by providing Glencore representatives to accompany the attendees to ensure their health and safety and to guide them around the homestead site.

Glencore made its agreement to provide access for the site visit subject to two relevant conditions:

1. **that the same opportunity to inspect the homestead is also extended to other Registered Aboriginal Parties with an interest in the Project:** This condition was appropriate because, to the extent that the PCWP representatives sought to explain to the Commission the cultural values of the site, it would be expected that all relevant Registered Aboriginal Parties should be given the same opportunity to provide such an explanation. This was particularly important because it is well known that there are differing views as to the cultural significance of the homestead and estate between Registered Aboriginal Parties (which is acknowledged in paragraph 20 of the Department's Assessment Report); and
2. **that if the Panel believed the PCWP's legal representative should attend the site inspection, then Glencore would expect that one of its own legal representatives also be allowed to attend:** Glencore noted in its correspondence to the Commission regarding the proposed site visit that it considered the attendance of the PCWP's legal representative to be inappropriate and inconsistent with the intent of the Commission's site inspection guidelines. A site inspection seemingly proposed for the purpose of sharing information on cultural values would not reasonably necessitate the presence of a lawyer. Accordingly, Glencore set this condition only in response to the PCWP's request that their legal representative attend.

Contrary to Mr Seymour's submission, the Commission did not make a finding that these two conditions were "*unreasonable*". Rather, the Commission said it was not in a position to agree to those conditions as compliance with them would be inconsistent with its procedures and policies. With respect, our client disagrees that the conditions would be inconsistent with the Commission's procedures and policies, and the rationale for the setting of these appropriate conditions is set out above.

⁸ Transcript of Proceedings, P-42 [31].

⁹ Transcript of Proceedings, P-42 [33] and P-48 [17].

¹⁰ Transcript of Proceedings, P-48 [26].

Further, in any event, the PCWP did go on country to visit the Ravensworth estate in its preparation of the "Glendell Aboriginal Cultural Values Assessment Report" prepared by Tocomwall Pty Ltd dated 25 June 2020. In preparing this report the PCWP, along with and their cultural heritage advisor Professor Neale Draper, undertook a detailed inspection of the site on 18 February 2020.

7. The Project's proposal to employ archaeological salvage measures

In his submissions, Mr Seymour referred to the Department's recommended condition regarding Glencore's proposal to undertake archaeological salvage at the Ravensworth homestead.¹¹ That condition reads:

"...the Department has recommended conditions requiring Glencore to:

- *relocate the homestead to the Ravensworth Farm site, and undertake comprehensive archaeological salvage of the core estate lands, prior to mining within 1 kilometre of the homestead;..."*¹²

By way of background, this condition – which is one of a number included in the Assessment Report in respect of heritage protection – was set by the Department based on conclusions including that (emphasis added):

1. *"the Department believes that if the project is approved the Ravensworth Homestead can and should be relocated, and that the loss of the associated archaeological resource should be mitigated through comprehensive salvage excavation."; and*
2. *"The Department acknowledges that both relocation options would still have a high heritage impact, in that they would remove the buildings from their historic location setting. The Department accepts that these impacts can be adequately mitigated and/or compensated to an appropriate level."*¹³

With respect to the Department's recommendation to include the archaeological salvage condition, Mr Seymour submitted that:

*"There's a similarity in the issues to the way the court considered the Calga Sand Quarry, where there was uncertainty in respect of what had been produced in terms of the Aboriginal Cultural Heritage Report and the assertion of, well, what might be there could be conserved and preserved by an archaeological salvage operation, and the court rejected that in the absence of knowing what those values were and how to best protect them."*¹⁴ (emphasis added).

While Mr Seymour provided no basis or reasoning to support this statement, our view is that the purported similarity between the Calga Sand Quarry case¹⁵ and the Project is plainly incorrect. In fact, there is a stark distinction between the Calga Sand Quarry case and the present circumstances. The heritage impacts of the Project are well understood, as evidenced by the documents referred to in section 4 above which detail the comprehensive heritage investigations undertaken for the Environmental Impact Statement. Further, and as mentioned

¹¹ Transcript of Proceedings, P-45 [2].

¹² Assessment Report, paragraph 260.

¹³ Assessment Report, paragraph 258-259.

¹⁴ Transcript of Proceedings, P-45 [7].

¹⁵ *Darkinjung Local Aboriginal Land Council v Minister for Planning and Infrastructure & Anor; Australian Walkabout Wildlife Park Pty Limited (ACN 115 219 791) as Trustee for the Gerald and Catherine Barnard Family Trust v Minister for Planning and Infrastructure & Anor* [2015] NSWLEC 1465.

in section 2 above, Heritage NSW has expressly advised that it is satisfied that the significance assessment of the Aboriginal cultural heritage values of the project area have been adequately assessed.

In Calga Sands, the Court was concerned that the proponent's *"proposal to investigate, assess and conserve or salvage these places in the course of quarrying ... presents a very real risk that new significant sites and/or information which might enhance the significance of known sites will be discovered too late to influence land use decisions, or to conserve other discovered significant sites in the cultural landscape."*¹⁶ (emphasis added).

This must be compared with the proposed archaeological salvage for the Project. As is clearly identified on the face of the Department's recommended condition quoted above, the proposed salvage must occur *"prior to mining within 1 kilometre of the homestead."* The salvage is not proposed to occur *"in the course of"* mining (as was proposed for quarrying in Calga Sands) – it will occur before mining commences. This distinction is key, because the practical result is that any new heritage finds will be discovered specifically through Glencore's salvage works undertaken for the protection of any such heritage.

Moreover, there is no risk that any new heritage *"will be discovered too late to influence land use decisions"* (which the Court in Calga Sands was concerned about if salvage was undertaken *during* quarrying). This is because, in fact, any new heritage will be discovered when otherwise it would be left undiscovered if it remained in situ (i.e. in circumstances where the Project is not approved and the Homestead is not relocated). Indeed, this is expressly acknowledged and relied upon by the Department:

*"relocation of the homestead, and the associated archaeological investigation and salvage, would provide an opportunity for researching a rural-based colonial convict site".*¹⁷

In summary, there is no relevant similarity to be drawn between Calga Sands and the Project with respect to the respective proposed salvage conditions.

8. The social and economic benefits of the Project

Mr Seymour submitted that the economic benefits of the Project cannot be properly balanced by the Commission against the adverse impacts of the Project and that those benefits are *"uncertain, indirect and limited in time"*.¹⁸

Our client's position is that:

1. the Commission can and must balance the significant economic benefits of the Project against the other impacts of the Project in the locality; and
2. the economic benefits for the Project are not "uncertain, indirect and limited in time".

In this regard, the Department's Assessment Report most relevantly states at paragraphs 555 and 556:

"The Department is satisfied that the Project would have major economic benefits for the region and NSW, even following subtraction of costs for all environmental, social and economic externalities that may be associated with the Project."

¹⁶ Ibid, paragraph 336.

¹⁷ Assessment Report, paragraph 214.

¹⁸ Transcript of Proceedings, P-46 [2].

In addition to the wider economic benefits, the Project would also have significant socio-economic benefits through the continuation of some 690 jobs at the Mount Owen Complex until around 2045, as well as a significant capital investment in the mine complex."

In a related submission, Mr Seymour stated that:

"In particular, the concept of lost benefits, which is how the assessment report frames the issue at paragraphs 212 to 214 is an incorrect statement as fact and law. It might just be an infelicity of expression but the idea of a lost benefit from a project that is not granted consent is wrong."¹⁹

In our view, paragraphs 212-214 of the Department's Assessment Report do not contain a legally incorrect or wrong statement. The Department is relevantly noting that the retention of the Ravensworth Homestead in-situ would prevent the Project from being carried out and, therefore, the assessed social and economic benefits of the Project from being realised.

Finally, we note that Mr Seymour submitted as follows with respect to the precautionary principle:

"... on this issue of uncertainty arising from economic benefits, in my submission, the Commission should consider whether there is uncertainty in the science of determining economic benefits given the range of outcomes that's produced by reasonable people doing their best with guidelines. If the Commission was to make that finding then that would call into play the precautionary principle, meaning that the Commission would then be sceptical that there are any economic benefits to put "in the balance".²⁰

Under section 6(2) of the *Protection of the Environment Administration Act 1991* (NSW), the precautionary principle is defined as follows:

"if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation."

We consider that the precautionary principle is not *"called into play"* in relation to the alleged uncertainty as to the social and economic benefits of the Project. In our view, it would clearly be wrong for the precautionary principle to be adapted such that the Commission would *"assume that there are no project benefits unless there can be brought to bear better scientific certainty ..."*.

If you wish to discuss this letter, please contact Mark Brennan on [REDACTED] or Tony Denholder on [REDACTED]

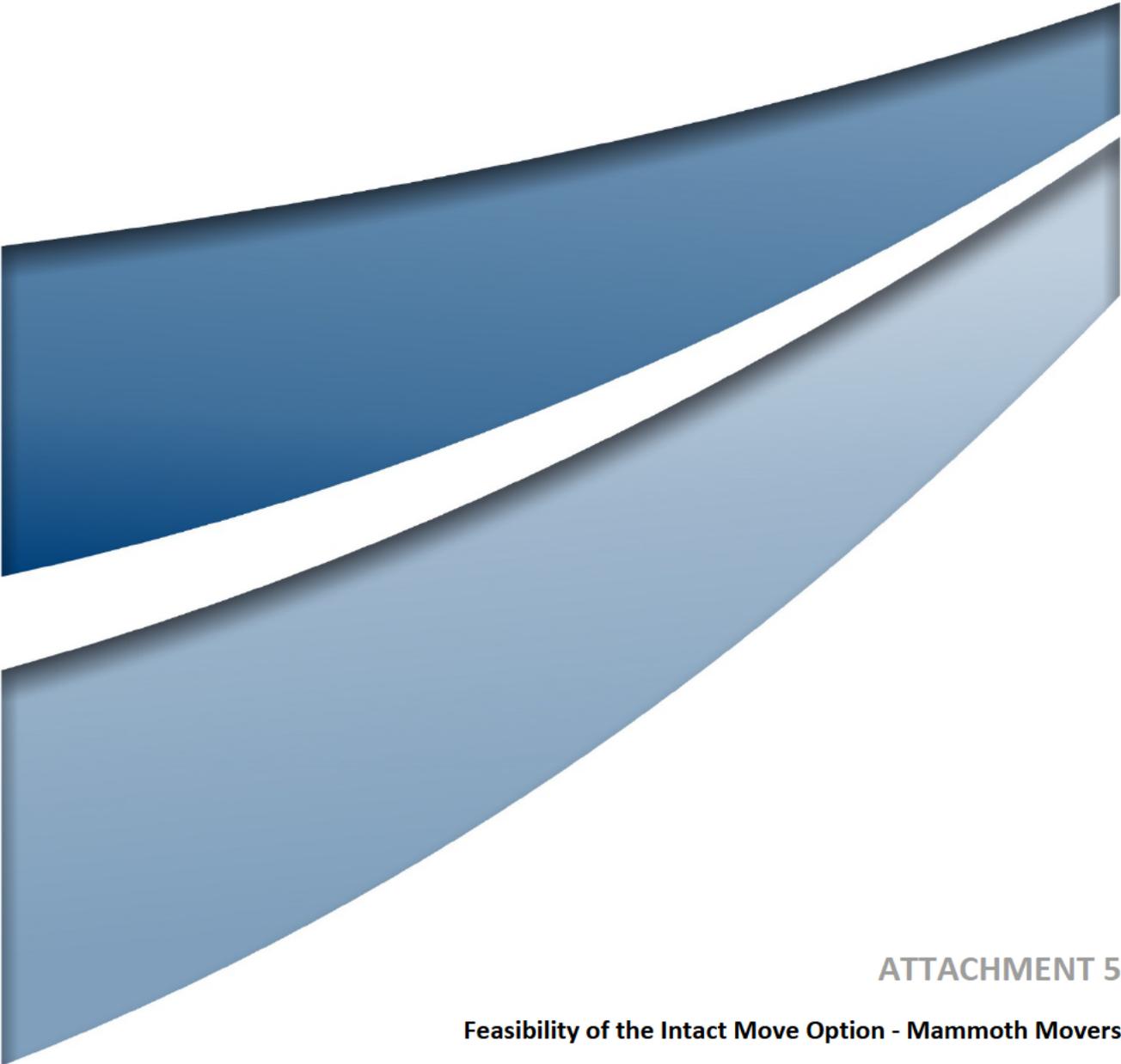
Yours faithfully

[REDACTED]

Ashurst

¹⁹ Transcript of Proceedings, P-45 [26].

²⁰ Transcript of Proceedings, P-45 [5].



ATTACHMENT 5

Feasibility of the Intact Move Option - Mammoth Movers



PO Box 159
MEADOWS SA 5201

4 April 2022

Ms Dianne Leeson
Chairperson
Office of the Independent Planning Commission NSW
Suite 15.02 Level 15, 135 King Street
SYDNEY NSW 2000

Dear Ms Leeson

**RE: THE RELOCATION OF THE RAVENSWORTH HOMESTEAD COMPLEX INTACT
GLENDELL CONTINUED OPERATIONS PROJECT AND MOUNT OWEN CONTINUED OPERATIONS
MOD 4 PROJECT**

Thank you for your consideration of the intact move option to relocate the Ravensworth Homestead and associated complex buildings intact. I anticipate that the adoption of masonry moving technology to relocate the buildings in one piece is unfamiliar to many, if not all panel members of the Independent Planning Commission assessing the project due to its application being atypical in Australia when compared to demolition or dismantling/rebuild as the go to approaches. However, this is not the case internationally and in USA in particular, where intact relocation of masonry structures for road developments, land rezoning or greater efficiencies in larger projects is the norm. So much so that the intact relocation of housing now surpasses demolition as the preferred enabling approach to support important public and private projects due to its fabric retention, reduction in landfill, minimized owner impact and retention of encapsulated energy benefits. The intact move technology provides an opportunity to unlock development constraints whilst supporting heritage preservation and environmental goals. The relocation of each of the Ravensworth buildings in one piece enables the retention of all visible elements of the heritage fabric for scholars and the general public to enjoy in the years ahead.

