

Hera Project, via Nymagee



Response to Submissions

Major Project Application No. 10_0191

February 2012

Prepared by:



R.W. CORKERY & CO. PTY. LIMITED

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Major Project Application No. 10_0191

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Ref No. 659/08

February 2012



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1. INTRODUCTION

The *Environmental Assessment* and supporting *Specialist Consultant Studies Compendium* for the Hera Project (hereafter referred to collectively as the *Environmental Assessment*) was made publicly available from 17 November to 19 December 2011. During and immediately following the public exhibition, submissions were received from the following government agencies. No public or special interest group submissions were received.

- Cobar Shire Council.
- Department of Primary Industries – Catchments and Lands.
- Department of Primary Industries - Fisheries.
- Department of Primary Industries – Office of Water.
- Department of Trade, Investment and Regional Infrastructure and Services – Division of Resources and Energy.
- Roads and Maritime Services.
- Environment Protection Authority.

This document presents a consolidated set of responses to those submissions prepared by RWC on behalf YTC Resources Limited (the Proponent). In addition, responses to matters of a technical nature have been prepared by the following specialist consultants. Where a response has been prepared by one of these specialist consultants, the relevant section is prefaced with the name of the relevant consultant.

- Mr Ben Churcher and Mr Phil Cameron of OzArk Environmental and Heritage Management Pty Ltd (heritage and ecology respectively).
- Mr Craig Hazel of Traffic Solutions (traffic).
- Mr Andrew Macleod of SEEC (surface water).
- Mr Chris Hogg of Coffey Mining (tailings storage facility).

Additional input and final review of this document was provided by employees of the Proponent, including the following.

- Mr Rimas Kairaitis (BAppSc(Hons)), CEO and Director, YTC Resources Limited.
- Mr Dean Fredericksen (MSc(Hons)), Hera Project Manager.
- Mr Sean Pearce (BE(Mining), MProf Acct), General Manager – Hera Project.

This document is structured as follows:

- | | |
|------------------|--|
| Section 1 | Provides an introduction to the document and identifies the contributing authors. |
| Section 2 | Provides a range of further information in relation to the Project, including in relation to heritage- and biodiversity-related matters. |

Sections 3 to 8 Provide a response to all government agency submissions received. Relevant sections of each submission have been reproduced (*in italics*) and a response is provided (in normal text) to each issue raised.

Section 9 Provides an updated and final version of the Statement of Commitments originally included as Section 5 in the *Environmental Assessment*. Where the commitments have been amended, the amended text is red and underlined.

Appendices Provide a range of supporting documentation.

Finally, a draft copy of this report was provided to Environment Protection Authority (EPA) for comment on the matters addressed in Section 2 on 24 January 2012. Comments were received in relation to the proposed Biodiversity Offset Strategy on 10 February and have been incorporated into this document. A copy of that letter is provided as **Appendix 5**.

2. FURTHER PROJECT INFORMATION

2.1 INTRODUCTION

During the adequacy review of the *Environmental Assessment*, a range of issues were raised by the relevant government agencies. The vast majority of these were addressed during preparation of the final *Environmental Assessment*. However, the following issues could not be addressed in the final *Environmental Assessment* without resulting in unreasonable delays to the Project

1. No historical heritage assessment was undertaken for the area covered by Appleton in 2004 during his Aboriginal heritage study.
2. The historic heritage assessment required strengthening in regards to primary historic research.
3. A range of areas of proposed disturbance identified only after the OzArk's 2010 heritage survey were not surveyed.
4. Given that the Aboriginal heritage study undertaken by Appleton in 2004 is seven years old, Office of Environment and Heritage felt that and that additional survey work was required in respect of the expanded area of disturbance. It was determined that the proposed areas of disturbance within the Appleton 2004 survey area should be resurveyed.
5. Further clarity in relation to the final Biodiversity Offset Strategy, including identification of the final Biodiversity Offset Area (two separate alternatives were presented in the *Environmental Assessment*) and an assessment of the strategy using the BioBanking Assessment Methodology was required.

These matters were identified in an email to Department of Planning and Infrastructure on 28 October 2011 and it was agreed by the Department in an email dated 31 October 2011 that each of the identified issues should be addressed in this document. In addition, it was agreed that the relevant government agencies (indicatively Office of Environment and Heritage's heritage and biodiversity sections and the Department of Planning and Infrastructure) should be provided with an opportunity to review the additional information and make comment, if required, prior to finalisation of this document.

Section 2.2 provides further information in relation to items 1 to 4 above while Section 2.3 provides further information in relation to item 5 above.

2.2 HERITAGE ASSESSMENT

2.2.1 Introduction

OzArk Environmental and Heritage Management Pty Ltd (OzArk) undertook a further heritage assessment to address items 1 to 4 above. A copy of the resulting report, entitled *Hera Project, via Nymagee - Addendum Heritage Assessment* dated December 2011 (referred to hereafter as the *Addendum Heritage Assessment*) is provided as **Appendix 1**. This sub-section presents a brief overview of that report, focusing particularly on matters related to items 1 to 4 above.

2.2.2 Aboriginal Community Involvement and Consultation

The Project Site is located within the Cobar Local Aboriginal Land Council (Cobar LALC) area and adjacent to the boundary with the Condobolin Local Aboriginal Land Council (Condobolin LALC) area. Consultation with all registered stakeholders identified during the original Aboriginal heritage assessment was undertaken in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCR).

Involvement in the November 2011 survey was offered to both Cobar and Condobolin LALC, with a representative of the Condobolin LALC only available to participate on the day of the survey.

Copies of a draft of the *Addendum Heritage Assessment* were provided to the following registered stakeholders on 19 December 2011, with a request to provide comments by 23 January 2012.

- Condobolin LALC.
- Cobar LALA.
- Murrin Bridge LALC.
- Mt Grenfell Board of Management.
- Elaine Ohlsen.

No responses were received by 23 January 2012. OzArk subsequently attempted to contact each of the above. Ms Elaine Ohlsen and Cobar and Condobolin LALG's all expressed satisfaction with that report and supported the recommendations provided.

2.2.3 Heritage Survey Methodology

The heritage survey was undertaken on 16 November 2011 and covered the areas identified in Figure 3 of the *Addendum Heritage Assessment*, namely those areas of disturbance identified after completion of the 2010 heritage assessment survey, as well as those areas of disturbance within the Appleton 2004 survey area, referred to hereafter as the 2011 survey area.

The 2011 survey area was traversed on foot by two surveyors keeping at least 5m apart.

2.2.4 Historic Heritage Assessment Results

No items of historic heritage were identified within the 2011 survey area.

In addition, Section 4.2 of the *Addendum Heritage Assessment* provides further information in relation to the historic heritage of the Project Site and surrounding areas.

2.2.5 Aboriginal Heritage Assessment Results

No items of Aboriginal heritage significance were identified within the 2011 survey area and no further recommendations were made in relation to management of Aboriginal heritage within the Project Site.

2.3 BIODIVERSITY OFFSET STRATEGY

2.3.1 Introduction

Section 2.16.2.3 of the *Environmental Assessment* identified that two potential biodiversity offset areas were under consideration by the Proponent. The Preferred Biodiversity Offset Area within Western Lands Lease (WLL) 2455 would have required partial cancellation of Travelling Stock Reserve (TSR) 8792. Cancellation of a section of TSR8792 would require the concurrence of the Darling Livestock Health and Pest Authority. The Proponent has consulted with the authority in relation to obtaining that concurrence, without success. As a result, the Proponent intends to move forward with the Alternative Biodiversity Offset Area as described in Section 2.16.2.3 of the *Environmental Assessment*.

In summary, the Alternative Biodiversity Offset Area would be located within WLL3881 and the proposed Biodiversity Offset Strategy would be as described in Section 2.16.3 of the *Environmental Assessment*, as modified in the following subsections.

2.3.2 Adequacy of the Biodiversity Offset Strategy

A site inspection of WLL3881 was undertaken by Mr Phil Cameron of OzArk Environmental and Heritage Management Pty Ltd (OzArk) on 15 October 2011. Based on data collected during that site inspection, as well as during the original ecology surveys undertaken for the *Environmental Assessment*, an assessment of both the areas of proposed disturbance and WLL3881 using the BioBanking Assessment Methodology was completed. Subsequent consultation with the EPA resulted in a number of minor adjustments to that report. A copy of the resulting adjusted report entitled *Preliminary Biobanking Assessment: Hera Project via Nymagee NSW* (referred to hereafter as OzArk (2012)) is presented in **Appendix 2**.

In summary, OzArk (2012) presents an assessment of the results of an assessment undertaken in accordance with the NSW BioBanking Assessment Methodology (BBAM) over three areas, namely:

- the proposed areas of disturbance (referred to in OzArk (2012) as the “development Site”);
- that section of WLL3881 within the Western (Nymagee Rankin Springs) Catchment Management Authority (CMA) area; and
- that Section of ELL3881 within the Central West (Rankin Springs) CMA.

The assessment of the proposed area of disturbance (presented in Section 2 and Appendix 1 of OzArk (2012)) was based on data collected during preparation of OzArk (2011). The BBAM assessment determined that 4 142 credits will be required for the Project.

The assessment of WLL3881 (presented in Section 3 and Appendices 2 and 3 of OzArk (2012)) was constrained by limited time available for field inspections (one day). However, Mr Cameron in OzArk (2012) states that

“Having a degree of experience in the western landscape and recognising the homogenous characteristics of habitat values, the consultant [Mr Cameron] believes the time spent on the property [WLL3881] was sufficient to align [the assessment] with the benchmark

In addition, Mr Cameron in OzArk (2012) notes that WLL3881 is located within two separate catchment management areas, namely the Western (Nymagee Rankin Springs) CMA area and the Central West (Rankin Springs) CMA area. The proposed area of disturbance is located within the former of these areas. EPA typically require that proposed areas of disturbance and proposed biodiversity offset areas are located within the same catchment management area. EPA have indicated in a letter dated 10 February 2012 (**Appendix 5**) that the proposed Biodiversity Offset Strategy would provide an adequate offset, provided that the offset can be secured in perpetuity (see discussion below).

During the field inspection Mr Cameron identified the following vegetation communities within WLL3881.

- Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) within both the Western (Nymagee Rankin Springs) CMA area and the Central West (Rankin Springs) CMA area. This community is estimated to cover an area of approximately 1140ha within WLL3881.
- Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) within the Central West (Rankin Springs) CMA area only. This community is estimated to cover an area of approximately 570ha within WLL3881.
- Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) within the Central West (Rankin Springs) CMA area only. This community is estimated to cover an area of approximately 565ha within WLL3881.

The assessment of WLL3881 indicated that, the combined area of WLL3881 within both the Western (Nymagee Rankin Springs) CMA and Central West (Rankin Springs) CMA includes sufficient BioBanking credits to adequately offset the proposed areas of disturbance. EPA concurs with that assessment.

2.3.3 Design and Management of the Biodiversity Offset

EPA note in their letter of 10 February 2012 that the *Environmental Assessment* identifies that only a portion of WLL3881 would be set aside as a Biodiversity Offset Area. By contrast, EPA indicate that it is the Authority's preference that the whole of WLL3881 be set aside as a Biodiversity Offset Area, with only the required portion of the total BioBanking Credits required for the Hera Project retired. The remaining credits would then be available for a subsequent project or for sale.

In light of the EPA's comments, the Proponent proposes to enter into a BioBanking Agreement over the entire area of WLL3881, with only the required portion of available BioBanking Credits required for the Hera Project retired (see Section 2.3.4). This would enable the remaining credits to be used for a subsequent Project or Sold to a third party.

The Proponent anticipates that a BioBanking Plan of Management would be prepared following receipt of Project approval and that the measures identified in that plan of management would be consistent with the measures identified in Section 2.16.3.6 of the *Environmental Assessment*.

The above approach would, in the Proponent's opinion, ensure that the required BioBanking Credits identified would be available to ensure that the Project's impacts are adequately offset.

2.3.4 Security of the Biodiversity Offset

The EPA in its letter dated 10 February 2012 notes that it does not support the method proposed in the *Environmental Assessment* for securing the Biodiversity Offset Strategy, namely a change to the conditions of WLL3881 from "grazing" to "grazing and conservation".

In light of those comments, and as indicated above, the Proponent proposes to secure the Biodiversity Offset Strategy through a BioBanking Agreement. As indicated in Section 2.3.2, EPA concurs with OzArk (2012) that WLL3881 contains sufficient BioBanking credits to adequately offset the proposed Project-related disturbance.

The Proponent understands that in order to successfully establish the proposed BioBanking Agreement, the following steps will be required.

- Finalise the *Preliminary BioBanking Assessment*, (OzArk, 2012, presented as **Appendix 2**).
- Prepare and have approved the *BioBanking Plan of Management* including the biodiversity credits pricing spreadsheet.
- Prepare and negotiate the BioBanking Agreement.
- Implement the approved BioBanking Agreement, including establishment of the BioBanking Trust Fund.

The Proponent notes that its original proposed method of securing the Biodiversity Offset Strategy through a modification on the condition WLL3881 from “grazing” to “grazing and conservation” was initially suggested by *Department of Primary Industries – Catchments & Lands* and that the EPA was made aware of that proposed methodology during a meeting on 8 August 2011 as well as during the review of the *Environmental Assessment* for Adequacy (July/August/September 2011) and during the Exhibition Period (November/December 2011). In spite of this, EPA did not provide definitive guidance in relation to what the Agency would consider to be an acceptable methodology for securing the Biodiversity Offset Strategy until the letter dated 10 February 2012 (attached as **Appendix 5**).

In light of the above the Proponent proposes to have the BioBanking Agreement in place within 12 months of the receipt of project approval. To do otherwise would, in the Proponent opinion, be unreasonable and would impose a significant hardship on the Proponent. Commitment 4.24 has been adjusted to reflect this commitment.

Finally, as previously noted, WLL3881 is likely to contain significantly more BioBanking Credits than the Hera Project will require. As a result, the Proponent proposes to retire only that portion of credits required for the Project, retaining the remainder for subsequent Projects or for sale. In accordance with EPA’s procedures, the Proponent would contribute to the BioBanking Trust Fund an amount commensurate with the percentage of available credits to be retired. This would enable the initial site activities to be completed, with subsequent purchases of credits contributing the remaining amount to the fund.

2.3.5 Adequacy of the Biodiversity Offset

The Proponent contends that the proposed BioBanking Agreement and timeframe for implementation would achieve compliance with the following criteria identified in the *Interim Policy on Assessing and Offsetting Biodiversity Impacts of Part 3A, State Significant Development and State Significant Infrastructure Projects* (Interim Offset Policy) as follows:

- a) *The unambiguous principal objective of ongoing site management is biodiversity conservation;*
- b) *The proponent notes that the principal objective of a BioBanking Agreement is ongoing biodiversity conservation;*
- c) *Management is undertaken in accordance with a Plan of Management;*
- d) *An approved BioBanking Plan of Management is required prior to completion of a BioBanking Agreement and continued payments from the BioBanking Trust Fund are contingent on adequately completing those actions;*
- e) *There is reasonable likelihood that sufficient resourcing will be available to implement the Plan of Management over time;*
- f) *The requirement to establish a BioBanking Trust Fund will ensure that there is sufficient resources available to implement the Plan of Management over time;*
- g) *The arrangements are in-perpetuity, and conservation obligations are transparently transferred and disclosed to any new owners of the land through appropriate administrative procedures;*

- h) The Proponent understands that BioBanking Agreements are in perpetuity and that requirements under the Plan of Management are required to be disclosed and complied with by subsequent lease holders;
- i) *There are appropriate accountability mechanisms to secure the outcomes and these mechanisms cannot be altered without alternative and comparable offsetting arrangements being put in place; and*
- j) The Proponent understands that modifications to the BioBanking agreement would require the concurrence of the EPA.

3. COBAR SHIRE COUNCIL

Recommended Conditions of Approval

- 1) *Applicant to provide a standard BAL Intersection at the intersections of Nymagee/Berthong Rd and Berthong/Mine Access Rd, including sealing of the through traffic shoulder. It is envisaged that the construction would consist of stabilised pavement widening with a bitumen seal on all new work followed by a 100mm AR450 rubber asphalt overlay over the entire intersection(s).*

Response

The Proponent agrees to provide a standard BAL intersection at the intersection of Berthong Road and both the Main Site Access Road and the Light Vehicle Access Road, noting that the intersections will be designed for B-Doubles and light vehicles respectively. The Applicant also agrees to provide the requested seal on each intersection.

The Proponent is, however, advised by Craig Hazel of Traffic Solutions that

The intersection of Priority Tank Road and Burthong Road is already sufficient for road trains as it has large radii on the corners. In my opinion the intersection does not require any further works based upon existing traffic flows plus that of the proposal. Upgrading of the whole intersection (i.e. resurfacing) is not warranted.

As a result, the Proponent does not propose to undertake any works on that intersection.

- 2) *Improved guide posting and reflectorisation over the length of the roads used.*

Response

The Proponent notes that installation of guide posts and reflectorisation is a matter for the relevant road authority. However, in recognition of Councils submission, the Proponent would be prepared to fund the identified work on the understanding that the amount provided forms an advance payment of the contribution identified in item 3 below.

- 3) *A contribution of \$1.82 per tonne hauled over the life of the mine as a contribution towards maintaining the road to a similar standard as it now exists. This contribution is based on the anticipated rehabilitation and repair cost associated with maintaining this road over a period of but not limited to 20 years.*

Response

A review of Section 94 contribution plans under the *Environmental Planning and Assessment Act 1979* for road maintenance for a range of local councils within NSW for extractive industries and mining was undertaken. **Table 1** presents a summary of the results of that review.

Table 1
Section 94 Contributions – Road Maintenance (Extractive Industries and Mining)

Local Government	Contribution rate
Lithgow City Council	5c/t/km on Council roads ¹
The Hills Shire Council	\$0.83/t (no reference to kilometres travelled) ²
Note 1: Lithgow City Council - Contribution Plan (http://www.council.lithgow.com/reg_contplans.html). Note 2: The Hills Shire Council - Contributions Plan No.6 - Extractive Industries (http://www.thehills.nsw.gov.au/IgnitionSuite/uploads/docs/Section%2094%20Contributions%20Plan%20No.6%20-%20Extractive%20Industries%20%28Adopted%2024%20March%202009,%20In%20Force%207%20April%202009%29.pdf)	

As noted in Table 4.30 of the *Environmental Assessment*, Berthong and Priory Tank Roads are classified local roads administered by Cobar Shire Council. Kidman Way, by contrast, is classified as a Main Road administered by Roads and Maritime Services.

Vehicles travelling between the Project Site and Cobar would travel for approximately 35km on Berthong and Priory Tank Roads. As a result, the contribution rate suggested by Cobar Shire Council is equivalent to 5.2c/t/km. As this is in line with the existing Section 94 contribution plan for Lithgow Shire Council and the Proponent's expectations in relation this matter.

As a result, the Proponent agrees with the suggested contribution rate and would negotiate a suitable arrangement with Cobar Shire Council for the transportation of concentrate reflecting the above prior to commencing concentrate transportation operations. Commitment 11.10 has been amended to reflect this commitment.

- 4) *The applicant must consult with Cobar Shire Council with a view to negotiating the funding of a project and/or projects identified in its Community Enhancement Program. Cobar Shire Council has undertaken significant community consultation in the last 15 months to inform the development of the new social plan (Cobar Shire Council Social Plan 2011-2016) and the community strategic plan (Cobar Shire 2025, which is still under development).*

Response

The Proponent would negotiate with Council and the local Nymagee community to identify one or more suitable Projects which the Proponent may efficiently contribute to maximise Project-related community benefits. Commitment 16.6 has been amended to reflect this commitment.

4. DEPARTMENT OF PRIMARY INDUSTRIES – CATCHMENTS AND LANDS

Contaminated Water

In Section 1.7.14.2 (Page 1-19) and Section 2.2.5.1 (Page 2-13), it is stated that water stored in the settling ponds adjacent to Three Gates Tank pond will be derived from groundwater dewatered from the decline as well as storm water run-off. Consequently, the water stored in the settling ponds should be considered as being contaminated rather than dirty. Contaminated water could potentially flow from the settling ponds to Three Gates Tank pond as well as groundwater resources.

Response

The Proponent acknowledges that Section 1.7.14.2 of the *Environmental Assessment* identifies that the approved activities include pumping of groundwater to the settling ponds adjacent to Three Gates Tank, with potential overflow to natural drainage in the event of a significant rainfall event.

By contrast, Section 2.2.5.1 of the *Environmental Assessment* does not propose, as suggested by Department of Primary Industries, that groundwater would be pumped to these storages. Rather, Section 2.2.5.3 of the *Environmental Assessment* states that “groundwater within the proposed underground mine [and by inference groundwater from the production bores] would be pumped to the surface and stored within either the Header Tank or the Raw Water Dam”, neither of which would discharge to natural drainage.

The Proponent anticipates that the activities described in Section 2 of the *Environmental Assessment* would prevail over those described in Section 1.7 to the extent of any inconsistency. As a result, the Proponent anticipates that all groundwater would, following granting of project approval, be pumped to the Header Tank or Raw Water Tank.

To avoid uncertainty, Commitment 5.8 has been inserted to identify that groundwater pumped to the surface would only be stored in a manner that would ensure that it would not be discharged to natural drainage.

Figure 2.4 (Page 2-14) does not show the location of the decant pond or the route of the pipeline from the mill to the Tailings Storage Facility (TSF).

Response

The location of the decant pond within the Tailings Storage Facility would vary throughout the life of the Project and is not a matter that is relevant to the assessment of the Project.

The location of the pipeline from tailings and supernatant return pipelines between the processing plant to the Tailings Storage Facility has yet to be determined. However, the Proponent contends that given the proposed management and mitigation measures, including bunding and inspection of the pipelines and an automatic shutdown mechanism for pumps in the event of a pressure drop associated with a burst or leaking pipe, the location of the proposed pipelines is not a matter that is relevant to the assessment of the Project.

Dust Suppression

Water is to be sprayed on ore handling areas/stockpiles and roads according to Section 4.8.6.1 (Page 4-100): however, the type of water (i.e. clean, dirt, saline) to be used is not stated in the EA document. Contaminated and/or saline water must not be used to control dust on areas that are not designated/authorised to be exposed to contaminated materials, and which are appropriately bunded for storm water control.

Response

The Proponent acknowledges that the source of water for dust suppression operations was not identified in the *Environmental Assessment*. However, in accordance with standard mining practices, water from the Raw Water Dam would be used for such operations. Areas requiring dust suppressions would principally include the following.

- Haul Roads within the proposed underground mine and from the proposed portal to the temporary waste rock emplacement and ROM pad.
- Within the ROM pad, temporary waste rock emplacement and surface facilities area, including in the vicinity of the processing plant.
- The Main Site and Light Vehicle Access Roads and other access tracks within the Project Site.

It is noted that of the above, only the Main Site and Light Vehicle Access Roads and other access tracks within the Project Site would be located outside the potentially contaminated water catchment area. Dust control on these roads and tracks would be undertaken using commercially available chemical dust suppressants. As a result, limited volumes of water would be required for dust suppression on these roads and tracks and adverse impacts associated with the use of water from the Raw Water Dam would not be significant.

Groundwater

According to Section 2.15.5.3 (Page 2-71), contaminated material is to be placed within underground workings. Section 5.2.2 (Page 6-20) states that the project is not expected to adversely impact on groundwater quality or groundwater dependant ecosystems within or surrounding the project site. However, it has not been defined how potentially contaminated waste rock and polluted materials will be sealed from groundwater flows after rehabilitation has been completed and the groundwater levels recover.

Response

It is noted that the “contaminated material” referred to above is in fact waste rock that would be removed from the proposed underground mine and would be returned following completion of the initial stope. A proportion of this material is likely to be potentially acid forming. Placement of potentially acid forming material below the water table is considered to be industry best practice for the management of potentially acid forming material. As a result, the proposed placement of this material within the proposed underground mine would not result in adverse impacts to groundwater quality or groundwater dependent ecosystems.

Recommended Additional Conditions of Approval

1. *YTC Resources Limited must ensure the works are carried out consistently with the descriptions given in the Environmental Assessment (Hera Project, via Nymagee- Major Project Application No. 10_0191- Dated November 2011), especially in relation to all mitigation measures stated in the EA;*
2. *The Property Vegetation Plan (PVP) for "The Peak" (WLL 2455) to be negotiated with the Catchment Management Authority (CMA) under the Native Vegetation Act 2003 must be submitted to the DPI for Owner's consent, prior to final approval from the CMA;*
3. *If the PVP for "The Peak" (WLL 2455) includes a biodiversity offset area, YTC Resources Limited must apply to the DPI for a 'Change of Lease Purpose' to incorporate "Conservation", in order to reflect the use being made of the land;*
4. *If separate Development Consents are required for infrastructure such as the proposed waste water treatment facility and construction of the car park, as outlined in Section 3.2.3.4 (Page 3-8) of the Environmental Assessment, all completed Development Consent applications required by Council will need to be submitted to the DPI for Owner's consent prior to lodgement with Council.*

Response

The Proponent does not object to these conditions to the extent that the Department of Planning and Infrastructure considers them to be reasonable. It is noted that the Proponent does not anticipate that any further Project approvals or development consents will be required for the Project.

5. DEPARTMENT OF PRIMARY INDUSTRIES – FISHERIES

Blockages to Fish Passage – Road Crossings

The construction of an access road or causeway over the Key Fish Habitat (third order stream) must ensure that there is adequate fish passage at all times. NSW DPI Fisheries will need to be consulted with regards to the crossing methodology for the causeway.

Response

The Proponent would ensure that NSW DPI Fisheries is consulted during the design stage of the Main Site Access Road. Commitment 6.6 has been amended to reflect this commitment.

Recommended conditions of consent

The design and construction of roads and tracks across all waterways should be undertaken in accordance with the DPI Fisheries Policy and Guidelines for Fish Friendly Waterway Crossings (2004) and Why do Fish Need to Cross the Road? The applicant must consult with DPI Fisheries prior to construction of access roads over waterways.

Response

The Proponent would ensure that all roads and tracks constructed across waterways would be constructed in accordance with the above guidelines and in consultation with Department of Primary Industries - Fisheries. Commitment 11.11 has been amended to reflect this commitment.

6. DEPARTMENT OF PRIMARY INDUSTRIES – OFFICE OF WATER

Water Supply

- The EA indicates the water demands for the project (167ML/yr-processing, 20ML/yr-dust suppressions) are to be obtained from a combination of surface water, groundwater and recycling. The Office of Water recognises the limitations of extended dry periods to surface water supply and supports the proposal to access groundwater as a secondary supply.

Response

Acknowledged. No response required.

- In reference to Section 2.3 of the Groundwater Assessment, the Office of Water can confirm that YTC Resources has licensed entitlement of 240ML for groundwater take per year on the "Peak" property. The works that relate to this include 6 bores and one excavation associated with the proposed decline. The conditions on these licences require specific water level and water quality monitoring and include groundwater trigger levels in monitoring bores, which if reached would require mitigation measures.

Response

Acknowledged. Commitment 5.7 has been amended to reflect the above.

- Any proposal by YTC to increase the groundwater entitlement on the "Peak" would require the purchase and trade of the required volume in addition to further assessment by Office of Water. Current restrictions would need to be adhered to.

Response

Acknowledged. No response required.

Groundwater Assessment

- Results of analytical modelling in the EA predict the groundwater inflow during decline development to increase from zero at 60m below surface to 4.6L/s at 200m below surface. This is predicted to increase to between 12L/s and 93L/s (378ML-2932ML/yr) at the end of mining operations at 550m depth, with a theoretical groundwater drawdown extent of 5880m and 15850m respectively. The EA however states that these inflows are likely to be less due to zero recharge boundaries and considers an inflow rate at end of mining of approximately 0.4L/s (12.6ML/yr) is more likely.

- *Modelling after mining ceases indicates groundwater recovery to equilibrium would take between 20 and 100 years. However this may take longer where the boundary conditions in the rock strata are found to limit the lateral extent of drawdown impact. Licensed entitlement for the ongoing take of groundwater during recovery and for any evaporative losses replaced by groundwater would need to be retained at the site.*
- *The Office of Water recognises significant uncertainty exists in the groundwater modelling which needs to be considered in determining the acceptability of the assessment. The Office of Water considers the modelling adequate for the groundwater environment and impacts to be assessed for this project, in combination with the requirement for comprehensive monitoring and modelling reviews.*
- *Three registered bores licensed for stock use were identified on the Office of Water database within an 11 km radius of the project site. These bores are within the predicted drawdown zone and the EA predicts an adverse impact to occur on standing water levels of the closest bores (GW017385 & GW017386).*
- *The groundwater assessment indicates the aquifer pumping test confirmed the ability to extract 466ML/yr from the existing borefield. The Office of Water advises that groundwater extraction at the project site has a maximum licensed entitlement of 240ML and any proposal to increase this would require purchase and a licence assessment.*

Response

Acknowledged. No response required.

Surface Water Assessment

- *Modelling of impacts to downstream flows due to the construction of a new dam at Back Tank East (90ML) and the expansion of Pete's Tank (20ML) predicts a 3% reduction to the mean annual volume of discharges. No reduction in the frequency of flows was predicted. The Office of Water considers this reduction would not represent a significant impact to downstream users, the natural environment or surface water conditions.*
- *The Office of Water supports the proposal in the EA to construct sediment basins in accordance with the requirements of "Managing Urban Stormwater: Soils and Construction, Landcom (2004)".*

Response

Acknowledged. No response required.

- *The Office of Water advises the proposed causeway for the main access road across Watercourse A as referred to in Figure 1 and Section 3.2 of the Surface Water Assessment needs to be designed and constructed in accordance with the Office of Water's Guidelines for Controlled Activities.*

Response

Acknowledged. Commitments 6.6 and 11.11 have been amended to reflect this requirement.

Monitoring and Mitigation

- *Baseline monitoring is critical to provide a clear understanding of natural conditions prior to commencement of activities. The Office of Water supports the proponent's intent to collect baseline data and recommends this be achieved through a minimum 12 months of monitoring with monthly sampling of water level and water quality. It would be expected that this is already occurring.*

Response

Acknowledged. This monitoring is ongoing, however, it is unlikely that 12 months of groundwater monitoring will be available prior to the commencement of mining operations. Given the limited number of surrounding groundwater users and absence of groundwater dependent ecosystems in the vicinity of the Project Site, the fact that less than 12 months of monitoring data will be available is not considered significant.

- *Office of Water supports the concept of groundwater monitoring and a response plan to mitigate impacts to existing groundwater users. This is consistent with current licence requirements issued by Office of Water. Further to this it is recommended specific trigger levels for implementation of mitigation measures are included as detailed on current groundwater licences.*

Response

Acknowledged. No response required.

- *The development of a groundwater and surface water monitoring network and response plan should be undertaken in consultation with the Office of Water. This must include the registered bores predicted to be impacted by drawdown due to the mine.*

Response

Acknowledged. Commitments 5.7 and 6.24 have been amended to reflect the above.

- *Office of Water recommends the groundwater monitoring program extend to the groundwater dependent ecosystem associated with the shallow alluvium of Gundong Ck. This would require the inclusion of vegetation monitoring in addition to monitoring the shallow groundwater system.*

Response

Not relevant. This statement applies to the Tomingley Gold Project which was on exhibition at the same time at the Hera Project. There are no groundwater dependent ecosystems within or in the vicinity of the Project Site.

- *The Office of Water supports the proposal to line the TSF floor to prevent seepage of groundwater contaminants and potential degradation of groundwater quality. A permeability of no more than 1×10^{-9} m/s is supported. Lining is also needed for the leachate collection pond and any other storages proposed to hold potentially contaminated water.*

The issue of the permeability of the Tailings Storage Facility is addressed in Section 8. In addition, further correspondence in relation to this issue has been prepared by Chris Hogg, Principal Civil/Geotechnical Engineer-Tailings Team Leader with Coffey Mining and is presented as **Appendix 4**.

The Proponent acknowledges the requirement to line the Leachate Collection Pond and other water storages that may receive potentially chemical- or salt-laden water, including the Seepage Collection Pond, Process Water Dam and Raw Water Dam. These structures would be lined as a minimum to a standard equivalent to that identified above.

- *The Office of Water recommends the proponent prepare a water management plan to address the surface water and groundwater management, monitoring and mitigating requirements. Office of Water supports the concept of an impact response protocol detailed in the EA for surface and groundwater management and recommends this be included within the water management plan. The identification of a groundwater dependent ecosystem associated with Gundong Ck will also need to be incorporated into the monitoring plan.*

Response

Acknowledged. Commitments 5.7 and 6.24 have been amended to reflect the above. Reference to groundwater dependent ecosystems within Gundong Creek applies to the Tomingley Gold Project which was on exhibition at the same time at the Hera Project. There are no groundwater dependent ecosystems within or in the vicinity of the Project Site.

Water Licensing

- *Additional monitoring bores will require licensing under the Water Act 1912/Water Management Act 2000 (whichever is relevant) prior to installation.*

- *The proponent is currently licensed under the Water Act 1912 for a groundwater entitlement of 240ML/yr. This total entitlement is attached to 6 groundwater bores, and one excavation which represents the proposed decline. Licence numbers include 85BL256001 (excavation), 85BL256002, 85BL256090, 85BL256091, 85BL256092, 85BL256093 and 85BL243254.*

Response

Acknowledged. No response required.