Masonry moving technology was first brought into Australia by our company to relocate the heritage listed Hornsby Signal Box in Sydney in 2007. The Signal Box project was undertaken on behalf of the then Transport Infrastructure Development Corporation (TIDC) to facilitate a wider clearways program to install a new Hornsby Station bypass line for express trains. I recall the Chief Executive Officer at the time, Mr Chris Lock, asking us to present to TIDC's upper management to give him and his colleagues "confidence" that the move would be successful. Fortunately, TIDC recognized the intact move as the best preservation option compared to demolition and rebuild or demolition and loss. Once their management understood the technology and methodology, they also identified it as the safest and lowest impact approach, given its locality next to the operating railway lines.

At that point in time the technology had never been utilized (or even seen) in Australia. I recall numerous skeptics assessing the likelihood of a successful outcome for the intact relocation; however the project



proceeded and the building was successfully relocated with no impact on the structure or the signaling equipment within. The project was celebrated by all stakeholders as an exemplar project, showcased in the finals of the NSW Engineers Australia awards the following year.

Our experience is that it is typical for the intact relocation of a stone or brick building to be met with a healthy dose of skepticism. In fact, I do not recall a project which hasn't started with a level of suspicion or mistrust of the "art" of intact moving. This is more prevalent in Australia compared with USA, where a "can do" mentality has seen some truly mind-blowing moves be undertaken including the moving of masonry structures up cliff faces, over the top of other buildings and along streets which are only just wider than the structure being shifted. Nevertheless, every assessment undertaken of our intact move methodology by independent engineers has been positive and confirmed the methodology is sound. This has also been proven in practice by our team's unblemished track record of moving more than 100 significant and/or heritage masonry buildings including buildings of similar or larger size than the Ravensworth buildings, of similar construction, and of comparable or even worse condition.

Whilst it is true that the Ravensworth buildings present their own set of challenges due to their configuration, construction, and location; none of these challenges are unique to the project. Mammoth has assembled a select team of well-respected, highly skilled, and experienced specialists from the structural moving industry in Northern America for the project; USA being the heart of the structural moving industry worldwide and home to the International Association of Structural Movers which consists of over 300 members. Our team has seen the same constraints and developed solutions to meet all the issues associated with the Ravensworth intact move on previous projects undertaken in Australia and USA.

Mammoth has solutions for the relocation of double leaf walls with rubble fill to avoid the loss of fabric or integrity as is the case with Ravensworth construction. We also have solutions for the relocation of buildings which are sited on shallow bedrock and to support bowing walls and pre-existing flaws during relocation of buildings in one piece – all considerations for the Ravensworth buildings. Many of these solutions have been documented in the detailed Project Methodology Document MM-REP-RAVT-0012 prepared and submitted for the assessment process. We have further supplemented the methodology document with a confidential addendum that provides specific details on key approaches for the moves. The solutions proposed are tried and proven by our team on projects such as the Oneida Stake Academy, Jeremiah Clemens House, the King of Prussia Inn, Lansdownie Park Horticultural Building and the Gem Theatre in the USA. Please refer to the attached MM-REP-RAVT-00014 for further details on each of these projects; all of which involved incredibly fragile structures with structural integrity issues which were overcome as part of the relocation methodology adopted.

Glencore engaged Mammoth to undertake extensive investigations and analysis of the Ravensworth buildings culminating in three visits to site, including site inspection by one of USA's premier structural movers, Larry Cline. These investigations extended to additional checks to mitigate project risks including core testing for rock, soil tests, route investigations and roof cavity inspections. As part of our review, Mammoth approached local contractors to understand market capacity to construct required bracing elements. Engineering analysis



has been undertaken to determine required load structure and support footprint as an input into the design of a purpose-built road for the relocation and building structural moving constraints and requirements. Project engineering conducted to date is to a level of rigor which not only confirms that the intact relocation of the Ravensworth complex is feasible but extends beyond; identifying the most practical approach to achieve the project objectives. Mammoth's engagement has culminated in the production of several reports on the project covering feasibility, constraints, costing, relocation options and preferred approach (refer to the attached MM-REP-RAVT-00016 - Investigations and due diligence). This has enabled the identification and resolution of engineering, cost, and project risks. I would encourage the Independent Planning Panel members to refer to the aforementioned methodology reports and risk identification report for specifics on the technical approach and mitigation strategies to be adopted for this project.

In line with good engineering practice and WHS principals, Mammoth's methodology and equipment is developed with risk mitigation and inbuilt positive feedback in the forefront. Our processes are designed such that they are not susceptible to single points of failure as they are underpinned by inbuilt redundancy, fail safe approaches and multilayered checks. Mammoth's approach provides continual monitoring and feedback on the health of the equipment and the structure during each phase of the move and enables the pausing and addressing of any issue as it arises (and prior to damaging of the building fabric or support system). The equipment to be employed by Mammoth for the relocation of the Ravensworth Project has been developed and refined over more than 100 years by the international structural moving industry. Surprisingly perhaps, whilst the industry is continuously developing small innovations in the equipment, the design of the key elements of structural moving equipment such as unified jacking machines, dollies and jacks have not changed markedly for over 50 years. Why?...simply because they work, they are flexible to suit almost all relocation projects, they are practical, reliable and are proven in all environments from -25 deg C to +45 deg C plus.

Should you have any direct questions or concerns about the intact proposal, I encourage you to contact me to obtain clarification. I am available at short notice to address any further clarifications via phone, email, or video-conference platform such as Microsoft Teams.

Yours sincerely,

Matthew Manifold
Managing Director (B Eng, Hons)

Mammoth Movers

mobile:
email:
web: www.mammothmovers.com

Attached:

- MM-REP-RAVT-00016 – Investigations and due diligence
- MM-REP-RAVT-00014 – Previous Projects Table
- Information Sheet – The Hornsby Signal Box



Due Diligence Undertaken

For the Relocation of the Ravensworth Homestead and Associated Outbuildings

1. Introduction

The purpose of this document is to provide the reader with an understanding and appreciation for the level of work and nature of investigations and subsequent assessments completed by Mammoth Movers [**Mammoth**] to confirm the feasibility and to develop its approach to the design of an intact relocation for the Ravensworth Homestead and associated outbuildings.

Mammoth's investigations and assessment of the buildings and proposed routes have been comprehensive, culminating in over 770 hours of work including around 70 hours on site. Our analysis and findings have been presented to Glencore in 16 reports; with considerable engineering activities supporting the findings presented. Mammoth's investigation extended to the review in detail of 8 proposed final sites, both near and far, and the viability of the associated routes from the current site.

The evaluation effort has enabled Mammoth to develop a sound relocation option where potential risks and challenges are well understood; impractical or unsuitable options have been excluded and the proposed relocation methodology controls the remaining project risks. Our work has enabled the development of a feasible relocation option, supported not only by our experience, but that of some of the premier masonry movers from USA and Canada. These movers have significant experience in similarly complex relocation projects of historical buildings and have been involved in the evaluation of the project from the beginning and shall continue to be involved should the project proceed.

The development of the relocation option and a summary of the work completed is outlined in the following document.

1. Background

In March 2018 Mammoth was contracted by Glencore to investigate the feasibility of relocating the Ravensworth Homestead and its accompanying outbuildings (namely the Barn, Stables, Privy, Servants Kitchen and timber Cottage) from their current location east of Hebden Road to facilitate the mining of coal at the current site.

Upon establishing (after an initial site visit) that the relocation option was possible at a high level; Mammoth was further contracted to undertake extensive and staged due diligence to identify the appropriate methodology, constraints, risks and costs associated with the proposed relocation.

Over the period of approximately 1.5 years Mammoth has assessed the in-tact relocation option through three site visits, site investigations to determine the nature of the building construction, site and route constraints and a detailed desktop analysis.

In July 2018 Mammoth arranged for one of USA's most well-respected large masonry movers Larry Cline, to visit the buildings and review the proposed routes. The development of the relocation methodology and associated assessments was completed in consultation with Larry who has been involved in numerous masonry relocation projects of similar complexity, many of which are presented in our document MM-REP-RAVT-00014.



In December 2018, Mammoth presented its findings to Glencore management who, subsequently agreed that the relocation of the homestead in one piece was viable but agreed with Mammoth's recommendations that it be limited to the low risk sites, (namely nearby sites) where the relocation of the buildings was achievable in one piece rather than requiring sectioning of the buildings.

2. Due diligence summary

Table 1 provides a summary of due diligence undertaken by Mammoth to evaluate the feasibility, constraints, risks and optimal approach for the relocation of the Ravensworth Homestead and outbuildings. The summary is limited to those investigations undertaken by Mammoth and the analysis of route and rock surveys contracted by Glencore and undertaken by third parties.

Parallel investigations have been conducted by others to review the wider impact of the relocation and the mine project itself, such as heritage impact assessments. As Mammoth is not privy to the majority of these investigations and reports they are not captured in Table 1 though they contribute to the overall due diligence undertaken by Glencore into the relocation of the Ravensworth precinct.

In order to ensure a complete assessment of the relocation, Mammoth evaluated the building construction methods and weight, and determined the move techniques necessary to enable the safe excavation, jacking and relocation of the buildings. Mammoth's review assessed the potential impact on the buildings as a result of the relocation to the proposed sites; identifying the limitations imposed by the various routes, associated risks and necessary upgrades associated with the route to the proposed sites.



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
Initial site visit duration 1 day	14/3/18	Identify if the relocation of the buildings is feasible and to collect information to provide initial estimate of costs Relocation and re-establishment cost for Mammoth's scope of works excluding route costs;	Buildings could be relocated Weights of buildings and initial support platforms determined	Whilst buildings can be moved – further work required to determine constraints should the buildings be moved over the public road network – in particular the possible minimum track width of the dolly support system. Mammoth recommended further investigation into the track width
Discussion Paper Track width	24/4/18	Initial route assessments undertaken by Glencore determined that some routes to proposed new sites would require extensive travel over the public road including traversing of a network of differing road types, width and quality. Mammoth was contracted to determine the minimum track width of the loaded buildings as a comparison with the route width	7.5 m track width is possible but results in high dolly loads and no room to move if loaded building weight is greater than estimated. 9.0 m track width is preferred in terms of flexibility, support arrangement and access under the building. An approximate maximum envelope was determined for the widest building (the servants kitchen) for comparison with the route clearance	Minimum of 9.0 m track width for the relocation of the Servants Kitchen and the Main homestead if moved in one piece



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
Commercial in Confidence Structural relocation costing for Ravensworth Homestead Complex, Ravensworth, Hunter Valley	8/6/18	Provision of the costs for the relocation (excluding route costs) Provision of a provisional sum for bracings works as required to move the buildings Provision of a day rate for the relocation	Costing provided. Costs broken down for the relocation works with route costs broken into a per day rate based on project overhead and margin. Initial cost broken into details including: <ul style="list-style-type: none"> • Pre-contract works • Pre-project works • Project allocated proportion of equipment and transport to and from site (incl. international shippage) • Cost for preparation, loading and re-supporting of structures including: <ul style="list-style-type: none"> ○ main house ○ kitchen ○ barn ○ stable ○ toilet block ○ cottage • Travel and accommodation • Fuel • Contingency (specific to project works) A provisional sum for bracing works was provided as the extent of bracing is route dependent and the route had not been determined at the time of preparing the initial cost estimate.	n/a



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
2 nd site visit Duration 1 day	23/7/18	Preliminary inspection of proposed routes and review of building construction together with Larry Cline from USA and Ian Stapleton (LSJ)	Detailed review of building construction and condition constraints identified for input into the methodology. Constraints included: <ul style="list-style-type: none">• Identification of double leaf stone walls with rubble cavity• Investigation into the crawl space of the homestead revealing larger than expected footers and unusual joist/wall interface• Investigation into homestead roof space. Identified the roof and ceiling support system and wall height extent – discovery of gabled walls• Determination of the internal wall type on the homestead (at sections where plaster had dislodged)• Identification of unusual closet arrangement adjacent to fireplace with filled rubble wall above the closet• Investigation into kitchen roof space. Identified wall height extent – discovery of gabled walls• Identification of the kitchen veranda details• Identification of extended timber lintels in the kitchen (act as a shear plane in the building walls)	Gabled walls required recalculation of building weight.



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
3 rd site visit duration 5 days	17/8/18	Detailed assessment of building's condition and traversing of the potential relocation routes to determine whether they can be negotiated	<ul style="list-style-type: none"> • Determination of how plumb the walls are on each building and measurement of areas of significant lean including: <ul style="list-style-type: none"> ○ Barn walls ○ Barn quarters ○ Western wall of the homestead ○ Stable south-western wall • General condition assessment of each building and identification of sections where structural integrity is compromised including: <ul style="list-style-type: none"> ○ South-western wall of stables - lean and cracking ○ North eastern wall of the stables – leaf delamination ○ Barn quarters – significant footing movement and significant cracking and salt damp • Identification of footing depth and condition • Initial identification of bedrock in vicinity of Kitchen and North-eastern wall of the homestead. • Identification of obstacles, which need to be removed from the buildings to enable their relocation. <p>Initial route assessment for routes to 8 potential new sites ranging in length from 3km to > 95 km and identification of:</p> <ul style="list-style-type: none"> • Road camber and slope measurement, • Track width and pavement type • Road obstacles such as overhead wires, trees and culverts • Route distance • Road side infrastructure • Route rest and check points • Complex intersections or turns incorporating compound turns • Creek crossings • Railway crossings • Bridge crossings 	<p>The relocation of buildings afar was not recommended based on impact to the road users, requirement for significant road upgrades and associated project risks related predominantly to the road geometry.</p> <p>Relocation afar required the division of the Main homestead, kitchen and barn into sections. This was not recommended.</p> <p>The discovery of bedrock lead to the recommendation for further investigation for rock around the buildings.</p> <p>LiDAR survey of the proposed routes was recommended to enable the evaluation of the routes against the loaded building geometry</p> <p>Initial bridge assessments were recommended based on the proposed dolly layouts and wheel loads</p>