Recommended Conditions of Approval

- *The proponent must ensure that it has sufficient water for all stages of the project to the satisfaction of the NSW Office of Water, and if necessary, adjust the scale of operations to match its licensed water entitlements.*
- *The proponent must prepare a Soil and Water Management Plan to address surface water and groundwater management. This plan is to be prepared in consultation with and to the satisfaction of the NSW Office of Water prior to commencement of activities.*
- *The proponent must obtain relevant licences to the satisfaction of the NSW Office of Water under the Water Act 1912 for all groundwater works (including bores and piezometers) within the proposed site prior to the commencement of activities.*
- *The proponent must obtain relevant licenses to the satisfaction of the NSW Office of Water under the Water Act 1912 for all activities which intercept or extract groundwater prior to commencement of these activities.*

Response

Acknowledged. The Proponent does not object to these proposed conditions to the extent that the Department of Planning and Infrastructure considers them to be reasonable.

7. DIVISION OF RESOURCES AND ENERGY

Mining Resources

It should be noted that no ore reserve estimate is included in the EA. Despite this there has been a definitive feasibility study for the project and the data provided by YTC to the ASX supports the assumption that the project is robust. An ore reserve estimate should be included with the mining lease application.

Response

Acknowledged. A copy of the latest ore reserve estimate has been included with the Mining Lease application.

Mining Title

As gold is a prescribed mineral under the Mining Act 1992, the proponent is required to hold appropriate mining titles from DRE in order to mine this mineral. The project is within Exploration Licence 6162 held by YTC Resources Limited.

The proponent will be required to lodge a Mining Lease Application with DRE as soon as practicable.

Response

Acknowledged. An application for a Mining Lease has been submitted to Division of Resources and Energy on 12 January 2012.

Rehabilitation

- *The Hera EA states that "A number of components were approved by the then Department of Primary Industries in 2006 under Part 5 (sic)....."*
- *The EA then proceeds on the assumption that these components do not require further approval under the EP&A Act 1979.*
- *These components were approved as a temporary exploration activity under the Mining Act 1992 (and were subject to a Part 5 assessment under the EP&A Act 1979).*
- *The exploration activity approval is specific to the exploration licence (EL).*
- *When/if a mining lease is granted, the EL will be cancelled over the mining lease area.*
- *Cancellation of the EL will mean that the exploration activity approval will be voided.*

The outcome of all of this is that the EA/project application needs to cover all components of the proposed activity and the EA should be amended accordingly.

Regardless of the above, short term Mining Act exploration activity approvals were never intended to supersede the need to obtain long term mining approvals under Part 3A/4 of the EP&A Act 1979. The Mining SEPP generally makes exploration subject to Part 5, while mining is subject to Part 4.

Response

The activities for which approval was granted under EL6162 are described in Section 1.7 of the *Environmental Assessment*. Section 2.1.3 of the *Environmental Assessment* then goes on to state that

“the existing approved activities described in Section 1.7 were approved under Part 5 of the EP&A Act. The Proponent anticipates that these activities would be incorporated under the project approval, should it be granted.”

As a result, the Proponent contends that the *Environmental Assessment* is consistent with the above.

The EA has broadly identified the post mining land use and landform and discusses closure criteria. While the general foundation of rehabilitation planning has been developed in the EA, DRE will require further detail in the Rehabilitation Environmental Management Plan (REMP).

Response

Acknowledged. The Proponent would prepare the required plan in accordance with the relevant guidelines prior to the commencement of mining operations.

Recommended Conditions of Approval

DRE recommend the following condition be incorporated into any planning approval that may be granted:

Rehabilitation Environmental Management Plan

The proponent must prepare and implement a Rehabilitation Environmental Management Plan (REMP) to the satisfaction of the Director General of Trade & Investment NSW. The REMP must:

- a) be prepared in accordance with DRE guidelines and in consultation with relevant agencies and stakeholders;*
- b) be submitted and approved by the Director General of Trade & Investment NSW prior to the commencement of the activity; and*
- c) address all aspects of rehabilitation and mine closure, including final land use assessment and evaluation, rehabilitation objectives, domain objectives, completion criteria and rehabilitation monitoring.*

For consistency, any planning approval for this proposal should not include the requirement for the preparation of separate plans such as Mine Closure Plans, Landscape Management Plans and Rehabilitation Management Plans but rather be replaced by a single plan called Rehabilitation Environmental Management Plan (REMP).

Response

The Proponent does not object to the recommended conditions of approval to the extent that the Department of Planning and Infrastructure considers them to be reasonable.

8. ENVIRONMENT PROTECTION AUTHORITY

Attachment A - Proposed Amendments to the Draft Statement of Commitments

Hazardous Chemical And Waste Management

Item 15 – The EPA recommends an additional commitment be added to this section to read:

“Sodium Cyanide and other Toxic Chemicals will be stored in accordance with the requirements of AS/NZS 4452- The Storage and Handling of Toxic Substances.”

The EPA notes storage requirements for sodium cyanide and other toxic chemicals may not have been satisfied by the measures outlined in the EA.

Response

Commitment 15.3 has been inserted to reflect the above.

Item 15 – The EPA recommends an additional commitment be added to this section to read:

“Dangerous Goods will be transported in accordance with the requirements of the “Australian Code for the Transport of Dangerous Goods by Road and Rail- Current Edition.”

Response

Commitment 15.3 has been inserted to reflect the above.

Groundwater

Item 5.7 – The EPA recommends Statement of Commitment 5.7 be amended to include an additional commitment to:

“Undertake monitoring of groundwater underlying and in vicinity of potentially polluting surface infrastructure (Tailings Storage Facility for example) to ensure groundwater is not polluted. This will be detailed in the Groundwater Monitoring and Response Plan.”

Item 5.7 – The EPA also recommends the timing in Statement of Commitment 5.7 which relates to the preparation of a Groundwater Monitoring and Response Plan be amended to:

*“Following Project Approval and **prior to commencement of Works.**”*

Response

Commitment 5.7 has been amended to reflect the above.

Air Quality and Energy

Item 10.26 – The EPA also recommends the timing in Statement of Commitment 10.26 which relates to the preparation of an Air Quality Monitoring Program be amended to:

*“Following Project Approval and **prior to commencement of Works.**”*

Response

Commitment 5.7 has been amended to reflect the above.

Ecology

Item 4.13 – The EPA recommends Statement of Commitment 4.13 be amended to include a commitment to:

*“Management of cyanide process solutions and waste streams to protect biota health and the environment by ensuring the concentration of tailings pumped to the Tailings Storage Facility will be **less than** 10mg/L WAD cyanide.”*

Response

Commitment 4.13 has been amended to reflect the above.

General Amendments

*The draft Statement of Commitments should be updated to reflect commitments identified following provision of additional information outlined in **Attachment B**.*

Response

The draft statement of commitments has been amended as required and as noted below.

Attachment B – Assessment of the Proposal and justification of proposed amendments to the Draft Statement of Commitments and request for Additional information

Biodiversity Impacts

Issue 1 – The issue of ‘additionality’ has not yet been resolved...

Recommendations:

It is recommend that:

The proponent clearly demonstrates how the proposed offset is supplementary and that this issue is considered when implementing the BBAM. The proponent should be required to submit the BBAM assessment to the EPA for review, along with justification for conclusions reached regarding the ‘additionality’ of the proposed management actions and outcomes.

That the proponent be required to explore all possible on-title in-perpetuity conservation arrangements for the final offset in consultation with the EPA and the Western Lands Commissioner.

The Statement of Commitments should be updated to reflect commitments to implementing the BOS as discussed above.

Response

Further information in relation to the proposed Biodiversity Offset Strategy has been provided in Section 2.3. In relation to the issues raised, the Proponent notes the following.

- “Additionally” of the biodiversity offset

A copy of Western Lands Lease (WLL) 3881 is provided as **Appendix 3**. Relevant conditions of that lease may be summarised as follows.

- The land may only be used for grazing.
- Timber may only be removed for the reasonable use of the lessee and that sufficient timber for shade.
- The Commissioner may authorise another person to remove timber from the lease.
- A lessee shall not overstock the lease area.
- The lessee shall not erect a building without the prior approval of the Commissioner.
- The lessee shall manage pests and noxious weeds as directed by the Commissioner.

None of the conditions to the lease currently impose an explicit obligation to explicitly conserve biodiversity within the lease area. As a result, the Proponent contends that the proposed Biodiversity Offset Strategy is additional to the existing land management obligations that apply to WLL3881.

- Additionally and the BBAM assessment

The BBAM assessment has assumed that there are no conservation-related conditions associated with WLL3881. It is noted, however, in correspondence from the EPA dated 10 February 2012, that while the EPA believes that a WLL imposes limited biodiversity-related obligations on a lease holder, that it is satisfied that WLL3881 will contain sufficient credits to offset the proposed area of disturbance.

- Provide a copy of the BBAM to EPA prior to determination of the Project

A copy of the BBAM assessment is included as **Appendix 2** of this document.

- Exploration of in-perpetuity conservation arrangements for the Biodiversity Offset Strategy

This issue is addressed in Section 2.3.5.

Issue 2 – The issue of avoiding impacts associated with new fencing has not yet been included in the design of the offset options....

Recommendation:

The design of the offset(s) should allow for appropriate placement of goat exclusion fencing avoiding the need for vegetation clearing. Should this not be achieved, the clearing required to establish new fence lines should be considered as part of the development and included in the assessment of the quantum of the offset required.

Response

The Proponent notes that Section 2.16.3.6 of the *Environmental Assessment* states that the proposed Biodiversity Offset Area would be fenced in a manner that would exclude feral animals, including goats. Commitment 4.25 has been amended to indicate that such fencing would be constructed, where practicable, on the alignment of existing fences or adjacent to existing tracks or cleared areas to ensure that no further vegetation clearing is required.

Groundwater

Further information/clarification is required regarding the proposed measures to protect groundwater from pollution...

Importantly the EPA notes that the in-situ permeability of the clayey material underlying the TSF does not meet the EPA's requirement in terms of permeability.

Recommendations:

Further information regarding the construction of the clay liners for all structures mentioned above is required. This includes the location of liners (e.g. floor and walls), overall thickness of liners, thickness of successive layers, gradients of sides of structures of clay liners etc for all structures referred to above.

Importantly for the TSF liner further information is required to demonstrate how the EPA's requirements (outlined below) will be met to ensure impacts do not occur.

The EPA's standard requirement for these types of liners is to achieve a permeability of 1×10^{-9} m/s or less with a re-compacted clay liner of at least 90 centimetres (cm) in thickness (or alternative geosynthetic liner of equivalence). Where the proposed liner will not meet this thickness and the natural geology of the site in conjunction with constructed clay liners is considered sufficient in meeting this requirement, sufficient evidence must be provided in support of this to demonstrate the construction will be adequate to prevent pollution of groundwater (e.g. geological evidence, appropriate groundwater modelling etc).

Details of the proposed QA/QC program must also be provided to ensure earthworks (compaction etc) are undertaken in the appropriate manner and the design criteria are achieved.

Response

A response to this issue has been prepared by Chris Hogg, Principal Civil/Geotechnical Engineer-Tailings Team Leader with Coffey Mining. That response is presented in full in **Appendix 4**. In summary, however, Mr Hogg notes the following in relation to the proposed permeability of the Tailings Storage Facility.

- The geotechnical investigations undertaken within the footprint of the facility indicate that the proposed facility footprint is underlain by a minimum of 0.8m of gravelly sandy clay/sandy clay over weathered rock.
- Geotechnical investigations using *insitu* falling head permeability testing indicate that the weathered rock material within the proposed footprint typically have a very low permeability in the range of 2×10^{-9} m/s to 3×10^{-9} m/s to a nominal depth of 20m.
- Coffey Mining recommend that the facility liner comprise a compacted *insitu* clay liner approximately 0.3m thick with a target permeability of 10^{-8} m/s, overlying *insitu* weathered rock material with a permeability in the upper 20m in the range of 2×10^{-9} m/s to 3×10^{-9} m/s.
- Mr Hogg states that the proposed liner system above, is equivalent to or of lower permeability than the permeability of the liner for the recently approved Tailings Storage Facility at the Dargues Reef Project (Major Project 10_0054 – Condition 3(24)) which requires a permeability of 1×10^{-8} m/s over a thickness of 600m.

In addition to the above, Mr Hogg notes that to achieve the identified permeability of 1×10^{-9} m/s over 900mm will require an artificial HDPE liner. The Proponent contends that such a liner would impose a significant financial imposition on the Project and that to require such a liner for the Hera Project when a lower standard has been applied to other projects would be unreasonable. This would be particularly so when the relatively groundwater sensitivity of the two Projects is taken into consideration.

In relation to the QA/QC requirements of the liner, Mr Hogg notes that these are addressed in the Coffey Mining Tailings Storage Facility design report at attachment D. That attachment is included as **Appendix 6**. In summary, the Proponent would ensure that testing to check the target permeability of the clay liner would be carried out at a frequency of one test per 1.7ha of liner area.

Even where the EPA's requirements outlined above are met, the contaminants in the tailings still have potential to permeate from the TSF albeit over a long period of time. Hence an assessment also needs to be provided including:

- i) *an assessment of the long term fate of contaminants in the TSF;*

- ii) *an assessment of potential impacts on groundwater quality in the longer term, against ANZECC 2000 criteria for any beneficial uses likely to be impacted; and*
- iii) *longer term arrangements for management, monitoring and response to any such impacts beyond the operational life of the proposed mine.*

Response

The Proponent contends that the requested assessment is not reasonable or required for the following reasons.

- As indicated in Section 4.3.3 of the *Environmental Assessment*, groundwater within and surrounding the Project Site is of poor quality (electrical conductivity between 2 700µS/cm and 5 800µS/cm) and does not meet the trigger values for surface waters identified by ANZECC (2000). As a result, it would be unreasonable to require an assessment against those trigger values.
- As indicated in Section 4.3.2 of the *Environmental Assessment*, there are three registered production bores (and two monitoring bores) within 11km of the Project Site. Of the production bores, the Proponent is advised that they are rarely used because of poor water quality issues. As a result, there is limited potential for the Project to result in adverse impacts to surrounding groundwater users.
- As indicated in Section 4.3.6.5 of the *Environmental Assessment*, no groundwater dependent ecosystems were identified within or in the vicinity of the Project Site. In addition, taking into account the standing water levels in bores within and in the vicinity of the Project Site, namely between 50m and 70m below ground level, and the surrounding topography, it is unlikely that groundwater within the Project Site would discharge to the surface within 10km of the Project Site.
- The Tailings Storage Facility would be constructed as previously described. As a result, the permeability of the structure would be in-line with criteria that are considered acceptable for such facilities, without the requirement for further long-term groundwater assessments.
- The Tailings Storage Facility would be located within the potential cone of depression of the proposed underground mine. As a result, any seepage from the facility during the life of the mining operations would be directed to the underground mine and would be recovered during dewatering operations.
- The Tailings Storage Facility would be constructed with under-tailings drainage which would continue to dewater the tailings following the completion of tailings placement operations. In addition, the facility would be rehabilitated using an impermeable cap to create a free draining landform, limiting the infiltration of water into the facility. As a result, once rehabilitated, the Tailings Storage Facility would be unlikely to contain significant moisture capable of leaching from the facility.

- As indicated in Section 2.6.4 of the *Environmental Assessment*, the tailings to be placed within the Tailings Storage Facility would not be hazardous and would have a low potential to be acid generating. In addition, the concentration of weak acid dissociable cyanide within the tailings at placement would be less than 10ppm, a concentration considered unlikely to be harmful to fauna. As a result, the tailing would not generate a leachate with the potential to contaminate groundwater in the short- or long-term.
- The Proponent anticipates that monitoring of groundwater in the vicinity of the Tailings Storage Facility (see discussion below) would continue following the completion of mining operations until the relevant government agencies are satisfied that the rehabilitated Tailings Storage Facility no longer poses a risk to the environment.

Further information is required regarding the proposed groundwater monitoring network particularly around the TSF, but also any other groundwater monitoring across the site. This includes the number and locations of piezometers, as well as parameters to be monitored.

Noting it is the EPA's expectation that piezometers are located in strategic locations, depending on the location of structures with the greatest risk to groundwater and other factors such as groundwater flow direction etc. This would include locating piezometers up gradient and down gradient of structures with the greatest risk to groundwater.

Information must also be provided regarding the reasoning behind the proposed groundwater monitoring network (locations of monitoring points, depth of groundwater monitoring bores, parameters monitored etc).

Groundwater Monitoring is discussed further under the heading "Water" in Attachment C.

Response

As indicated in Section 4.3.7 of the *Environmental Assessment*, the Proponent would monitor groundwater levels and quality in 18 bores, as well as the proposed underground mine prior to, during and following the life of the mining operations. In addition, that Section also indicates that groundwater quality would be monitored within a number of piezometers associated with the Tailings Storage Facility. The location of those piezometers would be identified in the Water Management Plan to be developed in consultation with the NSW Office of Water following receipt of project approval. In summary, however, the monitoring bores would indicatively include two monitoring bores upslope and five monitoring bores downslope of the facility

The EA notes potentially acid forming waste rock placed on the surface would not be encapsulated because it would be stockpiled on the surface for a short period only.

Recommendation:

Further information is required regarding the management of potentially acid forming waste rock to be temporarily stored in the Acid Forming Encapsulation Area to ensure it does not become acid generating prior to returning underground.