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
<p>Discussion Paper Ravensworth Homestead and Complex –Division of Buildings</p>	<p>1/10/18</p>	<p>Present the impact of the findings from the site visit of 17 August 2018 in terms of the need to divide three of the buildings into sections to accommodate relocation to proposed sites afar.</p> <p>Identify the proposed sectioning of the buildings and the associated impact on the buildings fabric in order to accommodate a smaller track width of 7.5 m or 6 m (as necessary to accommodate further afar moves or moves to Pokolbin)</p>	<p>Discovery of the gabled walls excluded the possibility of relocation of the homestead in one piece on a < 9 m track width as there was insufficient room to accommodate the weight of the building on the required number of dollies without breaching the Safe Working Load (SWL) of the dollies.</p> <p>Mammoth identified the impact of the division of the buildings to accommodate the route requirements and to avoid the overloading of dollies. The report identified the impact on the fabric of the buildings including the rebuild, repair and disassembly requirements and associated reasoning.</p> <p>The buildings would need to be divided as per the below:</p> <ul style="list-style-type: none"> • Main homestead –3 sections; • Kitchen –2 sections; • Stable –1 section; • Barn –4 sections (assuming that the quarters (northern room) are not able to be disassembled) • Cottage –1 section; • Privy –1 section <p>The report identified the optimal section points and additional works to be undertaken – such as temporary support walls and additional bracing requirements</p> <p>A comparison of in-tact/one piece building relocation versus sectioning or sensitive demolition and rebuilding was provided</p> <p>Risks associated with sectioning were identified</p>	<p>Mammoth identified that the sectioning of the buildings was not recommended but was required to achieve a 7.5 or 6 m track width as necessary to relocate the buildings further afar.</p> <p>Mammoth recommended that a local move was the best approach for:</p> <ul style="list-style-type: none"> • The lowest impact on the buildings • Lowest project risk <p>Mammoth determined that the relocation of the buildings in sections was less preferred to the relocation of the buildings in one piece or the complete disassembly, relocation and rebuild on the basis of the following subjective criteria:</p> <ul style="list-style-type: none"> • Heritage impact • Cost • Project Duration • Building realignment • Structural Integrity • Impact on public and other stakeholders • Temporary bracing • Time to traverse route • Route flexibility



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
<p>Discussion Paper Ravensworth Homestead and Complex Site Visit Findings and Review – 17 August 2018</p>	<p>26/10/18</p>	<p>Document the “irregular” techniques used in the buildings construction and findings from the second site visit (23/7/18), and identify the impact of the findings on the relocation</p> <p>Undertake a high level review of route survey provided by Glencore</p> <p>Evaluate the practicality, physical impact and risks associated with the relocation in one piece along the existing road network</p>	<ul style="list-style-type: none"> The full gabled walls in homestead and kitchen resulted in too much weight for the buildings to be relocated in one piece using a running track width of 7.5m or less The double leafed construction could require treatment in the form of foam injection to prevent the loss of rubble between the wall leaves The imbedded floor joist support system in walls results in the inner wall leaf being supported on wood and creates a horizontal separation line. The floor needs to be temporarily removed and the voids under the internal leaf of wall filled with masonry to remove the separation line <p>If move further afield the buildings will need to be moved in sections</p>	<p>Relocation of the buildings is “possible” but not recommended to proposed sites further afield where the track width is limited to 7.5m or less due to:</p> <ul style="list-style-type: none"> Double leaf construction; Requirement to split into sections, (impacting their structural integrity); Concentrated weight and equipment operating at or near its SWL; Challenging topography (including significant grades and changes of grade); Significant distances; Requirement to travel on significant public infrastructure; Need to adopt a constricted track width; Associated high pavement and bridge loads. <p>A local (within 3-5km of the existing homestead site) intact move is feasible and practical assuming a minimum 9 m track width for the dollies</p>



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
Objects to be removed prior to relocation Ravensworth Homestead Complex	31/12/18	Identify those items within the buildings which will need to be removed to enable the structures to be relocated as per Mammoth's methodology and as identified in the third site inspection on 17/8/18	<p>List of 11 items of differing nature developed in consultation with the Heritage Architect including some "significant" items:</p> <ul style="list-style-type: none"> • Flagstones • Homestead doors and floors <p>The number of items to be removed is reduced if the buildings are relocated in one piece rather than in sections</p> <p>Items marked for removal are to be documented, numbered and sensitively removed for reinstatement at the recipient site in their original configuration, where of heritage significance.</p>	n/a
Commercial in Confidence Review of Proposed Routes for the Relocation of Ravensworth Homestead Complex	22/1/19	<p>Present the feasibility of the relocation of the Ravensworth Homestead Complex from its current site to proposed sites including local sites on Glencore land and sites further afield to the north (Hebden) and to the south at Broke, Singleton, Pokolbin and Hermitage Rd</p> <p>Desktop analysis of route information provided by Glencore including:</p> <ul style="list-style-type: none"> • LiDAR survey • Topography overlays on route plans; and • excel data providing slope vs chainage <p>Provide detailed analysis of loaded building constraints, route constraints and their combination e.g. maximum slopes, camber and combined analysis with building Centre of Gravity (CofG), wall CofG, zone performance etc</p> <p>Provide an analysis of the expected time on route and significant obstacles on route</p>	<p>Relocation is possible to Broke, Singleton and Hebden assuming significant road preparation works are completed, and necessary approvals obtained. To do so, the Homestead, kitchen and Barn buildings will need to be relocated in sections.</p> <p>Moves to proposed Glencore sites are achievable in one piece.</p> <p>Moves to Hermitage Road and beyond (Pokolbin) are not possible due to restrictive road topography (significant slopes or camber or combination) on the Broke to Cessnock Road.</p>	<p>Moves to proposed Glencore sites (Picton's Lane and Bowmans Creek) are preferred on the basis that they:</p> <ul style="list-style-type: none"> • Result in lowest impact on the buildings; • Have significantly lower technical risk; • Will offer the lowest cost; • Reduce the overall project complexity markedly



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
Commercial in Confidence Methodology for the Relocation of Ravensworth Homestead Complex	23/1/19	Present a detailed description of the methodology to be adopted for each of the buildings for the one piece relocation of the Ravensworth Homestead precinct	<p>Review of identified areas of bedrock and development of solutions to overcome</p> <p>Identification and recommendation of the building cutlines (i.e. the horizontal plane at which the building is separated from its foundation).</p> <p>Provision of preliminary load plans</p> <p>Identification of the treatment of technically important/sensitive building construction elements to mitigate risk, such as the double leaf wall, the floor joist inset, delaminating walls etc</p> <p>Step by step methodology outlining how the buildings shall be moved and reinstated including techniques employed and equipment details</p>	n/a
Commercial in Confidence +/-10% Costing for the Structural Relocation of Ravensworth Homestead Complex	15/1/19	Costings based on detailed methodology	n/a	n/a
Commercial in Confidence High level breakdown of costs for the relocation of the Ravensworth Homestead Complex	11/2/19	Provide further clarity and enable high level interrogation of the costings presented	n/a	n/a
Methodology for the Relocation of Ravensworth Homestead Complex	14/2/19	<p>Methodology description on the relocation of the Ravensworth Homestead precinct</p> <p>Report for inclusion in project Environmental Impact Statement (EIS) with IP sensitive sections removed</p>	High level description of the methodology to be adopted to move the buildings	n/a



Table 1 – Due diligence undertaken by Mammoth Movers for the Relocation of the Ravensworth Precinct

Description	Date	Objective	Findings	Recommendations
Review of Proposed Routes for the Relocation of Ravensworth Homestead Complex	14/10/19	<p>Identify the feasibility of the relocation of the Ravensworth Homestead Complex from its current site to proposed sites including local sites on Glencore land and sites further afield to the north (Hebden) and to the south at Broke, Singleton, Pokolbin and Hermitage Rd</p> <p>Including analysis of loaded building constraints, route constraints and their combination e.g. maximum slopes, camber and combined analysis with building CofG, wall CofG, zone performance etc</p> <p>Based on previous detailed route review with IP sensitive sections removed for inclusion in EIS.</p>	<p>Relocation is possible to Broke, Singleton and Hebden assuming significant road preparation works are completed, and necessary approvals obtained.</p> <p>Moves to proposed Glencore sites are also achievable.</p> <p>Moves further afield to Hermitage Road and beyond (Poko bin) are not possible due primarily to restrictive road topography on the Broke to Cessnock Road.</p>	<p>Moves to proposed Glencore sites are preferred both technically and from a project risk viewpoint.</p>

Example Past Projects



Project No.	Project Name/Title	Location	Photo of move	Photo in final position	Heritage listed	Year Built	Year Relocated	Why Relocated	Building construction (e.g. stone or brick)	No. of storeys	Approx. weight of building (tonnes)	Building dimensions (Length x width) (m)	Approximate distance moved (m)	Total time for the relocation component	Details/complications/challenges and mitigation strategies
1	King of Prussia Inn	Pennsylvania, USA			Yes	1719	2000	Road expansion	Constructed of locally available stone and a weak mortar of lime, sand and clay	3	670 tonne	15 m x 10 m	730 m	2 days	<p>This project presented several challenges. The walls were quite thick, varied in thickness 610 to 760 mm, with the vast majority of the weight of the structure around the perimeter. There was no uniformity in the size and shape of the stone. Mortar offered virtually no adhesion. One massive fireplace was on one end wall with a smaller cooking flue on the other end. The lower members of the open beam roof system no longer offered any real resistance to wall spreading. The route the building had to travel was fairly narrow, curbed paved roads. Three 90 degree turns were also part of the route.</p> <p>Extensive bracing and tension cables were used to secure the walls inside and out to prevent movement. Steel cables were wrapped around the entire structure and tensioned in order to put the walls into compression. In order to create a uniform line of separation and support, the wall was gradually de-constructed with drills, saws and small chipping hammers, creating pockets first for primary steel support, then secondary support. As the openings were formed, temporary pads with grout packing were installed and shored in place to create the uniform line of support. Once all the steel framework was installed the initial lift was gradually executed, stopping often to add additional support where needed. As soon as all of the structure was supported, jacking pressures were recorded and calculations were made to create a long, narrow dolly foot print consisting of 21 dollies on heavy transfer beams, in order to negotiate the narrow route. All of the hard turns required stopping, physically resetting each dolly to perform a hub turn, completing the turn and then resetting the dollies. Concern for the road surfaces required timber mats to cover the entire travel path, leapfrogging them along the route.</p> <p>The building was set on a CMU (besser block) wall with poured cells. Some of the original stone was used to fill in the area between the new wall and the bottom of the uneven building wall. This became the reveal line on the building when final grading was done.</p>
2	Jeremiah Clemens House	Alabama, USA			Yes	1835	2004	Downtown expansion	Locally made brick and fine brown clay for mortar	2	515 tonne	18 m x 14 m	800 m	3 days	<p>The original building consisted of two buildings sharing a common roof with a passageway between the two. In the 1860's the roof was removed, the walls were heightened and the sides enclosed, creating a single two story structure.</p> <p>The building's foundation consisted of trenches dug in the clay soil and filled with rock rubble. The walls were extremely fragile, literally bricks stacked up. The building had suffered substantial damage from roof leaks which resulted in degradation of many of the bricks. Two large fireplaces were set along the centreline of the building on internal brick walls. These fireplace flues also became access points for water damage. The connections between the old and new walls were separating in several locations.</p> <p>Before excavation under the building could begin, heavy angle irons were placed on the corners with cushioned material underneath. Seven cable strands were wrapped around the building, incorporating brace timbers in between and tensioned using turn buckles in order to stabilize the very weak walls. Both fireplace flues were braced up from the roof. Because of the fragile condition of the building, the process of loading the building onto the support steel was done progressively using a combination of steel beams and banding to create a support structure. External and internal beams and steel banding were installed ahead of the crosser openings being made. These beams provided additional support of the walls between the cross beams. As each opening was completed a cross beam was installed and pre-tensioned between the cross steel and main beams, becoming part of the support of the building.</p> <p>Once support steel was installed, the building was then jacked up and 17 dollies were installed. The move required one hard turn where dollies were reset to make the turn and traversing of a number of compound curves. Final positioning required a centre of building rotation.</p>
3	Horticultural Building	Ontario, Canada			Yes	1914	2012	Horticultural park	Brick	1	1540 tonne	55 m x 37 m	152 m	3 days	<p>The plan was to move the building east to the far side of the park and place on a two story underground parking garage. The park boundaries narrowed travelling east which resulted in the need for the north 12 m of the building to be cut off and demolished. The remaining structure was 55 m long and had a 2000 sqm footprint. The building has two distinct components; a flat roofed two story entrance hall made of brick and concrete and a gable roofed exhibition hall noted for the column free open design. The exhibition hall has riveted steel trusses and steel columns embedded in a two course brick wall. Inspection of the structure determined that additional load had been placed on the roof trusses over the years and the steel columns and the brick walls were completely independent of each other, yet both shared support of the roof system. This condition created concerns regarding the stability of the roof system. Since this move would be sideways with a slight fall to the south, there were lateral integrity concerns.</p> <p>An intricate design of steel trusses was installed inside the hall on top of the internal main beams, in lieu of conventional crossbeams, because of the great span wall to wall. These trusses were attached to the steel columns at two points. Lateral bracing was installed to truss and additional members installed to reinforce the roof system. The side walls were supported on ladder beams between inner and outer main beams. Once the steel support system was in place the building was jacked up and transfer beams and dollies were installed. A total of 48 dollies supported a 1540 tonne load.</p> <p>Because of the great variation in weight in this building, three different weight values were used for each of the three zones. Before the building could be moved over the completed parking garage, a significant amount of shoring was installed to allow for the weight of the building to pass over the garage. To control the sideways movement of the building as it traveled to the new site, two power units were used to maintain proper alignment as the building was moving.</p>
4	Oneida Stake Academy	Idaho, USA			No	1895	2003	High school expansion	Freestone with sand and lime mortar	2.5	1500 tonne	24 m x 18.5 m	5 blocks	4 days	<p>The Academy is constructed with stone that was mined in a local mission with a double leaf wall and rubble fill in the wall cavity. The mortar was locally made from a lime and sand mixture. The lumber making up the floor systems and partitions was harvested and sawn by members of the church. Over time the walls and mortar had deteriorated, causing movement in the stone walls and one corner had actually cracked off. The interior floors represented the only diaphragms in the 2 1/2 story structure. Over time the timbers in the floor system dried and shrank, allowing the walls to bulge outward. The transition line between the nicely hewn stone and the smaller rubble type stone and mortar foundation was actually well above the bottom of the timbered floor system.</p> <p>The following remedies were performed on the building to prepare the structure for relocation. Bands of wooden timbers were wrapped around the structure at the first and second floors. Holes were drilled through the timbers and walls with steel cables and turn buckles installed. Tensioning these cables brought the walls back into plumb. Cracks in the walls were filled with new mortar and a fluid grout was pumped into the wall cavity in selected locations to stabilize the base and rubble fill. The damaged corner and a few other spots were sprayed with gunite and fiber to strengthen those sections. Gunite was also shot onto the backside of the foundation wall. Because of a desire to keep the original floor system intact, a decision was made to establish a cut line on the foundation wall and the footings were cut in sections and shoring jacks installed to temporarily support the building. Support steel was gradually installed as the cutting and footing removal proceeded.</p> <p>With everything installed, the building was jacked up and transfer beams and bracing steel was installed along with 41 dollies to carry the 1500 tonne load. Even with power dollies and air brakes, the move was challenging with multiple grade changes and side sloping roads.</p>
5	Century and Gem theatre	Michigan, USA			Yes	1903 and 1927	1999	Baseball stadium development	Brick and stone	2 and 4	2450 tonne	32m x 30 m	563 m	4 days	<p>The Gem theatre is a two level theatre built of brick. The theatre shares a common wall and lobby with an older structure called the Century Club theatre. Although the Gem theatre had experienced recent renovations and was structurally in very good shape, the Century theatre was in very poor shape. The Century, a basic rectangular structure with tall, massive brick and sandstone walls, had been mostly gutted for renovation and then abandoned. A failed roof system and the extreme Detroit winters had severely deteriorated the structure. Major work on the brick walls was the first step in this project. Mortar was cut out and new grout installed. Some sections were taken down and relaid. Major steel reinforcement on the interior walls was required. Engineers and architects designed a steel framework which became a permanent part of the structure, becoming wall and new floor supports.</p> <p>A framework of steel beams was placed under both buildings in order to lift them as one unit. The buildings were elevated approximately 2.7 m in order to install the transport equipment and roll out on grade. Seventy one dollies were installed on transfer beams in three zones to support the 2450 ton load. Even though the Century theatre made up less than a quarter of the total foot print of the structures it represented more than half the total weight. This forced 41 of the dollies to be placed in one corner of the move platform and caused the loads on these dollies to be much higher than the other dollies. Due to this situation on a heavy layer of fill dirt was spread on all the streets over which the buildings traveled. The move predated the general use of hydraulically powered dollies and 4 large excavators and 2 large bulldozers, along with 1000's of metres of cable and pulleys were used to move the building.</p> <p>At the midpoint of the move route a 90 degree turn had to be made. This was complicated by the fact that internal attachment points for the cables on both sides of the structure had to be continuously relocated to maintain a true radial force to turn the building. The densely packed dollies in the heavy area of the building had to be constantly reset as they would begin to engage each other in the confined area. Many large buildings surrounded the area, further complicating the process. For a short time this building was the heaviest structure to be moved on pneumatic tyres in the world.</p>
6	Hornsby Signal Box	NSW, Australia			Yes	1928	2007	Rail expansion	Full brick, lime mortar	2	320 tonne	22 m x 8 m	130 m	1 day	<p>The Signal Box relocation was the first relocation of a masonry building on pneumatic tyres in Australia and was a finalist in the Engineers Australia Awards for that year. The building construction offered a number of challenges with racks of equipment imparting point loads through individual columns into footing pads located within the floor plan of the building and a post construction unreinforced slab poured between the lines of equipment which all needed to be supported from above to enable the building to be excavated. A temporary trusswork of chains was installed within the building to transfer the equipment loads (and second storey slab weight) from the base of the rack columns to the external walls of the building prior to it being dug out.</p> <p>Excavation of the building required the identification and termination of over 100 power and communication cables into and out of the building with excavation limited to the two narrow ends of the building due to an operational trainline within 1 m of one side of the building and approximately 20 essential service fibre optic cables located on the opposite side and within 3 m of the building. Railway iron had been installed within the buildings concrete footings (both within the building footprint and under the perimeter walls) which presented a problem for their demolition. The move methodology was adjusted to enable the installation of the support steel in the restricted space between the underside of the ground floor slab and the top of the concrete footers with pockets being cut out in the footer for the main beams only.</p> <p>The relocation route, though short was tight with the building being moved past existing infrastructure with only millimetres to spare and all within an operating rail corridor (and not in a possession). The building was moved up a ramp and rotated into position using a hub turn at the new site as there was insufficient room to spot the building directly above the new foundation as due to adjacent infrastructure constraining the approach to the new site.</p>
7	Armstrong House	Minneapolis, USA			Yes	1886	2001	Transit expansion	Brick and cut stone	4 plus basement	770 tonne	16.5 m x 20 m	800 m	9 days	<p>The three story brick and stone double house has 2 large fireplaces. The height of building meant it had a high centre of gravity. This was of some concern because one section of the route had a 6.5% slope. Although the brick and stone were substantially weathered, the mortar was mostly intact. The preparation of the structure for lifting went smoothly.</p> <p>Upon lifting the structure, it was discovered that construction of the upper walls was completely different from the first story. The first story consisted of three courses of brick, while the next two stories were made up of two independent courses with a rubble filled void in between. This discovery delayed the relocation by a month. The internal plaster was removed from the walls, holes were drilled through the walls and threaded rods installed with plywood plates reinforced with lumber on each side. The walls were then compressed and tied to the opposing walls. Once the building was set down, the final remedy for the hollow walls was a grid of steel pins drilled and epoxied in place tying both courses together.</p> <p>The move of the Armstrong house was an extremely technical event. The building was loaded on 24 dollies. There were four compound turns along the route which took a day or more for each turn. The section with the 6.5% of slope required four pieces of equipment attached to cables and blocks to maintain holdback on the building. Numerous reconfigurations of the dolly system to keep them within operational tolerances were required.</p>