This should include inclusion of contingency measures in the event the potentially acid forming waste rock placed on the surface become acidic prior to placement underground.

Response

Section 2.7.3 of the *Environmental Assessment* identifies that approximately 30% of the waste rock to be produced by the Project is expected to be potentially acid forming, with the remaining material being non-acid forming. In addition, all waste rock material would be further classified through additional testing prior to extraction and transportation to the surface. Material classified as acid forming, potentially acid forming or uncertain would be placed within the acid-forming waste rock encapsulation area. The acid-forming waste rock encapsulation area would be constructed in a manner that would ensure that any potentially acidic leachate is directed to a lined leachate collection pond for use within the processing plant.

In addition, as indicated in Section 2.7.4 of the *Environmental Assessment*, all waste rock material within the temporary waste rock emplacement area, including within the acid-forming waste rock encapsulation area, would be transported back underground and used to back fill completed stopes. Commitment 5.9 has been inserted to indicate that backfilling operations would commence as soon as practicable once the initial stope is complete and that material within the acid-forming waste rock encapsulation area would be preferentially transported back underground before material within the remaining sections of the temporary waste rock emplacement. Transportation of material back underground is expected to commence within two years of the commencement of mining operations.

Finally, Section 2.7.4 of the *Environmental Assessment* also identifies that water quality monitoring and visual inspections of the leachate management pond would be undertaken regularly during the life of the emplacement to identify if waste rock has become acidic or if acidic leachate is being generated.

As a result, given the limited storage time of waste rock at the surface and the proposed management and mitigation measures, the Proponent contends that further information in relation to management of this material is not required. However, in recognition of the Environment Protection Authority's concerns, Commitment 5.10 has been inserted to identify that the following measures would be implemented in the event that acid generation is detected prior to transportation of all potentially acid generating material back underground.

- Monitoring of leachate within the Leachate Management Pond would be increased in frequency.
- All leachate would be removed to the process water pond as it is generated, limiting the potential for this material to discharge to natural drainage or seep from the pond.
- In the event that acid generation or leachate with a low pH is identified, a management plan would be developed to facilitate prompt transportation of acid-forming material back underground or, if prompt transportation is not practicable, temporary encapsulation of this material.

Recommendation:

The Statement of Commitments should be updated to reflect commitments to implement measures to protect groundwater as discussed above.

Response

See comments above.

Hazardous Material Management

In 2010 the Department of Health and Aging National Industrial Chemical Notification and Assessment Scheme (NICNAS) finalised their assessment report on the use of sodium cyanide at gold mines. The report was entitled "Priority Existing Chemical Assessment Report No 31- Sodium Cyanide" (the NICNAS report).

This document makes recommendations regarding concentration limit controls in conjunction with other wildlife exposure minimisation strategies to protect wildlife...

Recommendations:

Clarification is required regarding:

- 1) *Confirmation that the proponent is able and is willing to commit to a discharge limit of less than 10 mg/L of WAD cyanide at the discharge point to the proposed TSF.*
- 2) *Clearly identify the management strategies that will be employed to reduce potential for exposure of fauna to cyanide including details of control measures and monitoring programs and timing for implementation of these strategies.*
- 3) *Confirmation that the measures referred to in point 2) above will be provided upfront and not in retrospect.*
- 4) *The Statement of Commitments should be updated to reflect commitments to implement measures to protect fauna and the environment in general as outlined above.*

Response

In relation to the above the Proponent notes the following.

- Section 2.5.6 of the *Environmental Assessment* states the following.

*"Any cyanide-containing liquid that would not be reused within the [processing] plant would be passed to a cyanide destruction tank where hydrogen peroxide and copper sulphate would be added to the solution to reduce the weak acid dissociable (WAD) cyanide to less than 10ppm. This solution would be further diluted with the flotation tailings slurry before being pumped to the Tailings Storage Facility via buried pipes. According to the document *Priority Existing Chemical Assessment Report No 31 – Sodium Cyanide* published by the Commonwealth Department of Health and Ageing (NICNAS, 2010), this classifies the Tailings Storage Facility as a Category 1 facility, or one that requires no cyanide-specific management measures."*

As a result, the Proponent has indicated that it is able and willing to commit to a WAD cyanide discharge limit of 10ppm and that in accordance with NICNAS, (2010) no cyanide-specific management measures within the Tailings Storage Facility would be required.

- In relation to cyanide management measures associated with the Process Water Dam, WAD cyanide concentrations greater than or equal to 10ppm would occur only in rare and exceptional circumstances. As the dam would be located in an area of intense human activity, it is highly unlikely that wildlife would utilise the dam, particularly as there will be other water resources available within the Project Site, namely Pete's Tank, Back Tank East and Three Gates Tank.
- Further measures to prevent wildlife access to the cyanide leach tanks are not considered necessary as these areas would be highly unattractive to wildlife due to the high levels of human activity.
- Commitment 4.10A has been inserted to indicate that the Proponent would fence relevant sections of the surface facilities area to prevent access by wildlife.

Water

The EPA's review of the EA in terms of surface water management has identified the need for additional information where this information is fundamental to assessing the likely impacts of the proposal and cannot therefore be provided as an approval condition. The primary issues of concern are:

- *minimum freeboards to be maintained in the Tailings Storage Facility (TSF) and the process and raw water dams and an assessment of water quality impacts in the event of overtopping;*
- *the potential longer term impacts from, fate of, management and monitoring of contaminants placed in the TSF;*
- *flocculants to be used to treat water captured in sediment basins;*
- *management of groundwater pumped from the open cut voids;*
- *post closure water management; and*
- *the need for consolidated surface and groundwater monitoring programs.*

Recommendation:

It is recommended that the proponent be requested to provide further information about:

- *the minimum freeboard that will be maintained in each of these dams/facilities at any time;*

- *the probability of the proposed minimum freeboard being overtopped; and*
- *an assessment of the water quality impacts from these dams in the event they are overtopped against relevant ANZECC 2000 benchmarks, taking into account dilution from expected flow volumes in rainfall events that cause the overtopping.*

Response

A response to this issue has been prepared by Chris Hogg, Principal Civil/Geotechnical Engineer-Tailings Team Leader with Coffey Mining. That response is presented in full in **Appendix 4**.

Erosion and Sediment Control

Sediment Basin Discharge

The proposal indicates that a discharge quality of less than 50mg/L TSS will be achieved, ... The EPA recommends that the proponent use flocculants that have a LC50 of >100 mg/L. This ecotoxicology should be assessed against a water flea (egcladoceran), a relevant fish species for the area and a freshwater alga to provide confidence that the flocculant is suitable, noting that cationic flocculants are often the most toxic and that some anionic flocculants can have low toxicity to fish but high toxicity to water fleas.

Recommendation:

It is recommended that the proponent provide information about the type, toxicity and management of any flocculants proposed to treat water captured in sediment basins. In the absence of further information the EPA will use a licence limit for polyelectrolyte flocculants used in sediment basins of LC50 less than 100mg/L.

Response

Mr Mark Passfield of SEEC prepared the following response provided in an email to Mr Mitchell Bland dated 9 January 2012.

In summary, the *Environmental Assessment* and the Surface Water Assessment (SEEC, 2011) state that all potentially sediment-laden water would be directed to sediment basins and settlement ponds for immediate reuse. These structures would be maintained with sufficient volume to accept this water in generally in accordance with the requirements of Landcom (2004). All accumulated water would be transferred to the Raw Water Dam at a sufficient rate to empty the basins within five days (0.52 ML/day). This is easily achievable with a diesel pump.

In the unlikely event this is not possible, then flocculation would be required prior to release. The Proponent will test a range of flocculants before the mine commences to pre-qualify at least one. The ecotoxicological tests would be assessed against a water flea (e.g. cladoceran), a relevant fish species for the area and a freshwater alga to provide confidence that the flocculant is suitable (i.e. the acute toxicities (50 percent lethal concentrations (LC50)) are appropriate. Commitment 6.18A has been updated to reflect the above.

Void De-Watering and Onsite Groundwater Reuse

The proposed underground voids will intercept groundwater-bearing layers with subsequent inflows. The proposal indicates this groundwater will be pumped to the surface for use in mining related activities...

Recommendation:

Given the nature of the groundwater and its potential impacts on soil and vegetation, it is recommended that the proponent prepare Groundwater Reuse Procedures as part of a broader Groundwater Management and Monitoring Plan. This recommendation forms part of the proposed approval conditions provided in Attachment C.

Note that the groundwater reuse management plan may require shandying or additional treatment of groundwater, or alternative groundwater disposal options. Any reduction in the amount of groundwater able to be used on-site as a consequence of this groundwater reuse management plan will require the proponent to review the water balance provided in the environmental assessment.

Response

As indicated in Section 2.2.5 of the *Environmental Assessment*, the principal source of operational water for the Project would be groundwater sourced from the proposed underground mine, with additional water obtained from surface water sources, when available. Any shortfall in water for operational purposes would be sourced from a range of production bores within the Project Site. That water would be extracted at a rate sufficient only to meet operational requirements. None of this water would be discharged to natural drainages. As a result, all groundwater produced by the Project would be reused and there would be no requirement to “shandy” groundwater with water of better quality to achieve discharge criteria.

Finally, the Proponent anticipates that the water balance component of the Project’s *Water Management Plan* would include a detailed water use flow chart outlining the above.

Process Water Dam

Process wastewater is reused during the mining process. However, it is not clear how the remaining process water will be managed after mining operations are completed.

Recommendation:

It is recommended that the proponent be requested to advise how all residual water will be managed at the end of the mining operations.

Response

Process water within the process circuit at the completion of processing operations would be transferred to the Tailings Storage Facility from where it would be evaporated. No process water would be discharged to natural drainage.

The material used to construct process water dams may also be contaminated during the mine life and should be considered as part of waste management in the decommissioning of the dam and rehabilitation of the site.

Response

The Proponent acknowledges the Project may result in the generation of contaminated material that may require management during decommissioning and rehabilitation of the Project. It is anticipated that the *Mining Operations Plan/Rehabilitation Management Plan* for the Project would include detailed contaminated land management and remediation procedures. However, in recognition of the above, Commitment 15.9 has been inserted to indicate that a contaminated land assessment would be undertaken prior to the commencement of decommissioning operations and that any contaminated land would be managed in accordance with the relevant guidelines applicable at the time.

Bunding of the Carbon in leach Process Area and Chemical Storage Areas

The proponent should consider any reduction in effective volume of bunded areas due to the cumulative volume of all the containers stored and whether there is any likelihood that more than one container could fail at a time. For example, if damage to one container is likely to damage another then the size of the containment area may need to be increased.

Response

Commitment 5.5 has been amended in light of the above comment. It is noted that the Project does not include Carbon in Leach process, it does, however, include leach and Merrill Crowe circuits.

Attachment C - Recommended Conditions of Consent

L6 Noise limits

L6.1 Noise generated at the premises must not exceed the noise limits presented in the table below. (Note that the noise limits apply to the noise contribution from the Hera Project only. Locations R1 to R4 in the table below are those described in the Noise and Vibration Assessment, September 2011, prepared by Spectrum Acoustics Pty Ltd for the Hera Project, via Nymagee, Environmental Assessment.

Noise Limits (dB(A))				
Location	Day	Evening	Night	
	<i>L_{Aeq(15 minute)}</i>	<i>L_{Aeq(15 minute)}</i>	<i>L_{Aeq(15 minute)}</i>	<i>L_{A(max)}</i>
R1, R2, R3, R4 Burthong Rd Nymagee	35	35	35	45

L6.2 For the purpose of Condition 6.1:

L6.3 The noise limits set out in condition L6.1

L6.4 For the purposes of condition L6.3:

- a) The meteorological data to be used for determining meteorological conditions is the data recorded by the meteorological weather station at (Cobar MO AWS).
- b) Temperature inversion will be assessed by use of the sigma-theta process as outlined in Appendix E4 of the NSW Industrial Noise Policy (INP).

L6.5 For the purposes of determining the noise generated at the premises ...

L6.6 To determine compliance: ...

L6.7 A breach of this Environment Protection Licence ...

L6.8 For the purposes of determining the noise generated at the premises ...

Response

The Proponent does not object to the above conditions except Condition L6.4 above.

The Cobar MO AWS meteorological station is located approximately 90km to the northwest of the Project Site. The Proponent anticipates that the conditions of the project approval, assuming that it is granted, and the Environment Protection Licence (see discussion below) will include a requirement to establish a suitable meteorological station. As a result, the Proponent contends that the meteorological station to be used for determining meteorological conditions within the Project Site should be the on-site station, not the Cobar MO AWS.

L7. Blasting

(Note that the blasting conditions L7.1 to L7.5 respectively apply to all receiver locations).

L7.1 Blasting-overpressure must not exceed at any time.

The overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.2 *Blasting-overpressure must not exceed.*

The overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.3 *Blasting-vibration must not ever exceed.*

Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.4 *Blasting-vibration must not exceed.*

Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.5 *Blasting hours of operation.*

Blasting operations at the premises may only take place between 9:00am-3:00pm Monday to Friday. (Where compelling safety reasons exist, the Authority may permit a blast to occur outside the abovementioned hours. Prior written (or facsimile) notification of any such blast must be made to the Authority).

Response

The Proponent contends that the above blasting operations should apply to surface blasting operations only. This issue was recently raised in relation to the Dargues Reef Gold Project where it was noted that underground blasting may be undertaken at any time because underground blasts are typically small and that as soon as a face or stope ring is ready for firing, it is generally required to be fired to ensure that material continues to be available for ongoing mining operations. The Proponent contends that to restrict the hours of underground blasting would be an unreasonable restriction on the Project. In light of the above, the Proponent would be willing to accept a condition similar to that imposed on the Dargues Reef Gold Project, a copy of which is included below.

“Condition 3(6) - The Proponent shall ensure that the blasting on site does not cause exceedances of the criteria in Table 4.

Table 4: Blast impact criteria

Location	Time of Blasting	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Residence on privately-owned land	Any time	120	10	0%
	Day	115	5	5% of the total number of blasts over a period of 12 months
	Evening	-	2	
	Night, and all day on Sundays and public holidays	-	1	0%

Note: All blasts are to be designed by a suitably qualified and experienced blasting engineer.

Condition 3(7) - The Proponent shall comply with the blasting hours in Table 5.”

Table 5: Blasting hours

Activity	Blasting Hours
Surface blasting	9am – 5pm Monday – Friday, excluding public holidays
Underground blasting	Anytime

M7 Requirement to monitor weather

M8.1 The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in condition M8.2.

M8.2 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Point ##

Parameter	Units Measure	of	Frequency	Averaging Period	Sampling Method
Air temperature	°C		Continuous	1 hour	AM-4
Wind direction	°		Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s		Continuous	15 minute	AM-2 & AM-4
Sigma theta	°		Continuous	15 minute	AM-2 & AM-4
Rainfall	mm		Continuous	15 minute	AM-4
Relative humidity	%		Continuous	1 hour	AM-4

Response

The Proponent does not object to the proposed conditions

Air

The proposed Air Quality Management Plan (AQMP) must incorporate measures outlined in the revised Statement of Commitments (SoC)...

Maximum cumulative 24-hour average PM_{10} concentration is predicted for Mine Camp (Receptor 6, located on-site), with project-increments varying between 1.1–20.9 micro grams per cubic metre ($\mu\text{g}/\text{m}^3$). This outcome is dependent on assumptions in relation to particulate concentrations in the Vent Rise Exhaust which are conservative as applied in the assessment. Due to uncertainty in this source emission profile, in-stack particulate concentration should be monitored and logged to assess performance.

Recommended Conditions of Approval

Stockpile areas and unsealed roads

- Maintain ore handling areas (ROM pad/ stockpiles) in a moist condition, as required, by using water carts to water down areas affected by wind-blown and traffic generated dust.
- Limit disturbance to the minimum area necessary for mining and associated activities.
- Impose maximum speed limit of 40km/h on internal vehicle access roads within the Project Site.
- Spray unsealed access roads and other trafficked areas with water carts at a rate of 2 litres per square metre per hour ($\text{L}/\text{m}^2/\text{hour}$), as required, when visible dust is generated.
- Use biodegradable dust suppressants with insignificant environmental impacts for controlling dust emissions from unsealed roads and disturbed areas.

Ore processing plant

- Minimise, to the extent practicable, drop-heights from the ROM bin to the primary crusher.
- Enclose, as far as practicable, crushing and dry screening plant components of the Processing Plant, with venting to a fabric filter or equivalent device for removal of particulate matter from the air stream prior to release. Alternatively, install suitable alternate dust control measures such as water sprays to ensure that the required level of dust suppression is achieved.
- Incorporate water spray facilities at all transfer points in the crushing and screening circuit within the Processing Plant.
- Maintain and inspect the crusher and dry screen circuit hood and filter systems and all other dust control technologies, in accordance with supplier recommendations.