Hornsby Signal Box Move



Mammoth Movers
Structural Moving and Heavy Haulage

....the **smart** alternative to demolition



Mammoth Movers

...the **smart** alternative to demolition

Hornsby Signal Box



Mammoth Movers, Australia's only specialist masonry moving company was recently engaged by the Transport Infrastructure Development Corporation (TIDC) to relocate the historically significant Hornsby Signal Box as part of an extensive upgrade to the Hornsby Rail Station.

Beginning its working life in 1928, the Hornsby Signal Box was one of the largest and most complex signal boxes of its time. Unfortunately, with the growth of the Hornsby Rail Station, it was not possible for the signal box to remain in its current position.



Mammoth Movers specialise in the relocation of very heavy and very large structures. Weighing nearly as much as 2 jumbo jets, the Hornsby Signal Box certainly qualified as heavy and large!

Without Mammoth Movers, the only other option would have been to demolish the building, and attempt to reconstruct it at the new site. With a building containing fragile and complex equipment such as the Hornsby Signal Box, this would have been a risky and expensive exercise.



By utilising Mammoth Movers, TIDC was able to relocate the building in one piece, with no risk to the structural integrity of the building, or to the machinery inside.

In order to move such a large and heavy building, Mammoth Movers utilised specialised digging, jacking and transporting equipment to ensure the move proceeded smoothly.



The unique lifting and moving techniques employed by Mammoth Movers opens up many new opportunities for the preservation of heritage buildings. Significant buildings of almost any size can now be relocated and preserved for future generations. Similarly private buildings can be relocated to a preferred site, or raised to take advantage of natural features such as views. Commercial buildings can be moved to more advantageous locations.

For further information please visit www.mammothmovers.com, email info@mammothmovers.com or contact Matthew Manifold on [REDACTED]





Mammoth Movers

...the **smart** alternative to demolition

Structural Moving

Mammoth Movers is a specialised structural moving company.

Structural Moving is a broad based term which covers the relocation of any sort of structure from buildings to bridges to mining equipment to locomotives, and anything in between. Mammoth Movers is focussed only on structural moving.

Structural Moving is the smart alternative demolition.

The Structural Moving concept opens up many exciting possibilities that were hereto unknown in Australia.

No longer do road widening projects mean homes must be demolished.... They can be moved.

Heritage buildings can now be relocated to sites where their preservation is ensured. Buildings in flood prone areas can be lifted or relocated to higher ground.

Home values can be increased by creating an extra storey, or improving the view. Many other objects can also be moved.

Structural Moving is a vital tool in Heritage preservation.

It is impossible to put a price on our Heritage. Relocating buildings of heritage significance can ensure their safety and preservation for generations.

Some Significant Structural Moves

The Guinness Book of Records lists the Fu Gang building in the Guangxi Province of China as the heaviest building ever moved. Weighing in at just over 15 000 tonnes, (that's nearly 100 jumbo jets) and standing 34 metres tall, it was moved 35 metres in 2004.



In 2006, a 3500 year old statue of King Ramses II was moved from its position near the Cairo Railway Station to a temporary home in Giza. Made of red granite, the statue weighing over 83 tonnes was moved as it was becoming damaged due to exposure to pollution and vibration. The statue was moved in one piece in an upright position. This is the oldest structure of this size

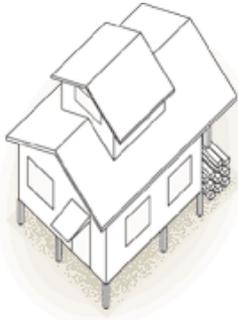




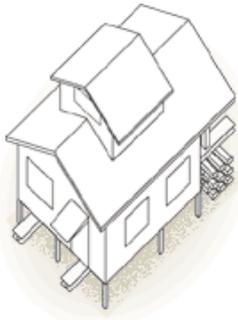
Mammoth Movers

...the **smart** alternative to demolition

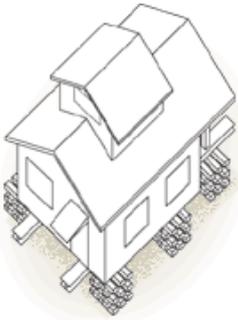
The Building Moving Process



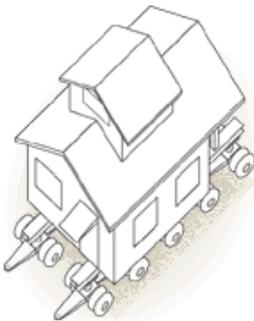
Step 3: The building is excavated and support jacks installed



Step 4: Steel support beams are inserted under the building



Step 5: The building is raised and ready for the transport dollies



Step 6: The building is placed on dollies and ready to move

Step 1: Engineering Calculations

Before any work begins on the building itself, extensive engineering calculations are required. The design of the building is comprehensively analysed, the building weight and load distribution is determined, the location and size of the steel support beams is established, and the move process is planned in detail to ensure a satisfactory outcome.

Step 2: Permits and Approvals

All required permits and approvals must be obtained, and all services such as gas, water, electricity and telephone are disconnected before work commences.

Step 3: Excavation

Using specialised digging equipment, the dirt from underneath the building is excavated, and temporary support jacks are installed.

Step 4: Support Installation

Steel beams are inserted into the precise position where they will bear the entire weight of the building during the move. The size and position of the beams are a crucial part of the success of the move.

Step 5: Raising

Using specialised hydraulic jacking equipment, the building is slowly lifted off its original foundations. The jacking equipment is specially designed to ensure the building stays level at all times, thus minimising stress on the structure. The building is continually jacked and supported until a suitable height has been reached.

Step 6: Transportation

Purpose built rubber tyred 'dollies' are placed under the building and attached to the steel supporting structure. These 'dollies' incorporate a specialised hydraulic system which ensures the building stays stable and unstressed during the move. Once attached, the building can be towed to its new home, and positioned over the new foundations.

Step 7: Relocation

Once the building has arrived at its destination site, it is manoeuvred into place, and is then lowered onto its new pre-prepared foundations.

Step 8: Reconnection

The building can then be reconnected to services, the site can be landscaped, and the building is now ready for a new life in its new location!



Mammoth Movers

...the **smart** alternative to demolition

Hornsby Signal Box

The Hornsby Signal Box is an important piece of NSW rail history. Built in the 1920's and starting work on the 16th of September, 1928, the Hornsby Signal Box was one of the grandest ever built by New South Wales Railways. An imposing 2 storey building, with a veranda overlooking the railway station, and an internal spiral staircase for access to the upper level, the Hornsby Signal Box faithfully guided trains for over 70 years, and still remains in near-original condition.



Inside the Hornsby Signal Box in 1928

In appreciation for its contribution to railway history, the Hornsby Signal Box is listed on the State Rail Authority's Section 170 Heritage and Conservation Register, and is soon to be involved in another historical event when it is relocated to make way for the enlargement of the Hornsby Rail Station.

In an Australian first, the Hornsby Signal Box, constructed of concrete, brick, steel and timber, and weighing approximately 320 tonnes, will be carefully lifted from its foundations, attached to nearly 100 wheels via specialised moving dollies, and towed to a nearby site. The Hornsby Signal Box will then be gently lowered, intact and containing all its original equipment, on new foundations where it can be preserved for future generations.

Constructed as part of the Sydney Electrification Scheme in the 1920's and 30's, the Hornsby Signal Box is a "Type J" Electro-Mechanical Interlocking Signal box, and one of the most elaborate ever designed and built by the NSW Rail Signal & Telegraph Branch. The Interlocking machine was a great advance in rail safety, as it contained the levers to operate various points and signals, and was configured in such a way as to prevent conflicting operations being performed, essentially preventing collisions, accidents and derailments. The photograph above shows the original interior of the Hornsby Signal Box, with various control levers, and the track diagram above.

Almost the entire ground floor of the signal box is occupied by the many relays and other equipment required for the signal box to function, and is evidence of the complexity of the design. That the signal box was still functioning safely and effectively 70 years later is testament to the skills of the engineers who designed it.





ATTACHMENT 6
Groundwater Response

1.0 Groundwater

The submission by Dr Steven Pells on behalf of the EDO dated 28 March 2022 (Dr Pells Submission) raises a number of matters regarding the groundwater impacts of the Project, and the assessment of these impacts in Project documentation.

Dr Pells Submission provides a review of the Groundwater Impact Assessment (GWIA) for the Project. Dr Pells has identified four matters regarding the GWIA and EIS in Section 2.2 and 2.3 of his submissions which can be summarised as follows:

- Revised mapping of extent of ‘highly productive groundwater systems’
- The resolution of the regional groundwater model to examine groundwater processes in the alluvium with accuracy.
- The ability of the groundwater modelling to clearly represent details of the alluvium regions.
- The use of various terminology in the EIS differentiating the concepts of “drawdown”, “depressurisation”, “dewatering” and “saturation” when discussing mining effects (for example, Section 7.5.6.2 of the EIS) and the ability of the maps showing drawdown in the EIS to provide adequate representation of the actual impacts to the alluvial groundwater.

In addition to the above concerns, Section 2.4 of Dr Pells Submission raises concerns regarding the assessment of cumulative impacts and the lack of assessment relative to ‘pre mining’ conditions and Section 2.5 discusses proposed monitoring and conditions.