- Optimise the design of the Processing Plant to:
 - minimise the amount of conveyor operating hours with zero load;
 - maximise the use of gravity to move material through the Processing Plant reducing the need for pumping; and
 - maximise the use of energy efficient motors in major pieces of the Processing Plant.

Tailings Storage Facility

- Maintain, as far as practicable, approximately 75% of the Tailings Storage Facility area as wet, with emissions restricted to 25% of the surface area of the Tailings Storage Facility.
- Cap or otherwise treat the Tailings Storage Facility during rehabilitation activities following completion of operations.
- ~~Install temporary wind breaks in the vicinity of the Tailings Storage Facility and implement chemical suppressant technology within the facility to minimise emissions.~~

Vegetative rehabilitation

- Establish vegetative cover, using appropriate ~~endemic native~~ grass species, over all long term topsoil stockpiles not regularly used and to all non-operational exposed surfaces, e.g. Tailings Storage Facility wall, ROM pad batters, as soon as practical after disturbance once no longer required for mining-related purposes.
- Profile all surfaces to reduce velocity of overland winds. Contour the final landform shape to avoid strong wind flows and smooth gradients to reduce turbulence at surface.
- Reshape, topsoil and rehabilitate completed Waste Rock Emplacement areas as soon as practicable after they are no longer required for mining-related purposes.

General

- Progressively optimise the underground mine design to minimise travel distances for mining equipment and re-handling of waste and ore material.
- Use mining equipment which is regularly maintained and serviced to maximise efficiency.
- Limit disturbance to the minimum area necessary for mining and associated activities.

- Minimise, as far as practicable, all drop heights.
- Ensure site personnel understand fundamentals of air emissions, and have been trained to make timely reporting of any visible air emissions to allow for prompt and appropriate action to be undertaken for the management of the identified emissions.

Response

The Proponent does not object to the proposed conditions. However, a number of suggested modifications have been made in red above to ensure clarity and practicality for the Project. Additions have been underlined, deletions are presented as ~~strikeouts~~ and both deletions and additions are presented in red.

Air Quality Monitoring Program

- 1) The Air Quality Monitoring Program (AQMP) should be developed to confirm on an on-going basis, the consistent and effective implementation of particulate management measures at the Project and to demonstrate compliance with the EPA's air quality criteria.
- 2) The in-stack particulate concentration in the Ventilation Rise Exhaust stream should be monitored and logged to assess the performance of the system and clarify the uncertainty in the emission estimation process. Recommended licence conditions are provided under the heading "Licence Conditions for Vent Stack".
- 3) The AQMP must be prepared in consultation with the EPA and surrounding community as follows:
 - PM₁₀ monitoring should be conducted at a minimum one (1) location in the vicinity of the Project Site (northwest corner receptor R3 or the Mine Camp R6 could provide suitable locations). An additional location, either to the east of the Project Site or near the residences at the southwest corner of the Project Site (adjacent to R1 and R2) could provide a useful indication of background concentrations for comparison against the monitoring conducted at the northwest corner location.
 - Real-time meteorological monitoring should be conducted at the Project Site, in accordance with the recommendations of the NSW EPA Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007). Real-time meteorological data, specifically wind measurements, can be used to inform dust management planning and impact potential minimisation at the Project Site.
 - The selection of monitoring methods and locations should be conducted in consultation with the NSW EPA. The ongoing requirement for the program reviewed after a period of 12 months, in consultation with NSW EPA.

Response

The Proponent does not object to the proposed conditions. It is noted, however, that the Proponent proposes to install a single high volume air sampler at the Mine Camp (Location R6), initially for a period of 12 months, with further monitoring beyond the initial 12 months

contingents on the results of the monitoring. Commitment 10.26 has been amended to reflect this commitment.

Licence Conditions for Vent Stack

P1 Location of monitoring/discharge points and areas

P1.1 The following point referred to in the table below is identified for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air.

EPA no.	Identification	Type of monitoring point	Type of discharge point	Description of location
1		Air emissions monitoring	Discharge to air	Ventilation Exhaust Rise

Response

The Proponent does not object to the proposed condition. Commitment 10.26 has been amended to reflect the above.

Limit Conditions

L1 Concentration limits

L1.1 For each monitoring/discharge point or utilisation area specified in the tables below (by point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

Point 1

Pollutant	Units of measure	100 percentile limit	Reference conditions	Averaging period
Solid particles	mg/m ³	10	273K, 101.3kPa	As per test method

Response

The Proponent does not object to the proposed condition and notes that the proposed concentration limit represents a worst-case emission level used in the air quality assessment.

Monitoring and Recording Conditions

M1 Requirement to monitor concentration of pollutants discharged

M1.1 For the monitoring/discharge point specified below, the applicant must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The

applicant must use the sampling method, units of measure and sample at the frequency, specified opposite in the other columns:

Point 1

Pollutant	Units of measure	Frequency ¹	Sampling Method ¹
Solid particles	mg/m ³	Post commissioning, annual	TM-15
Temperature	K	Post commissioning, annual	TM-2
Velocity	m/s	Post commissioning, annual	TM-2
Volumetric flow rate	m ³ /s	Post commissioning, annual	TM-2
Selection of sampling positions	NA	NA	TM-1

¹or as otherwise approved in writing by the EPA.

Response

The Proponent does not object to the proposed condition. However, it is noted that the Proponent anticipates that high volume air sampling will be undertaken every six days for an initial period of 12 months, not annually as identified in the proposed condition.

M2 Testing methods - concentration limits

Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

- (a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
- (b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
- (c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The POEO Clean Air Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

Response

The Proponent does not object to the proposed condition.

M3 Post Commissioning Testing

Once the facility is operational, stack testing must be conducted to ensure that the facility is maintained and operating such that emissions do not exceed the relevant Design Criteria specified in the Air Quality and Greenhouse Gas Assessment (September 2011). The licensee must submit a written report to the EPA detailing the results of post-commissioning source emissions sampling and analysis undertaken in accordance with the requirements specified in

this EPL. The monitoring and report must also assess compliance with the limit conditions specified in this EPL.

Response

The Proponent does not object to the proposed condition. Commitment 10.26 has been adjusted to reflect the above.

Water

Surface Water Discharges

It is recommended that the following approval condition be incorporated into DoP's final approval:

- *The Proponent must ensure that all surface water discharges from the site comply with:*
 - (a) *Section 120 of the POEO Act;*
 - (b) *a maximum of 50 milligrams per litre of suspended solids in any discharge of water from sediment basins, and any other discharge limits (both volume and quality) that may be specified by licensing instruments issued under environment protection legislation administered by the EPA.*

Response

The Proponent does not object to the proposed condition.

Water Management Plan

It is recommended that the following approval condition be incorporated into DoP's final approval:

- *The Proponent must prepare a Water Management Plan for the project to the satisfaction of the EPA. This plan must:*
 - (a) *be prepared in consultation with the EPA and by suitably qualified and experienced person(s);*
 - (b) *address construction, operation and post closure monitoring, management and response arrangements; and*
 - (c) *include:*
 - *Site Water Balance;*
 - *an Erosion and Sediment Control Plan;*
 - *Groundwater Management and Monitoring Plan;*
 - *Surface Water Monitoring Program; and*

- *Surface and Ground Water Response Plan to respond to issues identified by the surface and groundwater monitoring programs.*

The site water balance must include, as a minimum, a description of the conditions under which the capacity of the TSF, raw water or process water dam(s) may be exceeded and the likely water quality that could be discharged and its fate, plus contingencies for minimising impacts if these dams are close to exceeding capacity. The management of process mine water that remains following the completion of mining must be addressed in the water management plan.

The Surface Water Monitoring Program must include, as a minimum, the following components:

- (a) detailed baseline data on current surface water flows and quality in creeks and other waterbodies that could be affected by the project;*

~~*(b) surface water quality and stream health assessment that includes representative baseline survey of current aquatic life in drainage lines upstream and downstream of the mine site prior to commencement of construction;*~~

- (c) an initial surface water quality characterisation assessment of water quality in sediment basins and other water storage structures on the mine site to ensure they are collecting water of a quality consistent with their design purpose, and must include but not necessarily be limited to monitoring for pH, electrical conductivity, a full scan of metals, and total and WAD cyanide. The water quality monitoring conducted for this characterisation assessment must continue until such time as the EPA is satisfied that water quality in each of the surface water management structures is consistent with their respective design purposes and that the surface water can be managed in accordance with EPL conditions;*

- (d) an on-going monitoring program for operational and post closure stages of the mine, including specification of analytes, sampling frequency, sampling locations and triggers for management response, for:*

- *sediment basins including salinity and toxicants;*
- *reuse dams;*
- *discharges from the mine site;*
- *surface water flows, quality, and impacts on water users outside the mine site;*
- *stream health and channel stability in downstream waterways.*

The Groundwater Management and Monitoring Plan must include, as a minimum, the following components:

- a) Groundwater Reuse Management Procedures that ensures salinity, and other potentially polluting contaminant levels in groundwater used on-site is fit-for-purpose and managed to prevent:*

- *cumulative impacts on soil and vegetative condition;*
- *impacts on water quality in sediment basins; and*

- *impacts on permeability of pond linings.*
- b) *a detailed monitoring program that specifies relevant parameters and sampling frequency for any groundwater to be used on the site. The program must be designed to the satisfaction of the EPA*
- c) *an initial groundwater quality characterisation assessment of groundwater quality collected on the mine site. The groundwater quality monitoring conducted for this characterisation assessment must continue until such time as the EPA is satisfied that monitoring results have been adequately addressed by the Groundwater Reuse Management Procedures;*
- d) *an on-going TSF groundwater monitoring program designed to assess the effectiveness of the TSF in containing contaminants. This monitoring program must operate at operational and post closure stages of the mine until such time as EPA approves the cessation of the program. The on-going TSF facility monitoring program must include specification of analytes, sampling frequency, sampling location and depths and triggers for management responses.*

Unless otherwise adequately justified by the proponent to the satisfaction of the EPA, the monitoring required by (b) and (c) above must include sample analysis for pH, EC, TDS, DO, redox potential, major cations and anions, acidity, alkalinity, TSS, a full scan of metals, bicarbonate, calcium, chloride and sulphate.

The monitoring required by (c) above must also include sample analysis for WAD cyanide.

Response

The Proponent does not object to the proposed condition. However, it is noted that all drainage lines within and surrounding the Project Site are ephemeral and, as a result, compliance with item (b) of the Surface Water Monitoring Program is unlikely to be feasible as stream flows in drainage lines within the Project Site occur for periods of a few hours to a few days only following irregular high intensity rainfall events. As a result the Proponent contends that that requirement should be removed as indicated in **red** and ~~strikeout~~ above.

9. FINAL STATEMENT OF COMMITMENTS

Section 5 of the *Environmental Assessment* presented a draft Statement of Commitments for the Hera Project. Following the Proponent's review of the above submissions, the Statement of Commitments has been revised and is presented in **Table 2** as a Final Statement of Commitments. Amendments made to the draft Statement of Commitments are presented in **Table 1** as underlined red text.

Table 2
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing														
1 ENVIRONMENTAL MANAGEMENT																
Compliance with all conditional requirements in all approvals, licences and leases.	1.1 Comply with all commitments recorded in Table 5.1 . 1.2 Comply with all conditional requirements included in the: • Project Approval; • Environment Protection Licence; • Mining Lease(s); and • Any other approvals.	Continuous and as required.														
All operations conducted in accordance with all relevant documentation.	1.3 Undertake all activities in accordance with the accepted <i>Mining Operations Plan</i> , environmental procedures, safety management plan and/or site-specific documentation.	Continuous and as required.														
2 AREA OF ACTIVITIES																
All approved activities are undertaken generally in the location(s) nominated on the figures shown in Sections 2 and 4.	2.1 Clearly mark on the ground, and where appropriate, survey the boundaries of the areas of proposed disturbance.	Prior to the commencement of the relevant activity.														
3 OPERATING HOURS																
All operations are undertaken within the approved operating hours.	3.1 Undertake all activities, where practicable, in accordance with the following operating hours.	Continuous and as required.														
	<table><tr><th>Activity</th><th>Proposed Hours of Operation</th></tr><tr><td>Vegetation clearing and topsoil stripping</td><td rowspan="2">7:00 am to 6.00 pm</td></tr><tr><td>Construction operations – Box cut</td></tr><tr><td>Construction operations – Remainder</td><td rowspan="4">24 hours per day</td></tr><tr><td>Underground mining operations</td></tr><tr><td>Maintenance operations</td></tr><tr><td>Processing operations</td></tr><tr><td>Transportation operations</td><td>7:00 am to 10.00 pm</td></tr><tr><td>Rehabilitation operations</td><td>7:00 am to 6.00 pm</td></tr></table>		Activity	Proposed Hours of Operation	Vegetation clearing and topsoil stripping	7:00 am to 6.00 pm	Construction operations – Box cut	Construction operations – Remainder	24 hours per day	Underground mining operations	Maintenance operations	Processing operations	Transportation operations	7:00 am to 10.00 pm	Rehabilitation operations	7:00 am to 6.00 pm
	Activity		Proposed Hours of Operation													
	Vegetation clearing and topsoil stripping		7:00 am to 6.00 pm													
	Construction operations – Box cut															
	Construction operations – Remainder		24 hours per day													
	Underground mining operations															
	Maintenance operations															
	Processing operations															
	Transportation operations		7:00 am to 10.00 pm													
Rehabilitation operations	7:00 am to 6.00 pm															

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
4 ECOLOGY		
Minimise potential impacts on native flora and fauna.	4.1 Develop <u>a Biodiversity Management Plan</u> comprising: • pest animal controls for the control of feral goat, cat, dog, fox; • weed control program for the removal of noxious weeds and reducing further weed invasion; • <u>Grazing Plan</u> using grazing as a management tool but in a controlled manner.	Prior to <u>construction of the Tailings Storage Facility.</u>
	4.1A <u>Develop, in conjunction with EPA, a BioBanking Plan of Management in accordance with the relevant Environmental Protection Agency guidelines comprising a description of:</u> • <u>the existing environment within the Biodiversity Offset Area;</u> • <u>the assessment undertaken to determine the adequacy of the Biodiversity Offset Strategy;</u> • <u>the management measures that would be implemented to ensure that the objectives of the strategy are achieved; and</u> • <u>the method that would be employed to secure the Biodiversity Offset Strategy, including the method to ensure funds are available to implement the strategy.</u>	<u>Within 12 months of the receipt of project approval.</u>
Manage potential impacts on threatened flora and fauna.	4.2 Manage impacts to threatened fauna and communities to ensure that the threatened species and potential habitats recorded within the Project Site are not impacted upon by: • engaging appropriately qualified and experienced ecologists to undertake pre-clearance surveys within areas to be disturbed; • implementation of a Driver's Code of Conduct for all personnel accessing the Project Site for the observation of site speed limit, safe driving protocols, incident management and reporting, noise minimisation;	Continuous throughout the life of the Project.

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
4 ECOLOGY (Cont'd)		
Manage potential impacts on threatened flora and fauna. (Cont'd)	minimisation of impacts to nests and habitats of the recorded threatened species through implementation of administrative controls such as induction toolbox talks and making available fact sheets on the recorded threatened bird species (including descriptions and photographs of the species and their habitats to personnel responsible for vegetation clearing and excavation activities;	Continuous throughout the life of the Project.
	- scheduling the clearing of substantive trees between April to September, where possible, to reduce risk of impact to tree-dependant microbats; Where not practicable, ensure that all hollows suitable for such microbats are inspected prior to clearing operations and roosting bats relocated by a suitably qualified wildlife handler. - implementation of administrative controls comprising induction and toolbox talks to train personnel in the proper management procedures for the handling of any species of bats during tree clearing to prevent infection with zoonoses; - use of suitably qualified personnel to handle the removal of bats of any species.	
	4.3 Mark areas to be cleared of vegetation following pre-clearance survey clearly and inducing workers on the nature and extent of clearing required to minimise no impact to surrounding vegetation.	
	4.4 Park machinery required for the Project within designated areas and/or disturbed areas only away from vegetated areas to be retained.	
	4.5 Examine all trees for the presence of birds or nestlings and arboreal mammals before felling or pushing and commencing with tree removal immediately after visual inspection.	
Manage potential impacts on all flora and fauna.	4.6 Clear hollow-bearing trees or dead stag (if required) within the Surface Facilities Area and Tailings Storage Facility only after a series of alternating 'gradual nudge' (e.g. with a dozer) and 'wait' to allow the occupants of hollows to escape.	During site establishment activities.
	4.7 Undertake no clearing of hollow-bearing trees within the area proposed for the new Back Tank East but allowing them to remain and be flooded <i>in situ</i> .	

Table 2 (Cont'd)
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Desired Outcome	Action	Timing
4 ECOLOGY (Cont'd)		
Manage potential impacts on all flora and fauna. (Cont'd)	4.8 Salvage tree trunks, major and minor branches from areas requiring clearing for subsequent relocation to areas to be revegetated.	Continuous throughout the life of the project.
	4.9 Include in inductions the ecological values of the felled trees and to warn against their collection for firewood.	
	4.10 Remove and properly dispose of any noxious or other weeds encountered during site clearing to prevent their spread to other locations within the Project Site, especially to drainage lines and storage dam areas.	
	<u>4.10A Fence relevant sections of the surface facilities area to prevent access by wildlife.</u>	
Minimise impacts to local waterways and downstream creeks.	4.11 Minimise impacts to the local waterways and downstream creeks during expansion of Pete's Tank and construction of the proposed Back Tank East by: - planning of the site establishment activities so that the in-stream work is kept to a minimum and would occur as a single event, where possible; - restricting in-stream work to low-flow periods, where possible; - limit machinery access to one designated location on the bank, create the shortest access track (and as narrow as possible within the constraints of safety and construction requirements) between this location and the point of activity;	During site establishment activities.
Manage potential risk to the health of the biota from the Tailings Storage Facility.	4.12 Manage potential risk to the health of the biota (birds, other wildlife and livestock) from the Tailings Storage Facility through engineering controls (including creating alternative habitats in nearby locations) including: creation of suitable and alternative habitats in the vicinity of the storage dams (expanded Pete's Tank and the proposed Back Tank East by revegetation of the disturbed areas with appropriate endemic native species.	Prior to the commencement of site establishment activities and continuous throughout the life of the project.

Table 2 (Cont'd)
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Desired Outcome	Action	Timing
4 ECOLOGY (Cont'd)		
Manage potential risk to the health of the biota from the Tailings Storage Facility. (Cont'd)	4.13 Manage potential risk to the health of the biota (birds, other wildlife and livestock) from the Tailings Storage Facility through administrative controls (policies, procedures, work routines) including; - management of cyanide process solutions and waste streams to protect biota health and the environment by ensuring the concentration of the tailings pumped to the Tailings Storage Facility <u>is less than</u> 10mg/L WAD cyanide; - preparation of detailed emergency response plans for potential cyanide effects;	Ongoing throughout the life of the Project.
	- development of procedures for internal and external emergency notification and reporting; - training workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner; - training workers to understand the hazards associated with cyanide use and discharge; - training appropriate personnel to operate the Project in accordance with procedures that protect the environment; - dissemination of operational and environmental information regarding cyanide use on site to all stakeholders through community consultation process; - initiation of dialogue describing cyanide management procedures being adopted at the site and responsively address identified concerns.	
Ensure that Project-related impacts, if any, are identified as early as possible.	4.14 Implement ongoing monitoring programs to evaluate the effects of cyanide use on wildlife through routine observations on the wildlife, including wildlife utilization and mortality within the Project Site: - recording of observations (via written notes and photography), within three hours of sunrise, of all wildlife visitations and mortality associated with the Tailings Storage Facility; and - recording the supernatant level, the cyanide concentration and the history (cyanide concentration, proportion of solids in the slurry etc.) of the most recent tailings pumped into the Tailings Storage Facility.	

Table 2 (Cont'd)
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Desired Outcome	Action	Timing
4 ECOLOGY (Cont'd)		
Ensure that Project-related impacts, if any, are identified as early as possible. (Cont'd)	4.15 Implement ongoing monitoring programs to evaluate the effects of cyanide use on wildlife through cyanide concentration data collection in accordance with industry best practice: - regular sampling and analyses of the supernatant solution from the Tailings Storage Facility and water samples (groundwater and surface waters) from upstream and downstream locations as part of the site's surface and groundwater monitoring program; - sampling as noted above immediately after recording of wildlife death in the vicinity of the Tailings Storage Facility.	Ongoing throughout the life of the project.
	4.16 Undertake monitoring of bat on an annual basis to establish any trend in population changes since commencement of the Project.	
	4.17 Undertake monitoring of the ongoing rehabilitation activities within the Project Site to ensure native vegetation regeneration is successful and to control weed invasion.	During Rehabilitation operations.
	4.18 Conduct annual monitoring of the Grey-crowned Babbler, Hooded Robin, Diamond Firetail and microbat populations including their breeding locations to gauge breeding success and to ensure recovery of local populations are successful following the land disturbing activities.	Ongoing throughout the life of Project.
	4.19 Undertake annual surveys of the Kultarr to establish a population census and compile information for use in the management of this species within the Project site and to allow year to year comparisons of any changes in habitat usage and population trends.	
	4.20 Monitor the rehabilitation activities within the Project Site to ensure native vegetation regeneration is successful and to control weed invasion.	During and following rehabilitation operations.
Manage weeds and pests within the Project Site.	4.21 Implement the industry best practice land management measures e.g. implementation of a weed and feral animal control program as part of a post-project <i>Land Management Plan</i> .	During and following rehabilitation operations.

Table 2 (Cont'd)
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Desired Outcome	Action	Timing
4 ECOLOGY (Cont'd)		
Ensure that Project-related impacts, if any, are identified as early as possible.	4.22 Continue with the annual monitoring of the Grey-crowned Babbler, Hooded Robin, Diamond Firetail and microbat populations including their breeding locations to gauge breeding success and to ensure recovery of local populations are successful.	
	4.23 Continue with the annual formal surveys of the Kultarr to establish a population census and compile information for use in the management of this species following rehabilitation activities and to allow year to year comparisons of any changes in habitat usage and population trends.	
Offset residual impacts on native flora and fauna.	4.24 <u>Negotiate and implement an appropriate BioBanking Agreement as described in Section 2 of the Response to Submissions document</u>	<u>Within 12 months of the receipt of project approval.</u>
	4.25 Implement fully the Biodiversity Offset Strategy, including ensuring that the strategy would be implemented in perpetuity <u>and that fences required for the strategy would, where practicable, be constructed on the alignment of existing fences or adjacent to existing tracks or cleared areas.</u>	<u>Ongoing throughout the following the life of the Project.</u>
5 GROUNDWATER		
Prevent hydrocarbon contamination of groundwater.	5.1 Store all hydrocarbon and chemical products within a bunded area complying with the relevant Australian Standard.	Ongoing throughout the life of Project.
	5.2 Refuel mobile equipment within designated, sealed areas of the Project Site. If refuelling is conducted in the field then procedures would be developed to minimise potential hydrocarbon spills.	

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Desired Outcome	Action	Timing
5 GROUNDWATER (Cont'd)		
Prevent hydrocarbon contamination of groundwater. (Cont'd)	5.3 Undertake all maintenance works involving hydrocarbons, where practicable, within designated areas of the Project Site such as the maintenance workshop.	Ongoing throughout the life of Project.
	5.4 Direct all water from wash-down areas and workshops to oil/water separators and containment systems.	
	5.5 Ensure all hydrocarbon and chemical storage tanks are either self-bunded or bunded with an impermeable surface and a capacity to contain a minimum 110% of the largest storage tank capacity <u>or greater where potential exists for multiple containers to fail at the same time.</u>	
Prevention of groundwater contamination.	5.6 Design and construct the Tailings Storage Facility as described in Section 2.6 and in accordance with the requirements of the relevant government agencies. Key design parameters would be as follows. - Construct the floor and walls of the Tailings Storage Facility in a manner that would achieve an appropriate permeability to prevent leachate leakage. - Ensure that the Tailings Storage Facility embankment is keyed into the underlying material in a manner that would prevent down-slope migration of potentially contaminated groundwater from the facility. - Construct seepage collection structures (Collection Drain and Seepage Collection Pond) at the foot of the Tailings Storage Facility embankment and ensure that any captured seepage is automatically pumped back to the Tailings Storage Facility <u>or Process Water Dam.</u> - Install piezometers at appropriate intervals at the base of the Tailings Storage Facility embankment and monitor these regularly to assess the integrity of the facility.	During site establishment activities.
	5.7 Prepare a <i>Groundwater Monitoring Plan</i> as part of the <i>Water Management Plan</i> in consultation with <u>NSW Office of Water, including procedures for:</u> recording of standing water levels and groundwater quality <u>within</u> bores used to supply operational water <u>for</u> the Project, <u>as well as within monitoring bores associated with the tailings storage facility and processing plant;</u>	<u>Prior to the commencement of mining operations.</u>

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Desired Outcome	Action	Timing
5 GROUNDWATER (Cont'd)		
Prevention of groundwater contamination. (Cont'd)	- monitoring the standing water levels in neighbouring bores to observe any drawdown effects; <u>and</u> <u>further investigation of groundwater impacts in the event that identified trigger levels are exceeded.</u>	<u>Prior to the commencement of mining operations.</u>
<u>Ensure that groundwater is not discharged to natural drainage.</u>	5.8 <u>Ensure that all groundwater removed from the proposed underground mine or the production bores is pumped only to the Header Tank, the Raw Water Pond or other water storage constructed in a manner that would ensure that the water would not discharge to natural drainage.</u>	<u>Throughout the life of the Project.</u>
<u>Prevention of groundwater contamination.</u>	5.9 <u>Ensure that material placed within the acid-forming waste rock encapsulation area is preferentially transported back underground as a priority.</u>	<u>As soon as practicable after the initial stope is completed.</u>
	5.10 <u>Implement the following procedures in the event that acid generation within the acid-forming waste rock encapsulation area is identified.</u> <u>Monitoring of leachate within the Leachate Management Pond would be increased in frequency.</u> <u>All leachate would be removed to the process water pond as it is generated, limiting the potential for this material to discharge or seep from the pond.</u> <u>A management plan would be developed to facilitate prompt transportation of acid-forming material back underground or, if this is not practicable, temporary encapsulation of this material.</u>	<u>Following identification of acid generation within the acid-forming waste rock encapsulation area.</u>
6 SURFACE WATER		
Maintenance of surface water quality.	6.1 Prepare a Surface Water Monitoring and Response Plan as part of the Project Site's <i>Water, Sediment and Erosion Control Plan</i> and in consultation with OEH including a description of surface water management structures and procedures to ensure that the criteria identified in Section 4.4.3 any additional criteria included in the Environment Protection Licence or project approval are achieved.	<u>Prior to and during site establishment activities.</u>

Table 2 (Cont'd)
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Desired Outcome	Action	Timing
6 SURFACE WATER (Cont'd)		
Capture of sediment-laden water flows from project related disturbance.	6.2 Construct sediment and erosion control structures for the separation of clean, dirty and contaminated water on site (as shown in Figure 2.4 and discussed briefly in Section 2.2.4) comprising the following. - Clean water diversions in the vicinity of the Surface Facilities Area and Tailings Storage Facility to divert clean water away from the disturbed areas: - Dirty water diversions to channel water to sediment basins to allow sediment to settle out from dirty water prior to discharge to natural drainage. All outlets would be designed for the 100-year ARI storm event. - Contaminated water collection structures, including downstream of the Tailings Storage Facility and within the processing plant to collect and channel potentially contaminated water to suitable structures for pumping to the Process Water Dam or the Tailings Storage Facility.	Prior to and during <u>site</u> establishment activities.
	6.3 Construct the unpaved access roads (Main Site Access Road and Light Vehicle Road) with a crowned surface to shed water onto surrounding land.	
	6.4 Install mitre drains, where necessary, to reduce concentrated flow.	
	6.5 Ensure access roads would be gravel-sheeted using crushed waste rock.	
	6.6 <u>Design and c</u> onstruct a sealed causeway where the Main Site Access Road crosses Watercourse A approximately 250m from the Main Site Entrance <u>in consultation with NSW Department of Primary Industries – Fisheries and NSW Office of Water</u> .	
	6.7 Ensure that all water management structures <u>where practicable</u> are constructed to the specifications identified in Landcom (2004) and DECC (2008).	

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Desired Outcome	Action	Timing
6 SURFACE WATER (Cont'd)		
Capture of sediment-laden water flows from project related disturbance. (Cont'd)	6.8 Inspect all surface water control structures at least quarterly and following any rainfall event of more than 25mm in 24-hours to ensure their adequacy and identify where remedial action is required.	Prior to and during establishment activities.
Manage potential pollutant discharges.	6.9 Ensure processing/tailings water would be contained within a closed loop and re-used within the Processing Plant, and pump tailings to the Tailings Storage Facility following destruction of weak acid dissociable cyanide concentration to <10 ppm.	Ongoing throughout the life of Project.
	6.10 Design and construct the Tailings Storage Facility to prevent leakage of leachate into the groundwater.	During mine design and prior to construction stages.
	6.11 Construct a clean water diversion upstream of the Tailings Storage Facility to completely divert any upslope run-on. This bund would be stabilised to effectively convey the 100-year ARI, time-of-concentration flow from the upstream catchment.	Prior to and during site establishment activities.
	6.12 Construct a seepage collection drain and pond downslope of the Tailings Storage Facility to collect potentially contaminated leachate from the Tailings Storage Facility, if any, and pump it back to the Tailings Storage Facility.	
	6.13 Ensure that all fuel and chemical storage, delivery and handling areas are bunded to 110% of the size of the largest receptacle.	Ongoing throughout the life of Project.
	6.14 Ensure that pumps and fluid lines for the delivery of chemicals or fuels would be bunded and/or protected. Transfer volumes would be monitored at all times to quickly identify any leaks and appropriate action to be undertaken.	
	6.15 Ensure that stormwater trapped in the Settling Ponds and Sediment Basins is pumped back to the Raw Water Dam for reuse in ore processing, or treat with flocculants, if required, to achieve total suspended solids concentration of 50mg/L prior to release.	

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Desired Outcome	Action	Timing
6 SURFACE WATER (Cont'd)		
Manage potential pollutant discharges. (Cont'd)	6.16 Install appropriate water management structures within the Processing Plant area to trap incident rainfall and isolate any potentially contaminated from the area, and for the subsequent transfer to the Process Water Dam for reuse.	Ongoing throughout the life of Project.
	6.17 Treat wastewater using aerated wastewater treatment systems and dispose of the secondary-treated effluent in dedicated, vegetated, irrigation areas.	
	<u>6.18A Undertake ecotoxicological testwork for proposed flocculants on a water flea (e.g. cladoceran), a relevant fish species and a freshwater alga to provide confidence that the flocculent is suitable for use within the Project Site, namely that the acute toxicities (50 percent lethal concentrations (LC50)) are appropriate.</u>	<u>Prior to the commencement of processing operations.</u>
Manage surface water flow in rehabilitated areas.	6.18 Develop a <i>Soil and Water Management Plan</i> to accompany the capping works, including the exact nature of the capping procedure, at the former Tailings Storage Facility.	During rehabilitation operations.
	6.19 Shape the decommissioned Tailings Storage Facility into a raised plateau with a shallow dome profile so that water would be shed from its surface as sheet flow without concentration.	
	6.20 Ensure that rehabilitation, including the placement of soil and revegetation with endemic native species is undertaken promptly once sections of the Project Site are no longer required for mining-related purposes.	
	6.21 Construct surface water control structures on the rehabilitated landform as required to limit the potential for erosion of newly placed soils by implementing the following. - Retain clean water diversion structures upstream of the Tailings Storage Facility. These structures would be designed to withstand a 100 year ARI rainfall event. - Install an appropriate number of engineered, drop structures on the rehabilitated face of the former Tailings Storage Facility to safely transfer surface water down to original ground level, and to prevent erosion of the embankment at the location of these structures.	
	6.22 Ensure that sediment control structures constructed for the Project remain in place until rehabilitated areas are sufficiently stabilised.	

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Desired Outcome	Action	Timing
6 SURFACE WATER (Cont'd)		
Manage surface water flow in rehabilitated areas. (Cont'd)	6.23 Develop a <i>Water Management Plan</i> for the <i>Project Site in consultation with NSW Office of Water</i> , comprising (in part): • A Surface Water Monitoring and Response Plan; • An Erosion and Sediment Control Plan; • A Site Water Balance.	Following project approval.
7 NOISE AND BLASTING		
Noise generated by operational activities does not exceed DECCW nominated criteria nor significantly impacts on neighbouring landowners and/or residents.	7.1 Install frequency modulated reversing alarms on all mobile equipment.	Ongoing.
All activities are undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents.	7.2 Regularly service all equipment in accordance with manufacturer's instructions.	Prior to and continuous during mining operations.
	7.3 Ensure that all truck drivers would be required to comply with the YTC Resources Limited's Driver Code of Conduct outlining procedures for reducing noise impacts during transportation within the Project Site and off site.	
	7.4 Undertake noise monitoring at the residences most likely to be affected by noise generated by the Project.	Continuous during mining operations.
	7.5 Maintain an open dialogue with the surrounding community and neighbours to ensure any concerns over noise or vibration are addressed.	Prior to commencement of mining operations.
	7.6 Ensure that all blasts are designed by a suitably qualified and experienced blasting engineer or shot-firer such that each is designed in accordance with the ANZECC Blasting Guidelines to achieve the relevant criteria at the closest residence.	Continuous during mining operations.
	7.7 Prepare a <i>Noise Management and Monitoring Program</i> prior to the commencement of mining activities which would incorporate the specific details of all noise controls and provide measures to address noise criteria exceedances and/or complaints should they occur.	Following project approval and prior to operations.