These issues are addressed in the following sections. It is noted that the commentary in the Sections below do not contain any new material that is not already before the IPC.

1.1 Expert Review of GWIA

As specified in the Groundwater Impact Assessment (GWIA) for the Project (AGE, 2019), the groundwater assessment was completed in accordance with relevant NSW and Commonwealth Legislation, Policy and Plans relating to groundwater, including but not limited to; *the Water Management Act 2000* and the associated Water Sharing Plans, the Aquifer Interference Policy 2002 (AIP), and the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The GWIA was independently peer reviewed by Dr Noel Merrick with a copy of the Peer Review dated 28 November 2019 provided as Appendix F to the GWIA. Dr Merrick is a highly regarded expert in groundwater modelling and groundwater assessments, particularly in relation to coal mining projects in NSW. Dr Merrick was a member of the NSW working group that drafted the State Groundwater Policy documents and was instrumental in the final form of the NSW Aquifer Interference Policy. He has participated on several expert panels for the NSW government, is a salinity auditor for the Murray-Darling Basin Authority, has provided expert evidence in court hearings and has been a modelling advisor to the Commonwealth government and to five State governments. **The Peer Review found that:**

The reviewer is of the opinion that the documented groundwater assessment is best practice and concludes that the model is fit for purpose, where the purpose is defined by the objectives stated in Document #1 and Document #2:

- *“to assess the impact of the Project on the groundwater regime and address the requirements of the NSW and Commonwealth government legislation and policies”; and*
- *“to allow the risks to the groundwater regime to be assessed using a groundwater model to systematically investigate the causal pathways for potential impacts on water resources and water-dependent assets”.*

The GWIA was also assessed by the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (the IESC) process, established under the EPBC Act. The IESC was requested by the then Australian Government Department of the Environment and Energy (DoEE) and the New South Wales Department of Planning, Industry and Environment (DPIE) to provide advice on water resources relating to the Project.

The role of the IESC is to provide independent, expert, scientific advice to the Australian and state government regulators on the potential impacts of coal seam gas and large coal mining proposals on water resources. The advice is designed to ensure that decisions by regulators on coal seam gas or large coal mining developments are informed by the best available science. The IESC committee members are leading scientists in their fields, with the IESC panel members for this Project, being:

- Dr Chris Pigram (Chair) – geologist with over 40 years’ experience
- Professor Craig Simmons – leading international authority on hydrogeology and groundwater modelling
- Dr Catherine Moore – groundwater scientist and modeller with a hydrogeology background and more than 25 years’ experience
- Professor Wendy Timms – Geology, hydrogeology and engineering expertise with over 25 years’ experience
- Professor Jenny Davis – expertise in freshwater biodiversity and wetland conservation
- Associate Professor Rory Nathan – over 35 years’ experience in engineering and environmental hydrology
- Dr Jenny Stauber – 40 years research experience in the fields of ecotoxicology, water quality, contaminant environmental risk assessment and human toxicology
- Dr Andrew Boulton – research spans river and groundwater ecology, Adjunct professor in Ecosystem Management.

The GWIA and other EIS material were also considered by the NSW Department of Planning, Industry and Environment – Water Branch (DPIE – Water) who specifically considered the Project’s compliance with the NSW Aquifer Interference Policy. While not documented in the correspondence provided by DPIE-Water to the DPIE, this review typically involves a comprehensive review of all material provided including the adequacy of groundwater modelling undertaken.

Through the above assessment and peer review processes, the Project’s impacts on water resources, and in particular groundwater, have been through comprehensive assessment

1.2 Highly Productive Groundwater Mapping

The mapping of the extent of Highly Productive Groundwater is only relevant to the assessment of the Project's predicted impacts relative to the NSW Aquifer Interference Minimal Impact Considerations. The revised mapping referred to by Dr Pell is, in fact, refined mapping of the extent and depth of alluvium to improve the accuracy of modelling.

Appendix A of the GWIA details the results of investigations regarding the extent and thickness of alluvial sediments within the area which have greatest potential to contain aquifer systems which may be impacted by the Project. The need to refine the mapping relative to the DPI-Water mapping of Highly Productive Aquifers is described in Section A1 and A3 of the Appendix A. Details of test pits considered in the assessment are contained in Table A 2-1 of Appendix A.

Alluvial extent forms only part of the potential consideration of what is a Highly Productive Aquifer. It should also be noted that a highly productive aquifer must meet the following criteria as set out in the NSW Aquifer Interference Approval:

- Highly productive groundwater is defined in this Policy as a groundwater source that is declared in the Regulations and will be based on the following criteria:
 - a) has total dissolved solids of less than 1,500 mg/L, and
 - b) contains water supply works that can yield water at a rate greater than 5 L/sec

Section 5.8 of the GWIA includes a comprehensive assessment of the groundwater quality of bores within the defined alluvial extent. As a result of this analysis, only the alluvial aquifer associated with Bowmans Creek and Glennies Creek were considered to meet the water quality criteria for 'Highly Productive Groundwater'. Section 5.3 of the GWIA considers the saturation and productivity within the alluvial aquifers and indicated that the Yorks Creek and Swamp Creek Aquifers also fail to meet the yield criteria for 'Highly Productive Groundwater'.

Contrary to the assertion in Section 2.3 of the Pell Report, Appendix A of the GWIA was part of the body of materials reviewed by Dr Noel Merrick and is specifically referenced as being reviewed in Section 2 of the Peer Review Letter (refer to Appendix F of the GWIA). The opening paragraph of Section 4 of the Peer Review directly considers the work involved in defining the extent of alluvium. Additionally, the GWIA (including Appendix A) were reviewed by both DPIE-Water and the Commonwealth Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (the IESC) process. No concerns regarding the mapping of the extent of alluvial mapping or the area defined as being 'highly productive groundwater' were raised in either the peer review or the DPIE-Water and IESC reviews.

1.3 Modelling of Alluvium

The Review by Dr Pell suggests higher resolution modelling of the Alluvium, both in terms of the cell size and the use of a single layer to model the alluvium. No concerns regarding the model resolution were raised by either the Peer Review or the IESC Review however the IESC did identify the following omission from the conceptual groundwater model in the GWIA:

However, the magnitudes of changes, particularly those relating to changes in upward leakage from the Permian aquifer and downward leakage from the alluvial aquifers are not quantified. Recharge rates to the shallow alluvium aquifer are also not quantified.

These inputs to the alluvial water budget were provided for four sections of the Bowmans Creek alluvium in Section 2.4 of the Response to Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development Advice dated August 2020 (Response to IESC Advice).

1.4 Model Cross Sections

Dr Pells Submission asserts that the EIS should have contained a cross section of the proposed pit relative to the alluvium. His submission on this point is quoted in full below:

Thirdly, the groundwater modelling the EIS does not clearly represent details of the alluvium regions. For example, I have drafted an approximate cross-section for this Project (Figure 7), showing the extents of alluvium at a particular location relative to the proposed pit extension. I argue that such a cross-section, taken from the numerical model, should be presented. Such a cross-section would illustrate clearly the resolution to which this alluvium has been physically represented within the numerical grid. It could also be used to present simulated groundwater depressurisation in detail, which would allow examination of why such a small amount of depressurisation is realised within the alluvium.

It is noted that Section 7.5 of the EIS is a summary only of the much more comprehensive GWIA. The regional geology (including the alluvium) relative to the Glendell Pit Extension is shown in Figures 4-2 and 4-3 of the GWIA. Further details of the model set up are detailed in Appendix B of the GWIA, including oblique views of model layers in Figures B4 and B5. Additionally detailed cross sections, including piezometric surface and water table levels are shown in Figures 2.2 to 2.5 of the Response to IESC Advice Report.

The Project's location along the spine of the Camberwell Anticline and the depressurisation of down dip strata associated with surrounding mining is considered to be a key reason for the low levels of predicted impact to the Bowmans Creek alluvial aquifer. These effects are illustrated in Figures 2.2 to 2.5 in the Response to IESC Advice. As observed in the site visit, the existing Glendell Pit has very limited 'free flowing' groundwater. This was noted in paragraph 21 of the IESC Advice which states:

The proponent notes that groundwater inflows to the Glendell Pit only result in very limited 'free flowing' groundwater which is generally removed via evaporation with insufficient volumes entering sumps for quantification (AGE 2019, p. 84). Estimates of inflows are less than 1 ML/day (AGE 2019, p. 84). Decision makers can be confident in this prediction based on the understanding that the Glendell Pit is a relatively dry pit.

The existing monitoring within the Bowmans Creek alluvium to the west of the existing Glendell Mine does not show any observable impacts on groundwater levels in this alluvium despite monitoring of deeper seams indicating piezometric levels in the Permian strata being below the base of the alluvium. In effect the approved mining in the region has already disconnected the alluvial water table from the Permian strata and this condition will continue even if the Project is not approved. This issue is discussed in further detail in Sections 5.5 and Section 7 of the GWIA and Section 2.4 of the Response to IESC Report. The lack of impact from the Glendell Mine is also unsurprising given the low levels of inflows observed into the Glendell Pit itself. Similar effects would be expected as a result of the Glendell Pit Extension to the North. Accordingly, the modelled low rates of depressurisation are consistent with both a conceptual understanding of the hydrogeology of the area and historical monitoring.

1.5 Groundwater Concepts of Impact Modelling

Dr Pells included comments that the EIS wording may have used groundwater terminology inconsistently. His submission on this point is extracted in full below:

Lastly, the EIS is unclear in differentiating the concepts of “drawdown”, “depressurisation”, “dewatering” and “saturation” when discussing mining effects (for example, Section 7.5.6.2 of the EIS). The mechanics of groundwater flow is such that removal of groundwater from the pit may induce vertical downward flow from the alluvium. Under such conditions, it is possible that a significant reduction in pressure (and even saturation) of the alluvium can occur without a significant change in the elevation of the water table in the alluvium, particularly if recharge over the alluvium is large enough to maintain the water table level. In my view, the EIS should clearly define and differentiate these concepts and then clearly present what is simulated to occur in the alluvium. My concern is that the maps showing drawdown in the EIS are simply plotting change to the water table, and that this is not giving adequate representation of the actual impacts to the alluvial groundwater.

The terminology used in both the EIS and the GWIA is correct. Due to the Project being located in a groundwater system that has been heavily impacted by mining, some of which would cease during the life of the Project while others continued, it was essential to understand changes to groundwater systems relative to both existing conditions, and a scenario where the mine would not occur. The GWIA includes consideration of both drawdown and saturation within the alluvium (refer to Section 7.2 and 7.3 in the GWIA) with the difference described in detail in these sections. Section 3.4.3 of the Assessment of Commonwealth Matters Report (Appendix 10 of the EIS) considers the effect of changes in shallow water table levels (and in particular, changes in depth to water table) and potential impacts on GDEs and persistent pools. The assessment in both the GWIA and the Assessment of Commonwealth Matters Report is considered to comprehensively consider maximum incremental impacts and cumulative impacts and the temporal nature of these impacts relative to both existing conditions and modelled recovery conditions in the absence of the Project. It is noted that the EIS main text only includes a summary of these aspects of the impact assessment.

Further details regarding the interrelationship between the Project’s impacts and modelled cumulative impacts are discussed in Section 2.6 of the Response to IESC Report.

1.6 Cumulative Impacts

Dr Pells Submission raises concerns regarding the assessment of cumulative impacts and the lack of assessment relative to ‘pre-mining’ conditions and Section 2.5 discusses proposed monitoring and conditions. Dr Pells submission on this point is extracted in full below:

As discussed above, there is extensive mining in the vicinity of the Project, making assessment of cumulative impacts an important matter. The EIS makes reference to an argument of diminishing the impacts from the Project by comparison to the impacts by the Project against those of “already approved mines” (for example, Section E2.1.4 of the EIS). In my view, this is a problematic argument, as it offers no protection of environmental values once the first project is approved. In my view, cumulative impacts should consider the net impact on the region, as compared to pre-mining (‘baseline’) conditions, rather than referencing existing mining activities.

It is not clear why Dr Pell's submission on this point refers only to the EIS Executive Summary when the GWIA and the Assessment of Commonwealth Matters Report include a comprehensive discussion and assessment of cumulative impacts. As noted above, further detailed consideration of the cumulative impacts and the complex interrelationship between the Project's impacts and a regional groundwater system in a state of recovery are discussed in Section 2.6 of the response to IESC Advice.

No concerns regarding the assessment approach to cumulative impacts and the lack of assessment against 'Pre-mining (Baseline) conditions' were identified by any of the Peer Review by Dr Merrick, the IESC Advice or the DPIE-Water review. Indeed, given the context of the Project within an area with a long history of mining, the consideration of the Project's impacts relative to a pre-mining baseline is a hypothetical exercise at best and would not inform assessment of the Project's potential impacts on existing groundwater and connected surface water and ecohydrological features.

1.7 Groundwater Monitoring and Conditions

Section 2.5 of Dr Pell's submissions raises four points in relation to monitoring and the imposition of conditions. The following points are noted in relation to these points:

- As detailed in Figure 5.1 of Appendix 16, there is an extensive groundwater network within the alluvium and surrounding Permian strata. While some of this monitoring network will be 'mined through' if the Project is approved, the remaining network has been established to provide an appropriate level of impact monitoring and data collection for ongoing model review and calibration. Most of the shallow alluvial bores that will be impacted by the Project were installed to provide an understanding of the alluvium and associated groundwater system to inform the proposed limit of the Glendell Pit Extension. The removal of these bore has limited impact on the adequacy of the monitoring network should the Project be approved.
- The existing bore network also includes strategically placed nested bores. It is noted that paired bores targeting the alluvium and underlying Permian strata were specifically installed to understand interactions between these systems. These paired bores will not be removed by the proposed mining.
- The Recommended Conditions prepared by DPE and accompanying the DPE Assessment Report include a comprehensive set of conditions related to the monitoring and management of groundwater impacts. These impacts include a requirement to prepare a Groundwater Management Plan. As required by Conditions D4 and D5 of the Recommended Conditions, the Groundwater Management Plan must include details of adaptive management measures and 'to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible'.



ATTACHMENT 7
Climate Change Response

1.0 Climate Change

The Submission by Dr Penny Sackett on behalf of the EDO dated 28 March 2022 (Dr Sackett Submission) makes a number of claims regarding the Project’s predicted climate change impacts and the assessment of these issues.