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Desired Outcome	Action	Timing
8 ABORIGINAL HERITAGE		
Site activities are undertaken without impacting upon any Aboriginal heritage items.	8.1 Undertake further site inspections of those sections of the Mine Camp and Tailings Storage Facility that were not surveyed during the 2010 OzArk assessment prior to disturbing the ground to confirm the assessment that there are no objects or sites of Aboriginal heritage significance within the proposed areas of disturbance.	Prior to the commencement of site establishment operations.
	8.2 Cease all work in the vicinity of an Aboriginal sites or objects found during ground-clearing construction works, and seek advice from OEH, the National Parks and Wildlife Service and Condobolin and Cobar Local Aboriginal Land Councils will be sought on how to best proceed. Work would not recommence in the area of the find, until the officials contacted have inspected the material and permission has been given to continue with the construction works.	As required.
	8.3 Implement the following procedures, if during the life of the Project suspected human remains are identified within the Project Site. • Step 1 – the suspected skeletal remains would not be touched or disturbed. • Step 2 – A buffer zone of 50m x 50m would to be established around the suspected remains and all work in the vicinity of the suspected remains to be suspended until the area has been assessed. • Step 3 – The NSW Police and the DECCW to be contacted to make an assessment of the discovery. If appropriate, mitigation procedures to be developed in consultation with the registered stakeholders.	
9 HISTORICAL HERITAGE		
Site activities are undertaken without impacting upon any significant non-Aboriginal heritage items.	9.1 Ensure trees identified to possess toe-holds and bark-rings located east of the project Site (listed in Table 4of OzArk 2011b) are not removed.	Ongoing throughout the life of Project.

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Desired Outcome	Action	Timing
10 AIR QUALITY AND ENERGY		
Minimise impacts to air quality relating to the Project.	10.1 Limit disturbance to the minimum area necessary for mining and associated activities.	Ongoing throughout the life of Project.
	10.2 Spray unsealed access roads and other trafficked areas with water carts at a rate of 2L/m ² /hour, as required, when visible dust is generated.	
	10.3 Incorporate water spray facilities at all transfer points in the crushing and screening circuit within the Processing Plant.	
	10.4 Maintain ore handling areas / stockpiles in a moist condition by using water carts to water down areas affected by wind-blown and traffic-generated dust.	
	10.5 <u>Install suitable dust control measures within the crushing and dry screening components of the Processing Plant, including water sprays, to ensure that the required level of dust suppression is achieved. Alternatively, enclose these components, with venting to a fabric filter or equivalent device for removal of particulate matter from the airstream prior to release.</u>	
	10.6 Maintain approximately 75% of the Tailings Storage Facility area as wet, with emissions restricted to 25% of the surface area of the Tailings Storage Facility.	
	10.7 Cap or otherwise treat the Tailings Storage Facility during rehabilitation activities following completion of operations.	
	10.8 Maintain and inspect dust control systems, in accordance with supplier recommendations.	
	10.9 Ensure site personnel understand fundamentals of air emissions, and have been trained to make timely reporting of any visible air emissions to allow for prompt and appropriate action to be undertaken for the management of the identified emissions.	

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Desired Outcome	Action	Timing
10 AIR QUALITY AND ENERGY (Cont'd)		
Minimise impacts to air quality relating to the Project. (Cont'd)	10.10 Install an onsite real-time meteorological monitoring program in accordance with the recommendations of the OEH's <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales</i> (DEC, 2007).	Ongoing throughout the life of Project.
	10.11 Use biodegradable dust suppressants with insignificant environmental impacts for controlling dust emissions from unsealed roads and disturbed areas.	
	10.12 Minimise drop-heights from the ROM bin to the primary crusher.	
	10.13 Establish vegetative cover, using endemic native grass species, over all long term topsoil stockpiles not regularly used.	
	10.14 Profile all surfaces to reduce velocity of overland winds.	
	10.15 Contour the final landform shape to avoid strong wind flows and smooth gradients to reduce turbulence at surface.	
	10.16 Apply vegetative cover using endemic native grass species, to non-operational exposed surfaces, e.g. Tailings Storage Facility wall, ROM pad batters, as soon as practical after disturbance.	
	10.17 Reshape, topsoil and rehabilitate completed Waste Rock Emplacement areas as soon as practicable after they are no longer required for mining-related purposes.	
	10.18 Progressively optimise the underground mine design to minimise travel distances for mining equipment and re-handling of waste and ore material.	
	10.19 Use mining equipment which is regularly maintained and serviced to maximise efficiency.	
	10.20 Optimise the design of the Processing Plant to: • minimise the amount of conveyor operating hours with zero load; • maximise the use of gravity to move material through the Processing Plant reducing the need for pumping; and • maximise the use of energy efficient motors in major pieces of the Processing Plant.	
	10.21 Adopt the use of energy efficient lighting technologies and hot water and air conditioning systems wherever practical.	

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Desired Outcome	Action	Timing
10 AIR QUALITY AND ENERGY (Cont'd)		
Minimise impacts to air quality relating to the Project. (Cont'd)	10.22 Maximise the recovery of recyclable materials where practicable, including: - waste hydrocarbons; - polyethylene; and - scrap metals.	Ongoing throughout the life of Project.
	10.23 Minimise waste sent to landfill through the development of appropriate purchasing and waste management plans.	
	10.24 Progressively review and implement energy efficiency measures throughout the life of the Project.	
	10.25 Prepare an Air Quality Monitoring Program in consultation with OEH and <u>the</u> surrounding community, <u>including:</u> <u>installation of a high volume air sampler at the Mine Camp, initially for a period of 12 months, with continued monitoring after that period to be determined in consultation with Office of Environment and Heritage; and</u> <u>procedures for monitoring particulates within exhaust air in the proposed ventilation rise.</u>	<u>Prior to the commencement of site establishment operations.</u>
	10.26 Install an onsite real-time meteorological monitoring program in accordance with the recommendations of OEH's Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007).	
11 TRAFFIC		
Achieve safe and efficient transport operations.	11.1 Construct the Main Site Entrance intersection on Burthong Road and upgrade of the existing site access intersection to a Basic left turn (BAL) rural intersection treatment in accordance with RTA's Austroads guidelines to cater for 36m road trains and light vehicle/light rigid trucks respectively.	During site establishment operations.
	11.2 Regularly inspect and clear long grass and bushes that grow on the road shoulder to maintain the maximum possible sight distance	Ongoing throughout the life of Project.
	11.3 Treat internal roads with chemical suppressants, where appropriate, to minimise dust generation.	

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Desired Outcome	Action	Timing
11 TRAFFIC (Cont'd)		
Achieve safe and efficient transport operations. (Cont'd)	11.4 Restrict vehicle speed to 40km/hr.	Ongoing throughout the life of Project.
	11.5 Ensure that all vehicles transporting bulk concentrate are loaded using a front-end loader fitted with a bucket load indicator to avoid overloading.	
	11.6 Ensure product is transported from the Project Site between the hours of 7:00am and 10:00pm.	
	11.7 Prepare, implement and enforce a Driver's Code of Conduct for all heavy vehicle drivers accessing the Project Site regularly.	
	11.8 Investigate any complaints in relation to transportation of concentrate promptly.	
	11.9 Prepare and implement a Traffic Management Plan to document relevant procedures to be implemented during the intersection construction works and throughout the life of the Project.	
<u>Ensure adequate maintenance of local roads.</u>	11.10 Negotiate an appropriate arrangement with Cobar Shire Council <u>for the transportation of concentrate on Berthong and Priory Tank Roads at an indicative rate of \$1.82/t.</u>	<u>Prior to the commencement of concentrate transportation.</u>
<u>Ensure roads and tracks do not adversely impact on fish passage within the Project Site.</u>	11.11 <u>Ensure that all roads and tracks across waterways are designed and constructed.</u> <u>in consultation with Department of Primary Industries – Fisheries and in accordance with the documents "Policy and Guidelines for Fish Friendly Waterway Crossings (2004)" and "Why do Fish Need to Cross the Road? - fish passage requirements for waterway crossings"; and</u> <u>in consultation with NSW Office of Water and in accordance with the Office of Water's Guidelines for Controlled Activities.</u>	<u>Prior to and during site establishment operations.</u>
12 SOILS AND LAND CAPABILITY		
Maintenance of soil value for rehabilitation and minimisation of soil loss through erosion.	12.1 Minimise handling of all soils to minimise their structural damage by ensuring the areas for stripping and stockpiling are clearly identified.	During site establishment operations.
	12.2 Strip topsoils within the Surface Facilities Area to a depth of 200mm and store in stockpiles no more than 2m high.	
	12.3 Strip topsoils within the Tailings Storage Facility and other areas of the Project Site to a depth of 300mm and store in stockpiles no more than 2m high.	

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Desired Outcome	Action	Timing
12 SOILS AND LAND CAPABILITY (Cont'd)		
Maintenance of soil value for rehabilitation and minimisation of soil loss through erosion. (Cont'd)	12.4 Strip subsoil in relevant areas to bedrock and store in stockpiles no more than 3m in high.	During site establishment operations.
	12.5 Refrain from stripping or placing soils during wet conditions.	
	12.6 Ensure that machinery used for stripping operations would dump their loads neatly and uniformly so that the stockpile does not require further forming prior to establishment of vegetation cover.	Ongoing throughout the life of Project.
	12.7 Avoid driving of machinery on the topsoil and subsoil stockpiles once the stockpiles are created to minimise compaction and further degradation of soil structure.	
	12.8 Construct upslope water diversion banks to direct overland surface water flow away from the soil stockpiles.	
	12.9 Implement downslope sedimentation controls as required, until the surface of the soil stockpiles are appropriately stabilised using groundcover species.	Ongoing throughout the life of Project.
	12.10 Ensure the formed soil stockpile surfaces would have a generally uneven surface that is as 'rough' as possible, in a micro-sense, to assist in surface water runoff control and seed retention and germination.	
	12.11 Sow soil stockpiles with stabilising groundcover, comprising endemic native species as soon as possible after placement and water, if necessary, to speed up establishment and attain a cover of at least 30% to minimise erosion and sedimentation.	
	12.12 Ensure slopes less than 2% are rehabilitated with Red Earths with due regard to the following precautionary measures: - no furrowing would be used; - maintain the length of exposed slopes to less than 80m; - use windrows of mulch placed along the contours and ensuring these would not act as drains themselves.	
	12.13 Ensure slopes between 2% and 10% have a concave profile and are covered with Lithosols.	
	12.14 Ensure slopes of more than 10% are protected with rock-pitching.	

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Desired Outcome	Action	Timing
12 SOILS AND LAND CAPABILITY (Cont'd)		
Maintenance of soil value for rehabilitation and minimisation of soil loss through erosion. (Cont'd)	12.15 Ensure that during soil placement operations soil is placed directly onto a scarified surface without compaction and in correct order, namely topsoil overlying subsoil.	Ongoing throughout the life of Project.
	12.16 Add, where appropriate, organic matter comprising composted cleared vegetation.	
	12.17 Use organic material in preference to fertilizers during rehabilitation.	
	12.18 Ensure soil management procedures are developed in accordance with Landcom (2004) and DECCW (2008).	
13 VISUAL AMENITY		
Limit the visibility of operational areas from nearby residences.	13.1 Construct the Processing Plant and other on-site infrastructure from non-reflective, neutral coloured material, where possible.	Ongoing throughout the life of Project.
	13.2 Progressively rehabilitate disturbed sections of the Project Site no longer required for the Project, and re-vegetate areas that are bare or only have remnant vegetation.	
	13.3 Undertake active dust management measures to reduce the potential for the creation of a 'dust cloud', especially during site establishment activities.	
	13.4 Manage waste within the Project Site in an appropriate manner such that the site will not become littered with wind-blown rubbish.	
	13.5 Maintain the Project Site in a clean and tidy condition at all times.	
	13.6 Ensure night-time lighting is directed towards the active areas of operation only and towards the ground to minimise the light spill from the Project Site.	
	13.7 Ensure lighting is turned off when not required.	
14 BUSHFIRE		
Avoidance of any fires on site, particularly in native vegetation.	14.1 Ensure that refuelling is undertaken within designated fuel bays or within cleared areas of the Project Site.	Ongoing throughout the life of Project.
	14.2 Implement a no smoking policy in all but designated sections of the Project Site.	
	14.3 Ensure fire extinguishers are maintained within all vehicles.	

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
14 BUSHFIRE (Cont'd)		
Avoidance of any fires on site, particularly in native vegetation. (Cont'd)	14.4 Ensure clearing during high or extreme bushfire hazard conditions (as defined by the NSW Rural Fire Service) would be avoided.	Ongoing throughout the life of Project.
	14.5 Ensure there is a focus on house-keeping.	
	14.6 Ensure that vegetation clearing extends at least 15m from all built infrastructure.	
	14.7 Ensure that a water cart available to assist in extinguishing any fire ignited.	
	14.8 Liaise with the Rural Fire Service, Cobar Shire Council and Office of Environment and Heritage (NPWS) to determine when back-burning or fire control activities are planned.	
	14.9 Ensure access to on-site water storages for the NSW Rural Fire Services is available in the event of a fire within or surrounding the Project.	
15 HAZARDOUS CHEMICAL & WASTE MANAGEMENT		
Implement adequate controls for the management of hazardous chemicals.	15.1 Manage the Project Site in accordance with NICNAS Category 1 of <i>Priority Existing Chemical Assessment Report No 31 – Sodium Cyanide</i> (Commonwealth Department of Health and Ageing) to ensure that adequate controls exist to reduce weak acid dissociable cyanide concentration to <10 ppm prior to discharge to the Tailings Storage Facility.	Prior to, during and following the life of the Project.
	15.2 Store and manage all chemicals in accordance with the <i>Hydrocarbon and Chemical Management Plan</i> prepared for the site, and the <i>Material Safety Data Sheets</i> of the individual chemicals and reagents.	
	15.3 <u>Ensure sodium cyanide and other toxic chemicals are stored in accordance with the requirements of AS/NZS 4452- The Storage and Handling of Toxic Substances.</u>	
	15.4 <u>Ensure that dangerous goods are transported in accordance with the requirements of the "Australian Code for the Transport of Dangerous Goods by Road and Rail- Current Edition."</u>	
	15.5 Train employees using hazardous chemicals in their proper handling and spill management techniques.	
	15.6 Dispose of excess chemicals and reagents no longer required for the Project properly using qualified personnel for their removal and transfer to appropriate licensed facility for destruction or reuse.	

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
15 HAZARDOUS CHEMICAL & WASTE MANAGEMENT (Cont'd)		
Manage waste using the hierarchy minimise waste production, reuse and recycle materials, and dispose of waste not able to be recycled.	15.7 Manage non-production waste in accordance with the objects of the <i>Waste Avoidance and Resource Recovery Act 2000</i> and operate the Project against the hierarchy of avoidance of unnecessary resource consumption, resource recovery (including reuse, reprocessing, recycling and energy recovery where practical), and disposal of materials only after no uses have been identified for them.	Prior to, during and following the life of the Project.
	15.8 Encourage the most efficient use of resources, aim for a continual reduction in waste generation, and thus reduce environmental harm in accordance with the principles of ecologically sustainable development.	
<u>Ensure that contaminated land is appropriately identified and managed</u>	15.9 <u>Ensure that a contaminated land assessment is undertaken prior to the commencement of decommissioning operations and that any contaminated land is managed in accordance with the relevant guidelines applicable at the time.</u>	<u>Prior to the commencement of decommissioning operations.</u>
16 SOCIO ECONOMIC		
Maximise the positive impacts and minimise any actual or perceived adverse impacts on the social fabric or facilities available to the community surrounding the Project Site.	Social and Community	Prior to, during and following the life of the Project.
	16.1 Continue to engage in regular dialogue with neighbours surrounding the Project Site in relation to the Project activities and maintain an "open door" policy for interested parties to discuss aspects of proposed activities that may be perceived as problematic.	
	16.2 Support community organisations, groups and events, as appropriate, and review any request by a community organisation for support or assistance to resolve any issues raised throughout the life of the Project.	Prior to, during and following the life of the Project.
	16.3 Form and maintain a Community Consultative Committee (CCC) and which would include representative members of the surrounding community and Cobar Shire Council.	
	16.4 Regularly brief the CCC and wider community on activities within the Project Site and seek feedback in relation to any perceived or otherwise of Project-related impacts. Seek advice on how to provide assistance to resolve issues raised by any member of the community in an effective, fair and equitable manner.	