Sections 3 to 6 of the Dr Sackett Submission summarises the causes of Anthropogenic Climate Change and associated impacts and the importance of action to reduce climate change.

The importance of achieving a position of “net zero” emissions is accepted by the Proponent and is reflected in Glencore’s stated position on climate change, its climate change commitments and Climate Change Strategy².

The matters raised in Sections 8 and 9 of the Dr Sackett Submission have largely been dealt with in Section 2.0 and 3.9 of the Response to Submissions Made to IPC Public Hearing (Umwelt 2022a), the Response to IPC Questions dated March 2022 (Umwelt 2022b) and various aspects of the EIS, Response to Submissions Report Part A and other material provided to the Department of Planning and Environment (DPE) throughout the assessment processes. Table 1.1 below identifies where the issues raised in the Sections 8 to 9 of the Dr Sackett Submission have been addressed in previous submissions.

Table 1.1 Summary of Where Issues Addressed in Assessment Documents

Dr Sackett Submissions Section	Where addressed in assessment documentation
8.1 Greenhouse Gas Emissions from the Project	Revised Greenhouse Gas and Energy Assessment dated May 2020 (Revised GHGEA) submitted as Appendix 2 to the Response to Submissions Report A. Glencore Letter to DPIE dated 21 January 2022 with updated Scope 1 emissions estimates based on revised GWP for Methane Section 2.0 of Response to IPC Questions (Item 1)
8.2 Implications of the Project for National and State Emission Targets	Revised GHGEA Section 4.3 Section 2.2 of the Response to IPC Public Hearing Submissions
8.3 Why Approving the Project is inconsistent with warming well below 2°C	Revised GHGEA Section 4.3 Section 2.2 of the Response to IPC Public Hearing Submissions
8.4 Cumulative Effects of the Project	Revised GHGEA Section 4.1 and 4.2 Section 2.2 of the Response to IPC Public Hearing Submissions
9.1 Future Climate Change Impacts	Climate change impacts are considered in various studies, including the surface water assessment and groundwater impact assessment (refer also to Response to IESC Advice) All assessments have been completed in accordance with relevant NSW assessment requirements.
9.2 Project’s Climate Costs to State and Globe much higher than suggested in EIS	Response to CIE Review dated 20 December 2021 See also Section 1.2.2 and 1.2.3 below
9.3.1 Scope 3 Emissions and Double Counting	Scope 3 emissions are assessed in the Greenhouse Gas and Energy Assessment (Appendix 28 of the EIS) ³ . See also Section 1.2.2 below

² Refer to <https://www.glencore.com/sustainability/esg-a-z/climate-change>

³ While the Revised GHGEA updates the GHGEA appended to the EIS, the Revised GHGEA does not revise predicted Scope 3 emissions.

Dr Sackett Submissions Section	Where addressed in assessment documentation
9.3.2 The Carbon Budget Approach	Section 5.1.3 of the Response to Submissions Report Section 2.2 of the Response to IPC Public Hearing Submissions See also Section 1.1 below
9.4 The Departmental Assessment Report and Recommended Conditions of Approval	Section 5.1.3 of the Response to Submissions Report See also Section 1.2.2 below
9.5 Precautionary Principle and Intergenerational Equity	Section 2.2 of the Response to IPC Public Hearing Submissions See also Section 1.3 below.

Consideration of the Project’s consistency with NSW policy commitments are detailed in Section 2.2 of the Response to Submissions Made to IPC Public Hearing (Umwelt 2022a) and the Revised Greenhouse Gas and Energy Assessment included in the Response to Submissions Report Part A (Revised GHGEA). In addition, **Section 1.1** below provides some additional comments on the carbon budget issue.

Section 9.2 of the Dr Sackett Submission also includes commentary on the consideration of climate costs to the State and globe. This is considered further in **Section 1.2** below.

It is noted that the commentary in **Sections 1.1, 1.2** and **1.3** below does not contain any new information that is not already before the IPC.

1.1 The Carbon Budget issue

Dr Sackett’s Submission and her presentation at Day 2 of the IPC Public Hearing raised a number of issues including how a carbon budget approach can inform policy makers. Appendix 29 of the EIS, a paper prepared by Glencore called Glencore Observations on Recent Climate Change and GHG emissions litigation, discusses climate change and greenhouse gas emissions litigation, including the carbon budget approach.

The EIS GHGEA and Revised GHGEA provided as Appendix 2 in the RTS Report Part A assess how the Project’s greenhouse gas emissions may impact the environment. This assessment did not, and is not required to be, undertaken using a carbon budget approach. Furthermore, while a carbon budget is a policy and communication tool, which can be useful for raising awareness, scenario planning and driving action, the carbon budget approach is not required to be used by a consent authority during the Project assessment and approvals process. Rather, as required by the SEARs and Clause 2.20 of the State Environmental Planning Policy (Resources and Energy) 2021 (formerly Clause 14 of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007), the assessment of a proposed development’s greenhouse gas emissions must have regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions requirements. The assessment of the Project’s impacts on the environment and climate change as a result of greenhouse gas emissions and the impact on Commonwealth and NSW Policy objectives in force at the time the Revised GHGEA was prepared (May 2020) is contained in Section 4.0 of the Revised GHGEA.

Section 2.2 of the Response to Submissions Made to IPC Public Hearing includes further discussion regarding the consistency of the Project with the NSW Government’s Net Zero Plan (NSW Government, 2020a) and its Strategic Statement on Coal Exploration and Mining in NSW (NSW Government, 2020b) and the relevance of this to the assessment of the Merits of the Project. As discussed in Section 2.2 of the Response to IPC Public Hearing Submissions, the Project is entirely consistent with NSW Government Climate Change Policies.

1.2 Consideration of Climate Change Costs

1.2.1 Use of Social Cost of Carbon Valuations

The approach to the consideration of climate change costs is considered in detail in the Response to CIE Review prepared by Umwelt, dated 20 December 2021. The Response to the CIE Review does not appear to have been considered by Dr Sackett in her submission and she has instead considered only the EY Economic Impact Assessment prepared for the Project. The Response to the CIE Review addresses a number of issues raised in the Dr Sackett Submission, including the appropriateness of using Social Cost of Carbon (SCC) valuations over market-based prices. The Response to CIE Review includes an updated estimate of Scope 1 and 2 Costs attributable to NSW based on USEPA ECC estimates. It is noted that the USEPA SCC estimates are also supported for use in the ACT by the ACT Climate Change Council (2021) Report: *The Social Cost of Carbon and Implications for the ACT*⁴ (which is quoted approvingly in the Dr Sackett Submission⁵).

1.2.2 Inclusion of Scope 3 Emissions in CBA

It should be noted that Dr Sackett's comments relate to the consideration of climate change impacts generally and does address the fact that the Economic Assessment prepared by EY has been prepared in accordance with Guidelines for the Economic Assessment of Mining and Coal Seam Gas proposals (NSW Government (2015) (Economic Assessment Guidelines) and the accompanying Technical Notes Supporting the Economic Assessment Guidelines (NSW Government, 2018) (Technical Notes). The requirements under Technical Note 9 – Greenhouse Gas Emissions are very specific in their requirement to consider only Scope 1 and Scope 2 emissions. The exclusion of Scope 3 emissions in the EY CBA analysis is therefore entirely consistent with assessment requirements under the Secretary's Environmental Assessment Requirements for the EIS and their exclusion should therefore not be viewed as a criticism of the assessment.

Dr Sackett is entirely correct in identifying that climate change impacts are associated with the burning of the coal. However, it needs to be stressed that the Project does not create the demand for the coal mined by the Project. That is, if the coal is not mined at the Glendell Mine, the demand for this product would be met through coal mined elsewhere which would still be burnt and would still produce CO₂ emissions with the same corresponding climate change impacts to NSW, or arguably more emissions depending on the quality of the alternative coal source. In this regard, the Project's net increase in climate change related costs (either globally or to NSW) relative to the base case of the project not proceeding are zero. It is primarily for this reason that Scope 3 emissions are, appropriately, excluded from consideration in the CBA required by the Economic Assessment Guidelines.

1.2.3 Sensitivity of CBA to inclusion of Scope 3 emissions as estimated by Dr Sackett

Dr Sackett has calculated the global costs of all greenhouse gas emissions associated with the Project over its life (i.e. Scope 1, Scope 2 and Scope 3 emissions) as being \$136 billion (AUD) with an apportioned amount of \$114 million (AUD). While it is not possible to fully replicate this calculation based on the information provided (e.g. assumptions regarding exchange rates are not provided) it is noted that this is an 'undiscounted' value and therefore *not* directly comparable to the calculated CBA figures.

⁴ 2 ACT Climate Change Council (2021) The Social Cost of Carbon and Implications for the ACT.
https://www.environment.act.gov.au/__data/assets/pdf_file/0006/1864896/a-social-cost-of-carbon-in-the-act.pdf

⁵ Refer to paragraph 334 of the Dr Sackett Submission and foot note 222)

Notwithstanding the above comments regarding it being inappropriate to include Scope 3 emissions and the undiscounted nature of the emissions valuations provided by Dr Sackett, the following considers the sensitivity of the projected benefits of the Project to the State should the costs associated with Scope 3 emissions be included in the CBA.

Even if the higher undiscounted apportioned estimate of \$277 million identified in paragraph 277 of the Dr Sackett Submission was considered to be appropriate for consideration in the CBA and the discounted lower (25%) estimate for both worker (\$117M) and supplier (\$71.6) benefits are considered (i.e extremely conservative assumptions regarding both climate change costs and indirect benefits), the Project would still represent a very significant benefit to the State of approximately \$395 million AUD (\$555 million using the central \$117 SSC valuation identified in Dr Sackett's submission)⁶ in NPV terms. That is, the Project would still represent a significant benefit to NSW even under these hypothesised, very conservative assumptions regarding climate change impacts which include consideration of Scope 3 emissions. The estimated benefits to the State identified through CGE modelling would be significantly larger than this CBA analysis.

On this basis alone, the argument that the climate change impacts negate any economic benefits of the Project to the State should be rejected.

1.3 Precautionary Principle and Intergenerational Equity

Submission 9.5 of Dr Sackett's submission asserts that the Project is inconsistent with the principle of Intergeneration Equity. While not stated in the submission, it is assumed that the reference to Precautionary Principle in the heading to Section 9.5 of the submission implies that the application of the precautionary principle similarly warrants the refusal of the project. Both terms are defined in Section 6(2) of the NSW *Protection of the Environment Administration Act 1991* (POEA Act) and, through the definition of ecologically sustainable development, are incorporated into the objects of the EP&A Act. These two issues are discussed further below in regard to their application to the Project's impacts associated with greenhouse gas emissions.

1.3.1 Precautionary Principle

The precautionary principle is defined in section 6(2) of the POEA Act as:

- (a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by—

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options.

⁶ Based on Assessed Direct and Indirect Costs and Benefits identified in Table F3 of Addendum F to the EY Economic Impact Assessment

There is little doubt that climate change represents a threat of serious or irreversible environmental damage. However, there is similarly no argument being put that a lack of full scientific certainty is being used as a reason for postponing measures to prevent environmental degradation. Importantly, it is noted that the NSW Government is implementing significant legislative and policy measures towards achieving a Net Zero greenhouse gas emissions profile for NSW by 2050, consistent with Paris Agreement objectives and the application of the precautionary principle. Given the global nature of climate change and the significant domestic social-economic implications associated with a transition to a net-zero economy, it is appropriate the policy direction for this transition be set by the NSW Government which considers the different implications associated different policy options. The extent to which coal mining remains part of the economy and the provision for extensions to existing mines within this transition framework is an important part of these policy considerations and settings.

As discussed in Section 2.2 of the Response to IPC Public Hearing Submissions, the Project is entirely consistent with NSW Government Climate Change Policies and it would therefore be an error to rely on the precautionary principle as a justification for refusal of the Project.

1.3.2 Intergenerational Equity

The intergenerational equity is defined in section 6(2) of the POEA Act as:

- (b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

It is well understood that climate change presents a significant inter-generational risk. However, it must be understood that the *additional* greenhouse gas emissions associated with the Project (Scope 1 and 2 emissions) will have only a negligible incremental impact on climate change itself and these incremental impacts are considered highly unlikely to have significant intergenerational equity impacts. The significant social and economic benefits associated with the Project (noting that these also fall within the definition of environment and ecologically sustainable development considerations) will have significant inter-generational *benefits* for not only people alive today but also future generations.

As discussed in Section 5.2.2, the Project does *not* affect the demand for coal and the Scope 3 emissions calculated on the coal produced by the Project will be emitted irrespective of whether the coal burnt is mined by the Project or elsewhere in the world. Accordingly, any inter-generational impacts associated with the Project's assessed Scope 3 emissions will occur irrespective of whether or not the Project proceeds. Inter-generational equity considerations are not limited to climate change related impacts alone and there is significant potential that the mining of lower calorific value coal in other parts of the world would have significant additional environmental impacts (i.e. in addition to those associated with climate change) which should also be taken into account in inter-generational equity considerations.

As with precautionary principle considerations, the global nature of climate change impacts and the potential secondary inter-generational effects of different policy options are issues which are appropriately set at the State and National policy level. Individual projects must be considered within the broader policy framework which includes a holistic view of intergenerational impacts.

As discussed in Section 2.2 of the Response to IPC Public Hearing Submissions, the Project is entirely consistent with NSW Government Climate Change Policies and is permissible under all relevant NSW policies.



ATTACHMENT 8

Land Use Transition Response

Land Use Transition

The submission by Dr Liam Phelan on behalf of the EDO dated 28 March 2022 (Dr Phelan Submission) raises concern in relation to workforce transition of coal industry jobs in the Hunter region, and the potential impacts of continuing mining leaving the workforce and their local communities vulnerable due to an increasing uncertain future.

Glencore recognises that this is a complex issue with detailed consideration and planning required on a broad regional scale for the economic future of the region, and Glencore's involvement in this is already occurring.

In considering the land use transition process, it is important to recognise that in the NSW Strategic Statement, the ongoing demand for coal, particularly Australian high quality thermal coal, will continue to be used because of its ability to be used in high efficiency coal-fired power stations. As previously stated, the NSW Strategic Statement also recognises the importance of existing industry investment by considering responsible extensions of the life of current coal mines.

On a regional scale, Glencore has recently provided feedback to Council as part of its Mine Sites Strategic Land Use Master Planning – Enabling the Beneficial Re Use of Mine Lands Project, and to DPE as part of the development of the Draft Hunter Regional Plan 2041 (the Draft Plan), primarily relating to post mining land use, with one of the principles in the Draft Plan being “the land use maximises employment generation or will attract visitors to the region”. The Draft Plan notes that “mining is a significant source of direct and indirect jobs and underpins the Hunter's prosperity.” One objective of the Draft Plan is through enabling greater diversification of employment, mining and energy generation lands to support innovation, economic growth and renewal. The Draft Plan also opens up opportunities for re-using mining lands and their infrastructure for new land uses going forward.

The Draft Plan includes an analysis of potential post mining land uses for established mining operations within the Central Hunter Region. This analysis identifies three categories of mining land:

- *Operational land*: land historically or actively used for mining operations. This land will have been directly affected by mining and will require rehabilitation works.
- *Non-operational land*: land which is managed by mining operations but is not part of active or historical mining operations. This land will not require rehabilitation and may be used as a buffer.
- *Areas of interest*: operational land identified as being well suited for alternative post mining land uses that generate employment. This is land where mine infrastructure such as hard stand areas, workshops, stores, treatment plants and rail loops are concentrated.

The Draft Plan includes a spatial analysis of 'areas of interest' within established mine sites in the Central Hunter and identified potential land use opportunities for each mine. These land use opportunities include energy generation, intermodal (inland rail), defence, food and fibre processing, intensive agriculture, and industrial uses, manufacturing and industry. In the Draft Plan, the Mount Owen MIA, capped tailings storage facilities and rail infrastructure have been identified as an 'Area of interest' and the Glendell Mine and Glendell Continued Operations Project Area are identified as 'Operational land'.

The Draft Plan notes that 'areas of interest' can be expanded to include other operational land, including voids, depending on technical feasibility and consideration of post mining land use principles. Other operational land could be considered for less intensive employment generating uses, such as food and fibre production. The potential for the Glendell Continued Operations Project Area to be used for other land uses following the completion of mining, including uses which would meet the criteria for an 'Area of Interest', is discussed in detail in Section 7.9.5 of the EIS (in particular Section 7.9.5.1 and Table 7.51).

On a local scale, Glencore has made a number of significant contributions to Singleton Council's Community & Economic Development Fund (CEDF) as part of project's Voluntary Planning Agreements within the Singleton LGA. The CEDF was established by Singleton Council in partnership with Glencore and another mining company, The Bloomfield Group. The Fund is administered by the CEDF Joint Management Board comprising Council, Glencore and Bloomfield representatives. Further information on the CEDF can be found via this link: <https://www.singleton.nsw.gov.au/1219/Singleton-Community-Economic-Development>

As a significant employer in the Hunter Region, Glencore takes its responsibilities with respect to mine closure planning seriously. Mine closure planning starts from the beginning of any mining project and continues throughout its lifecycle. As a mine moves closer to closure, detailed planning and studies are completed to develop a detailed mine closure plan, in accordance with relevant consent conditions. This process is guided by the agreed final landforms stipulated by the project approval, agreed closure criteria and ongoing consultation with internal and external stakeholders. An example of this in practice being Glencore are currently in the process of executing the detailed closure plans at the Macquarie Coal complex near Newcastle and at Baal Bone, near Lithgow.

In regard to the Project, DPE have recommended the following draft consent condition:

B92 Rehabilitation Strategy

(j) include a post-mining land use strategy to investigate and facilitate post-mining beneficial land uses for the site (including the final void), that:

- (i) align with regional and local strategic land use planning objectives and outcomes;*
- (ii) support a sustainable future for the local community;*
- (iii) utilise existing mining infrastructure, where practicable; and*
- (iv) avoid disturbing self-sustaining native ecosystems, where practicable.*

Analysis of potential final land uses was completed as part of the EIS (refer to Section 7.9.5) which considered the viability of each option in relation to the context of the proposed final landform for the Project. The options presented as part of this analysis provide a range of opportunities for a variety of potential land uses, given the extensive infrastructure and accessibility of the Mount Owen Complex. The presence of the void and associated pit lake is considered to provide significant opportunities for high value, and high employment generating land use options providing economic diversity into the future beyond mining. Potential final land uses, in consideration of local and regional strategic planning instruments at the time, will be identified in the Rehabilitation and Mine Closure Strategy for the Project.



ATTACHMENT 9

Economics Response



ATTACHMENT 9A

Economics

A detailed response to the written submissions from Dr Alistair Davey is provided in **Attachment 9b** which has been prepared by Ernst & Young (EY) (EY Response). The EY Response reiterates the previous comments made regarding the appropriateness of the inclusion of employee and supplier benefits in the CBA in response to Dr Davey's answer to a Question from Counsel Assisting that this issue had been addressed by the Centre for International Economics.

As with other submissions, it is noted that the EY does not provide any new material which is not already before the IPC.

In addition to the matters covered in the EY Response, we noted that, during the Public Hearing, Professor Barlow questioned the 'valuation' of the rehabilitation contained in a table contained in Dr Davey's Power Point Presentation (Table 3 in Dr Davey's written submission). The transcript (pages 23-24) regarding this discussion is extracted below:

PROF. BARLOW: Thanks, Counsel. Alistair, I just noticed in those review costings for the Glendell Mine that there was a negative in the operating costs, I think it was either 16 or 25 million, of mine closure. I'm just a little quizzical about why it would be a negative; in other words, it would be an income, is that correct?

DR DAVEY: Well, that comes from the Ernst & Young report. I believe that the reason for that negative figure is related to the – how should I say it? There's a 40 reduction in the immediate expense that the project incurs from having to close the site, I think, in 2023 or 2024, although you may want to put these questions to the proponent, but somehow they would probably assumption in there it may be cheaper to actually close down the project at some stage down the track beyond 2044.

PROF. BARLOW: Thank you.

DR DAVEY: That's one of the figures from Ernst & Young that I've had to accept

To answer Professor Barlow's question, we note that the negative value for rehabilitation in the CBA calculations of \$25.4 million (in NPV terms) is explained in the EY Economic Impact Assessment (EIA) (Appendix 30 to the EIS) in the text below Table 4 of the EIA where it states:

Glencore has advised that, in the event that the Project does not go ahead, \$62.0 million (undiscounted) will be expensed over the period 2024 to 2027 in closure costs. Where the Project is approved, Glencore advises that \$85 million will be spent rehabilitating the Glendell mine. The delay of the rehabilitation activity, in NPV terms, will generate a saving of \$25.4 million.

The reference to rehabilitation activities which are delayed relates primarily to those activities associated with removal of infrastructure post closure. As detailed in the EIS (and as currently occurs at both the Glendell Mine and the broader Mount Owen Complex), disturbed areas will be progressively rehabilitated as the mine progresses. These costs are included in the operational costs considered in the CBA.

As detailed in the Response to Minecraft Report dated April 2021 and the EY Addendum C, the Project is estimated to provide a net benefit to NSW of \$1,121.3 million in NPV⁷ terms (or \$2,654.9 million in undiscounted terms). The estimated net benefit is comprised of \$369.4 million and \$754.3 million in potential direct and indirect benefits respectively. As detailed in Section 1.2.3, the predicted NPV of the Project remains significant even under the most conservative assumptions regarding indirect benefits and greenhouse gas costs.

⁷ NPV figures reported are in 2019 Australian dollars based on a 7 per cent real discount rate (unless otherwise stated), as required by the Guidelines.



ATTACHMENT 9B

Economic impact assessment of the Glendell Continued Operations Project

Glendell Tenements Pty Limited

04 April 2022

NOTICE

Ernst & Young ("EY") was engaged on the instructions of Umwelt (Australia) Pty Ltd ("Client") to perform an economic impact assessment in relation to the proposed Glendell Continued Operations Project ("Project"), in accordance with the engagement agreement dated 29 August 2018, including the General Terms and Conditions ("the Engagement Agreement").

The results of Ernst & Young's work, including the assumptions and qualifications made in preparing the report, are set out in Ernst & Young's report dated 29 October 2019 ("**Report**"). The Report should be read in its entirety including the release notice, the applicable scope of the work and any limitations. A reference to the Report includes any part of the Report. No further work has been undertaken by Ernst & Young since the date of the Report to update it.

Ernst & Young has prepared the Report for the benefit of the Client and has considered only the interests of the Client. Ernst & Young has not been engaged to act, and has not acted, as advisor to any other party. Accordingly, Ernst & Young makes no representations as to the appropriateness, accuracy or completeness of the Report for any other party's purposes.

No reliance may be placed upon the Report or any of its contents by any party other than the Client ("Third Parties"). Any Third Party receiving a copy of the Report must make and rely on their own enquiries in relation to the issues to which the Report relates, the contents of the Report and all matters arising from or relating to or in any way connected with the Report or its contents.

Ernst & Young disclaims all responsibility to any Third Parties for any loss or liability that the Third Parties may suffer or incur arising from or relating to or in any way connected with the contents of the Report, the provision of the Report to the Third Parties or the reliance upon the Report by the Third Parties.

No claim or demand or any actions or proceedings may be brought against Ernst & Young arising from or connected with the contents of the Report or the provision of the Report to the Third Parties. Ernst & Young will be released and forever discharged from any such claims, demands, actions or proceedings.

Ernst & Young have consented to the Report being published electronically on the Independent Planning Commission of New South Wales website for informational purposes only. Ernst & Young have not consented to distribution or disclosure beyond this. The material contained in the Report, including the Ernst & Young logo, is copyright. The copyright in the material contained in the Report itself, excluding Ernst & Young logo, vests in the Client. The Report, including the Ernst & Young logo, cannot be altered without prior written permission from Ernst & Young.

Ernst & Young's liability is limited by a scheme approved under Professional Standards Legislation.



**Building a better
working world**

Ernst & Young
121 Marcus Clarke Street
Canberra ACT 2600 Australia
GPO Box 281 Canberra ACT 2601

Tel: +61 2 6267 3888
Fax: +61 2 6246 1500
ey.com/au

Independent Planning Commission
201 Elizabeth Street
Sydney, 2000

04 April 2022

Response to comments on the Economic Impact Assessment at the Glendell Continued Operations Project (SSD 9340 and SSD 5850 Mod 4) public hearing conducted by the Independent Planning Commission

The Independent Planning Commission (IPC) held the public hearing into the State Significant Development application for the Glendell Continued Operations Project (“the Project”), SSD 9340 and SSD 5850 Mod 4, from the 18th of March to the 21st of March 2022.

EY was engaged to undertake an independent economic impact assessment of the proposed Glendell Continued Operations Project (“the Report”) in accordance with the Guidelines for the economic assessment of mining and coal seam gas proposals, as published by the NSW government in December 2015 (“the Guidelines”) and the Technical Notes supporting the Guidelines for the Economic Assessment of Mining and Coal Seam Gas Proposals (the Technical Notes) published in April 2018.

The Report was completed on 29 October 2019 and subsequent annexures have been prepared in relation to updates to coal prices, assessing the impact of various mine plan options and detailing the methodology behind estimating worker and supplier benefits. Presentations were made at the public hearing on the 18th and 21st of March 2022. This document (the Document) outlines the response to address comments made by Dr Alistair Davey, from the Environmental Defenders Office. The Document also provides a summary of the response to key themes that we have previously addressed as part of the responses prepared by Umwelt to submissions on the Environmental Impact Statement (EIS) including that of the Australia Institute and the Centre for International Economics. These responses summarise and justify key aspects of the CBA methodology used in the Report and directly address the ‘uncertainty’ issue raised in the Submission by Mark Seymour in the IPC Public Hearing (acting on instructions from the EDO). This is consistent with our role in this process of providing an independent assessment of the costs and benefits of the Project consistent with the Guidelines based on data and assumptions outlined in our Report¹. The issues covered in this Document detail below relate to the treatment of:

- Worker benefits
- Supplier benefits

¹ The Report and accompanying annexures can be accessed here: <https://www.planningportal.nsw.gov.au/major-projects/projects/glendell-continued-operations-project-2>

- Coal price forecasts

Preliminary comments

Before addressing the issues noted above in detail there are some broad comments for the IPC to consider in relation to the analysis we have produced.

First, we believe it is important to recognise the relatively unique role that the economic cost benefit analysis (CBA) plays in the approvals process. It is common for government to undertake CBA when considering public expenditures such as large infrastructure developments or programs. As such, much of the common literature and practices of CBA are rooted in the conservatism of government decision making. Of course, the CBA undertaken in relation to the Project considers expenditure of private funds which has resulted in the approach outlined in the Guidelines.²

Second, and related to the nature of the analysis discussed above, the Guidelines have been developed explicitly to account for the kinds of benefits that are more appropriate for decision makers to consider when accounting for private investment. In this context, the CBA outlined in the Guidelines is aimed at assessing the economic welfare benefits to New South Wales, including areas that might not be standard when assessing government expenditure programs such as worker and supplier benefits. In our view, this implicitly recognises the potential policy failure that might arise through this process in that the government refuses a private sector investment that otherwise should have gone ahead. The Local Effects Analysis (LEA), which is also required by the Guidelines, is used to assess the likely impacts of the development in the locality.

Third, by recognising a range of potential beneficiaries from the Project (at the State and local levels), the Guidelines are effectively identifying key stakeholders in the Project. What we observe in much of the commentary around the Report is calls for the exclusion of elements of the analysis based on obscure economic arguments (usually more appropriate for CBA relating to government expenditure) that have little basis in common sense. For example, to claim that the approximately 400 to 687 *additional* direct employees at this mine, who will earn a significant wage premium, compared with average wage earners (over double) in New South Wales, should be excluded from the assessment of benefits to the State can only be justified under the most restrictive of circumstances.

Fourth, given the inherent conservatism of the CBA process and potential policy failure mentioned above, we would urge the IPC to consider the appropriate burden of proof in relation to mining applications. Our economic impact assessment is transparent and consistent with the Guidelines, the methodology has evolved as better information has become available. Our assumptions and arguments are clearly laid out and sensitivity analysis undertaken to address key uncertainties. Much of the criticisms made of our analysis are simply not presented to the same standard.

Worker benefits

The Guidelines are explicit in their allowance for the use of worker benefits as part of the CBA. As stated in our Report in Section 2.4, we assume that the wage paid at the mine, which is significantly higher than the average wage in NSW, is an appropriate measure of worker benefits. In seeking to have these benefits excluded from the analysis, two arguments are commonly used: 1) the average wage benchmark is inappropriate because the mine in question will simply employ workers from another mine or existing employees would just get a job elsewhere in the mining sector at the same wage; or 2) the wage premium paid simply covers the 'disutility' of working in a mine or the specific skills required.

² In considering the economic credentials of private investments governments tend to prefer economic modelling of the welfare impacts through the use of assessment tools such as computable general equilibrium models. This is discussed later in the note.

The detailed review of skills and disutility factors contained in Addendum F of the Report and also in the Umwelt letter responding to the CIE Review dated 20 December 2021 indicate that the base assumptions behind limiting employee benefits to the reservation wage relative to working elsewhere in the mining sector in NSW are not justified. In particular, the assumption that wages in the mining industry are higher (particularly in the Hunter Valley open cut mining industry) due to skill requirements or disutility factors, and that these factors are common across the mining sector, is based on an outdated characterisation of the mining industry. These justifications for why the arguments identified above should be rejected are again summarised below.

The first argument is unjustifiable in the context of the general requirements of the CBA that is to consider the costs and benefits of the Project relative to the 'base' case' of the Project not occurring. That is, the direct employment from the Project case in the CBA is *additional* to the base case. As required by the Guidelines, the 'with project' case is predicated on no underlying changes to economic activity except for the development of the Project which implies that all existing mining activity also continues. Logically then, if an additional worker is required for the Project and taken from an existing mine, given activity in that existing mine must continue then an additional worker is also required in that mine. Eventually the additional mine worker is required from somewhere and our assessment is based on taking that worker from the pool of existing workers at the average wage rate.³ The same applies in measuring the impact on economic activity for extending the life of an existing mine however the corresponding argument is that the employees displaced by the Project not proceeding would simply get a job elsewhere in the mining sector. While this argument may be supported in circumstances where employment in the NSW coal mining sector is projected to grow over the life of the Project, as discussed in Addendum F of the Report, the NSW Government's own projections are for employment in the coal mining sector to remain flat and then decline over the life of the Project, meaning displaced workers would be required to find work elsewhere in other industries in NSW or outside of NSW. For this reason, the use of the average NSW wage rate, rather than average mining sector wage rate, is considered to be more appropriate and, potentially even conservative.

The second argument assigns 100% of the wage premium paid to mine workers to compensate for an unpleasant job or the additional skill set required to work in a mine. In Addendum F of the Report, we discount these arguments, rather focussing on the evidence to suggest that the wage premium paid to miners is more a function of the application of capital to generate higher returns. Put simply, there does not appear to be a considerable body of evidence proffered to establish that working in a modern open cut coal mine in the Hunter Valley is considerably more unpleasant than working in any other professions which receive an average wage (which is the appropriate benchmark in this case). In addition, the employment assumptions used in the Report are based on workers in NSW transferring from non-mining employment to employment in the mine. As such, it is not the absolute level of unpleasantness associated with working in the mine, rather the relative unpleasantness of a mining job to other forms of work. No evidence has been presented that establishes that working in a coal mine in NSW is any more or less unpleasant than other forms of employment. Additionally, the observed movement of workers between the mining industry and other professions which have a lower average wage but similar skill requirements is similarly demonstrative that skill requirements do not drive the wage premium

In developing the Report (including Addendum F), the methodology includes a more detailed assessment of the wages that workers in mining and other sectors get paid, which serves as supporting evidence for the inclusion of these. Our analysis serves to show that, when comparing jobs on a like for like basis (i.e., taking hours worked, education, age and occupation into account), people employed in the mining sector earn more. Our evidence is further supported by the CIE in their assessment of the impact of the benefits of the expansion of the mining sector in Australia, which have increased income and real wages, while reducing the unemployment rate (against a counterfactual that has no/limited mining expansion)⁴.

³ Note that a less conservative assumption would be that the person employed is drawn from the ranks of the unemployed or even from outside NSW (both assumption would not be inconsistent with the line of logic underpinning our methodology).

⁴ *Estimating the economic benefits of mining expansion and further productivity reforms*, CIE, 27 May 2021

Therefore, we can say that one of the key benefits of private sector investment is the employment it creates. This conclusion is entirely consistent with the Guidelines which provide (**emphasis added**):

*Although a zero wage premium is a useful starting assumption, the appropriateness of this assumption must be assessed on a case by case basis. **This is because benefits to workers can be one of the major economic benefits from a project.***

The additional analysis in the Report specifically considers the appropriateness of using a zero wage premium assumption and has been tailored to address the comments from the Rocky Hill court decision. The further information provided in Addendum F expands on this analysis and also includes consideration of additional arguments raised in relation to other projects determined by the IPC. The assessment and inclusion of worker benefits is entirely consistent with the guidelines.

As per the information received on the Project, it is expected to employ a significant number of workers, between 400 and 687 full time equivalent (FTE) positions for the bulk of the operation phase. Our Report shows the net present value of total wages paid to be around \$756 million over the life of the Project (i.e., to 2044) with worker benefits calculated at around \$468 million (around 62% of total wages paid). Our analysis also contains systematic sensitivity analysis on worker benefits to recognise the prospect of disutility of labour (a 25% reduction in wage premium). The quantification of these benefits is supported by both the LEA and the Computable General Equilibrium (CGE) modelling contained in the Report and is consistent with the Centre for International Economics (CIE) assessment of the impact of the benefits of the expansion of the mining sector in Australia⁵.

To the extent that there are uncertainties associated with employee benefits, these uncertainties are considered in the sensitivity analysis required by the Guidelines, and, in all instances, indicate significant positive indirect benefits associated with the additional direct employment associated with the Project. Additional economy-wide implications not captured in the indirect CBA employee benefits are captured in the CGE analysis undertaken in the Report.

Supplier benefits

Another key benefit of private sector investment is through the establishment and continuation of supply chain networks that act to disperse the economic benefits of projects to a myriad of businesses. The Guidelines are explicit in their allowance for the use of supplier benefits as part of the CBA. As with employee benefits, the Report (and in particular Addendum F) includes additional analysis and justification for the calculated supplier benefits to the NSW economy.

Consistent with the Guidelines, we have made an estimate of the producer surplus associated with the additional demand for inputs into production. The CIE report prepared for the Minerals Council of Australia⁶ and highlighted above, again demonstrates the positive impact of the expansion of the mining sector to Australian gross value added (GVA), which is partially driven by spending on suppliers supporting the ongoing development and operations of the mining sector.

Simply, our analysis takes the amount of spending on goods and services that is aimed at NSW suppliers under the Project, as highlighted in the Report, \$1.418 billion in net present value terms, and applies a simple metric of gross operating surplus from our in-house regional input output model (around 20%) to this figure to derive the increase in producer surplus. This yields a benefit of around \$286 million in net present value terms. This approach is consistent with a common-sense proposition that businesses selling more goods and services (relative to the Project not occurring) will make more profits associated with those sales. This basic proposition should be preferred over the very restrictive interpretation of supplier benefits applied by CIE which does not reflect observed reality.

Again, the assessed supplier benefits are subject to sensitivity analysis in the Report (as required by the Guidelines), and this has been further extended in Addendum F.

⁵ *Estimating the economic benefits of mining expansion and further productivity reforms*, CIE, 27 May 2021

⁶ *Estimating the economic benefits of mining expansion and further productivity reforms*, CIE, 27 May 2021

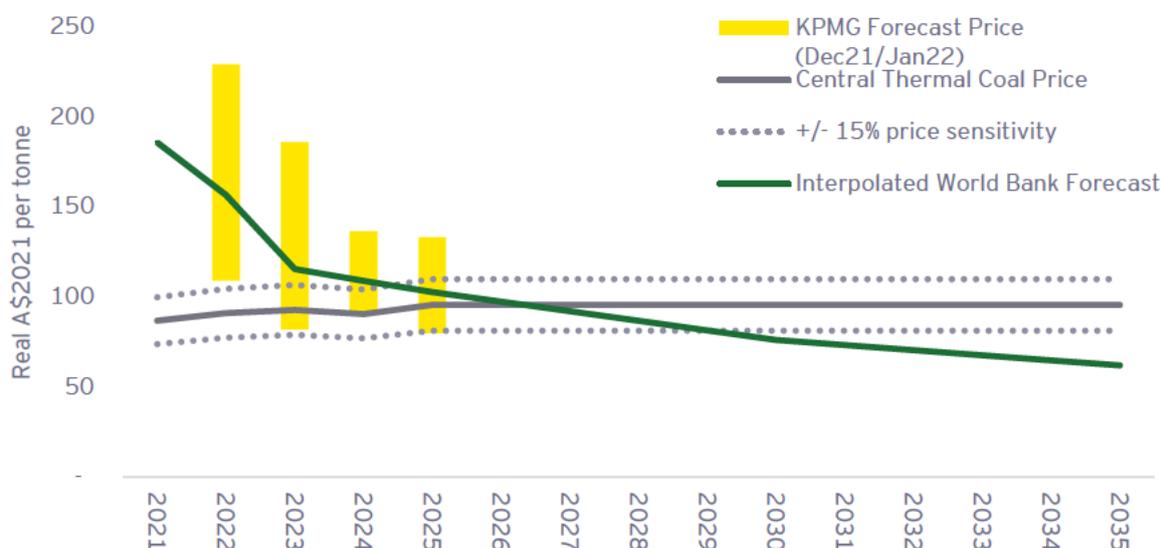
To the extent that there are uncertainties associated with supplier benefits, these uncertainties are considered in the sensitivity analysis required by the Guidelines, and, in all instances, indicate significant positive indirect benefits associated with the additional sales of goods and services required for the operation of the Project.

Coal Prices

Dr Alistair Davey argues that the coal price assumptions utilised within the CBA have potentially overstated the realised price of coal, while presenting the expected revenue profile for the Project based on World Bank forecasts of the price of coal.⁷

It is questionable whether the World Bank commodity price forecasting could be considered a relevant source (in isolation), compared to consensus forecasts from individual economic commentators and broking houses. Generally, when considering expectations about the future, it is prudent to consider a range of consensus views, rather than relying on a single source, as has been done with the World Bank prices. Relying on consensus views can help to offset biases that may be inherent to individual forecasts.

Figure 1: Comparison of coal price forecasts (AUD/t Real)



Source: KPMG (2022) <https://assets.kpmg/content/dam/kpmg/au/pdf/2022/coal-price-fx-market-forecast-december-2021-january-2022.pdf> - Accessed March 2022, World Bank (2022) <https://thedocs.worldbank.org/en/doc/ff5bad98f52ffa2457136bbe5703ddb-0350012021/related/CMO-October-2021-forecasts.pdf>

Taking the recent KPMG thermal coal price forecasts, detailed in Figure 1 as an example, there is a wide range in the prices estimated in 2022 in Real AUD per tonne – ranging from 110 AUD/t to 229 AUD/t, while the spot price of thermal coal breached 300USD/t in March. Moreover, the long-term KPMG price forecasts are still aligned with our range. Taking any individual contributor’s forecast in isolation can significantly influence the overall NPV of the project, either negatively or positively. Therefore, a systematic sensitivity analysis is included in the Report, both increasing and decreasing prices by 15% across the time horizon. From this perspective, the 15% lower estimate is lower than the World Bank estimate until 2029-2030, and the effect of this on the identified NPV in the CBA would be limited due to discounting factors. Additionally, this low-price CBA analysis assumes that the

⁷ IPC (2022), https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/transcripts-and-material/2022/glendell/220321_glendell_public-hearing-day-2-transcript.pdf

reduced prices occur at all stages of the Project whereas it is noted that the World Bank (and KPMG) price forecasts are significantly higher than those considered in the low-price sensitivity scenario during the early years of the Project which have reduced exposure to discounting factors in the CBA NPV calculations.

CGE modelling

A typical way for governments to assess the impacts of large projects is using Computable General Equilibrium (CGE) modelling. A CGE model is based on a more detailed representation of the economy, including the complex interactions between different sectors, such as labour market displacement associated with the increased demand associated with the Project, and takes into account international ownership (which results in the expropriation of profits). The CGE analysis in the Report corroborates the results of the CBA and LEA components of the economic impact assessment required by the Guidelines, but also demonstrate the conservative nature of the assessment under the framework of the Guidelines. In the Lower Hunter region, the Project is expected to increase Gross Regional Product (GRP) by \$2,522.4 million in Net Present Value terms and providing larger net benefits to NSW and Australia.

As was noted in the *Applicant Response to Submissions Made to IPC Public Hearing* dated March 2022 (Umwelt, 2022), the CGE analysis in the Report is entirely consistent with the CGE modelling results reported in the CIE Report: *Estimating the economic benefits of mining expansion and further productivity reforms*, CIE, 27 May 2021.

A final comment

The analysis presented in the economic impact assessment of the Glendell Continued Operations Project follows a logical framework in accordance with the Guidelines, and further confirms this through the CGE modelling assessment.

The calls for key components of the analysis to be excluded, in our view, should be viewed with caution by the IPC. Taken to the extreme, given its foreign ownership, if the indirect benefits in the form of worker benefits and supplier benefits are not taken into consideration, the net remaining impact of the Project is measured in taxes (corporate income taxes and royalties). By default, this renders government the primary stakeholder in the Project. In our view this is contrary to the framework developed in the Guidelines which aims to consider the extent of the net increase in economic activity as a result from an investment, and through this, weigh up the economy-wide costs and benefits of the investment. In this manner, the estimates of the impacts of the Project should serve to support all stakeholders in assessing the relative merits of the Project.

As noted above and in previous submissions to the IPC by the Applicant, it is inconceivable that the Project will not result in significant economic benefits due to the additional employment and sales of goods and services required by the Project (relative to the base case of the Project not proceeding). A review of numerous submissions in support of the Project from employees and suppliers provide further evidence of these very real benefits to the local and NSW economy. The assessment of these indirect benefits from the Project as being zero to the NSW economy (as has been suggested by both CIE and other persons making submissions to the IPC) is clearly inappropriate.

EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via ey.com/privacy. EY member firms do not practice law where prohibited by local laws. For more information about our organization, please visit ey.com.

© 2022 Ernst & Young, Australia
All Rights Reserved.

Liability limited by a scheme approved under Professional Standards Legislation.



In line with EY's commitment to minimize its impact on the environment, this document has been printed on paper with a high recycled content.

Ernst & Young is a registered trademark.

Our report may be relied upon by Umwelt for the purpose of the economic assessment of the Glendell continued operations project only pursuant to the terms of our engagement letter dated 29 August 2018. We disclaim all responsibility to any other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of our report, the provision of our report to the other party or the reliance upon our report by the other party.

ey.com