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
16 SOCIO ECONOMIC (Cont'd)		
Maximise the positive impacts and minimise any actual or perceived adverse impacts on the social fabric or facilities available to the community surrounding the Project Site. (Cont'd)	16.5 Instigate and maintain a community complaints telephone line, and ensure this mechanism of complaints receipt by the Proponent is advertised widely using flyers and verbal announcements at community consultation meetings.	Prior to, during and following the life of the Project.
	16.6 Negotiate with Council and the surrounding Nymagee community to support (either financially or in-kind) one or more community projects in accordance with the documents entitled <u>Cobar Shire Council Social Plan 2011-2016 and the Cobar Shire Community Strategic Plan (in preparation)</u> .	
	Employment and Training	
	16.7 Give preference when engaging new employees, where practicable, to candidates from the surrounding community over candidates with equivalent experience and qualifications from elsewhere and ensure that the mining and other contractors do so as well.	
	16.8 Encourage the involvement of the local Aboriginal community in the workforce.	
	16.9 Encourage and support participation of locally-based employees and contractors in training or education programs to impart the appropriate skillsets and qualifications in them for the continued development of the economic growth within the surrounding communities following Project completion.	
	Economic Contribution and Development	
	16.10 Give preference, where practicable and cost-competitive, to suppliers of equipment, services or consumables located within the surrounding community.	
	16.11 Assist community members and others, as appropriate, to establish complementary businesses where those businesses would provide a benefit to the community through increased economic development.	
	16.12 Assist Cobar Shire Council to promote and encourage economic development that would continue beyond the Project life.	

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
16 SOCIO ECONOMIC (Cont'd)		
Maximise the positive impacts and minimise any actual or perceived adverse impacts on the social fabric or facilities available to the community surrounding the Project Site (cont'd).	Infrastructure and Services	Prior to, during and following the life of the Project.
	16.13 Ensure that infrastructure and services established as part of the Project would remain available for alternative uses throughout the life of the Project and upon cessation of mining activities.	
	16.14 Encourage and support, in consultation with the local community, the provision of services to the community. These may include health, education, transportation and other services.	During rehabilitation operations.
	Rehabilitated Lands	
	16.15 Ensure that the land capability of those sections of the final landform to be used for grazing is similar to the current land capability.	
	16.16 Ensure the final landform is free flowing and geotechnically stable.	
17 ENVIRONMENTAL MONITORING & DOCUMENTATION		
Ongoing monitoring and reporting of Project-related environmental impacts.	17.1 Establish an environmental monitoring program for the Project Site and present results of the monitoring program in the <i>Annual Environmental Management Report</i> .	Prior to, during and following the life of the Project.
	17.2 Implement a <i>Biodiversity Monitoring Program</i> to identify potential Project-related impacts on surrounding flora and fauna during the life of the Project.	
	17.3 Implement a <i>Property Vegetation Plan</i> (in accordance with <i>Native Vegetation Act 2003</i> for the management of the proposed Biodiversity Offset Area and consistent with the Project's Biodiversity Offset Strategy.	
	17.4 Implement a <i>Noise Management and Monitoring Program</i> prior to the commencement of mining activities.	
	17.5 Implement the Project's <i>Air Quality Monitoring Program</i> .	
	17.6 Implement the Project's <i>Groundwater Monitoring and Response Program</i> .	
	17.7 Implement the Project's <i>Surface Water Monitoring and Response Program</i> .	
	17.8 Implement a <i>Traffic Management Plan</i> .	

Table 2 (Cont'd)
Final Statement of Commitments for the Hera Project

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Desired Outcome	Action	Timing
17 ENVIRONMENTAL MONITORING & DOCUMENTATION (Cont'd)		
Ensure appropriate documentation of the proposed mining-related activities.	17.9 The Proponent would prepare the following documentation. • <i>Mining Operations Plan.</i> • <i>Biodiversity Management Plan.</i> • <i>Water, Sediment and Erosion Control and Management Plan.</i> • <i>Noise Management and Monitoring Program.</i> • <i>Groundwater Monitoring and Response Program.</i> • <i>Surface Water Monitoring and Response Program.</i> • <i>Air Quality Monitoring Program.</i> • <i>Traffic Management Plan.</i> • <i>Driver's Code of Conduct.</i> • <i>Hydrocarbon, Chemical and Reagent Management Plan.</i>	As indicated previously.

Appendices

(Total No. of pages including blank pages = 184)

- Appendix 1 Addendum Heritage Assessment
- Appendix 2 Biobanking Assessment
- Appendix 3 Western Lands Lease 3881
- Appendix 4 Letter from Coffey Mining dated
 5 January 2012
- Appendix 5 Letter from Environment Protection Agency
 dated 10 February 2012
- Appendix 6 Extract from Tailings Storage Facility
 Report

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Appendix 1

Addendum Heritage Assessment

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Hera Project, via Nymagee



Addendum Heritage Assessment

Prepared by

**OzArk Environmental & Heritage Management
Pty Ltd**

February 2012

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Hera Project, via Nymagee

Addendum Heritage Assessment

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February 2012

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YTC RESOURCES LIMITED
Hera Project

ADDENDUM HERITAGE ASSESSMENT
Report No. 659/08

DOCUMENT CONTROLS

Proponent	YTC Resources		
Client	RW Corkery		
Project No / Purchase Order No			
Document Description	Addendum Heritage Assessment: Hera Project.		
	Name	Signed	Date
Clients Reviewing Officer			
Clients representative managing this document	OzArk Person(s) managing this document		
Mitchell Bland	Jodie Benton		
Location	OzArk Job No.#636		
Document Status DRAFT	Date		
Draft V1.1 Author to Editor OzArk 1 st Internal (Series V1.X = OzArk internal edits)	Version 1.1: Ben Churcher author Vers 1.1 BC to JB 28/11/11		
Draft V2.0 Report Draft for release to client (Series V2.X = OzArk and Client edits)	Vers 2.0 OzArk to RWC 29.11.11 <i>65907_Addendum Heritage Assessment report_081212</i> : OzArk incorporates comments 8/12/11		
FINAL once latest version of draft approved by client			
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EXECUTIVE SUMMARY

RW Corkery & Co Pty Limited, on behalf of YTC Resources Limited, engaged OzArk EHM to conduct an Aboriginal heritage assessment within several discreet areas of proposed disturbance that were not covered by OzArk (2011) (see below). Also included in this document is the results of additional historical research prepared to support the historical material presented in the OzArk (2011).

This addendum report complements OzArk (2011): *Aboriginal and Historical Assessment: Hera Project* and should be read in conjunction with that report and the accompanying *Environmental Assessment* (RWC, 2011).

OzArk 2011 reported on the findings of a heritage assessment conducted by OzArk and representatives from both the Cobar and Condobolin Local Aboriginal Land Councils in June 2010.

The 2010 survey assessed areas that were then proposed for disturbance as part of the Hera Gold Project. Subsequently, additional survey coverage was. These include the following:

- Access Roads: 40–50m wide corridors.
- Tailings Storage Facility: 100m offset from the southern, western and northern boundaries, with 200m offset to the east (to allow for up slope water diversions).
- Box Cut: footprint plus 25m in all directions.
- Ventilation rises: 50m radius around marked locations.
- Header tank and pipeline: Footprint plus 25m.
- Mine Camp: footprint plus 50m.

On Wednesday 16 November 2011 Ben Churcher (OzArk, Senior Archaeologist) and Mark Powell (representative, Condobolin Local Aboriginal Land Council) inspected these additional areas to assess their Aboriginal and historic values and potential.

As a result of this assessment, no further Aboriginal sites were recorded. Additionally, no landform within the surveyed area was assessed as holding potential to contain further, undetected archaeological deposits. On the basis of the current assessment and findings, along with the findings of OzArk (2011), there is no impediment to the proposed works on the grounds of Aboriginal heritage.

In addition, during the assessment of adequacy phase of the Project, Department of Planning and Infrastructure requested that additional historical research be undertaken to attempt to better contextualise the historic remains recorded within the Project Site, specifically the toe-hold trees. This additional historic material is presented in this report, but has been unable to absolutely link the toe hold trees to Chinese work practices.

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1. INTRODUCTION

1.1 BACKGROUND

OzArk EHM was engaged by RW Corkery & Co Pty Limited on behalf of YTC Resources Limited to conduct an Aboriginal heritage assessment within several of proposed disturbance that were not covered by OzArk (2011) (see below).. The Hera Project is located within the "The Peak" property (Lot 664, DP 761702). For the purposes of this document, the Project Site encompasses all areas of proposed Project-related disturbance. The Project Site boundary is shown in **Figure 1**.

The Aboriginal heritage assessment was conducted within several discreet areas of proposed disturbance that were not covered by OzArk (2011). Additional historical research was prepared to support the historical material presented in the OzArk (2011) and this is presented in Section 4.

The Aboriginal heritage survey concentrated on: Access roads; the enlarged Tailings Storage Facility; the Box Cut; the Ventilation rises; the Header tank and pipeline and the proposed location of the Mine Camp (**Figure 2**). This report is an addendum to other areas that would be impacted upon by the Project that were previously surveyed in 2004 by Appleton and by OzArk in 2010. These reports were combined to produce an Aboriginal and historic heritage assessment that would be representative of the whole Project Site.

The current assessment consisted pedestrian survey of the nominated areas. The current survey transects are shown in **Figure 3**.

1.2 LOCATION

The Project Site is located approximately 4km south of Nymagee and approximately 100km southeast of the mining town of Cobar in Western NSW (see **Figure 1**).

1.3 DATE OF HERITAGE ASSESSMENT

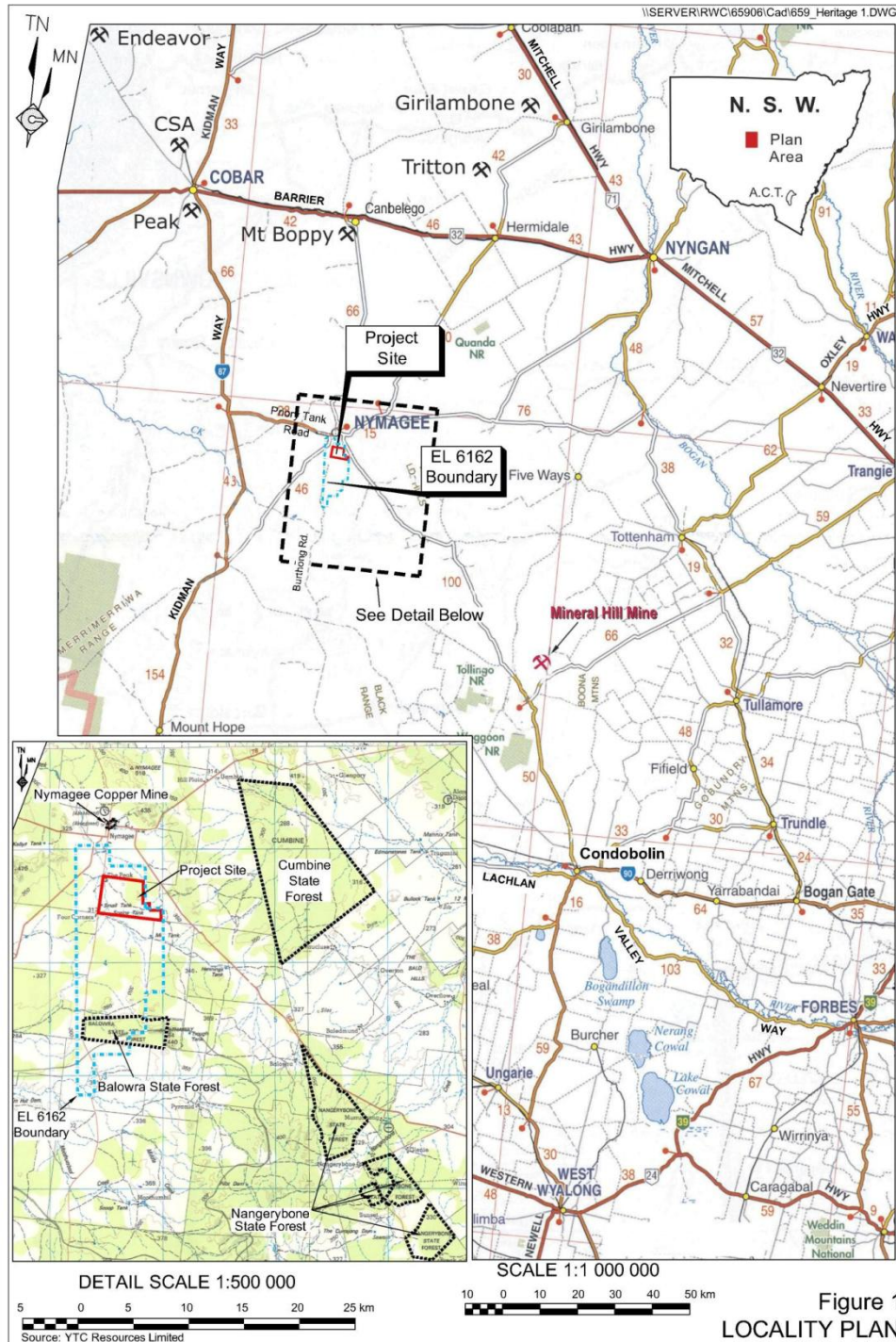
The additional heritage survey was conducted on 16 November 2011.

1.4 ABORIGINAL COMMUNITY INVOLVEMENT

The Project Site is located within the Cobar Local Aboriginal Land Council (Cobar LALC) area, however, it is also adjacent to the boundary with the Condobolin Local Aboriginal Land Council (Condobolin LALC) area.

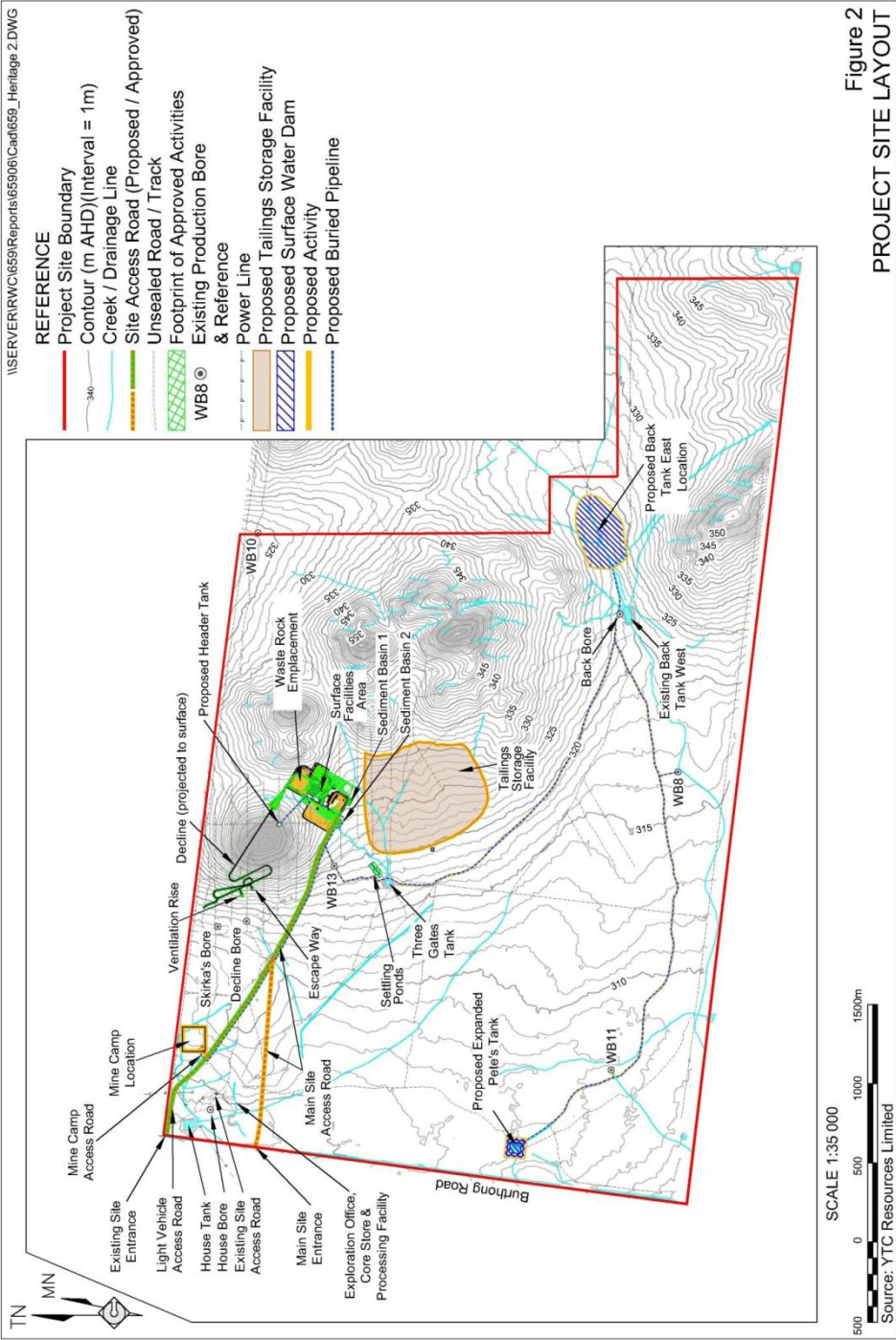
Consultation was undertaken in accordance with OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCR).

Involvement in the additional survey was offered to both Cobar and Condobolin LALC. Unfortunately a Cobar representative was not available on the day of the survey, but Condobolin LALC sent Mark Powell to participate. Letters of offer are located in **Appendix 1**.



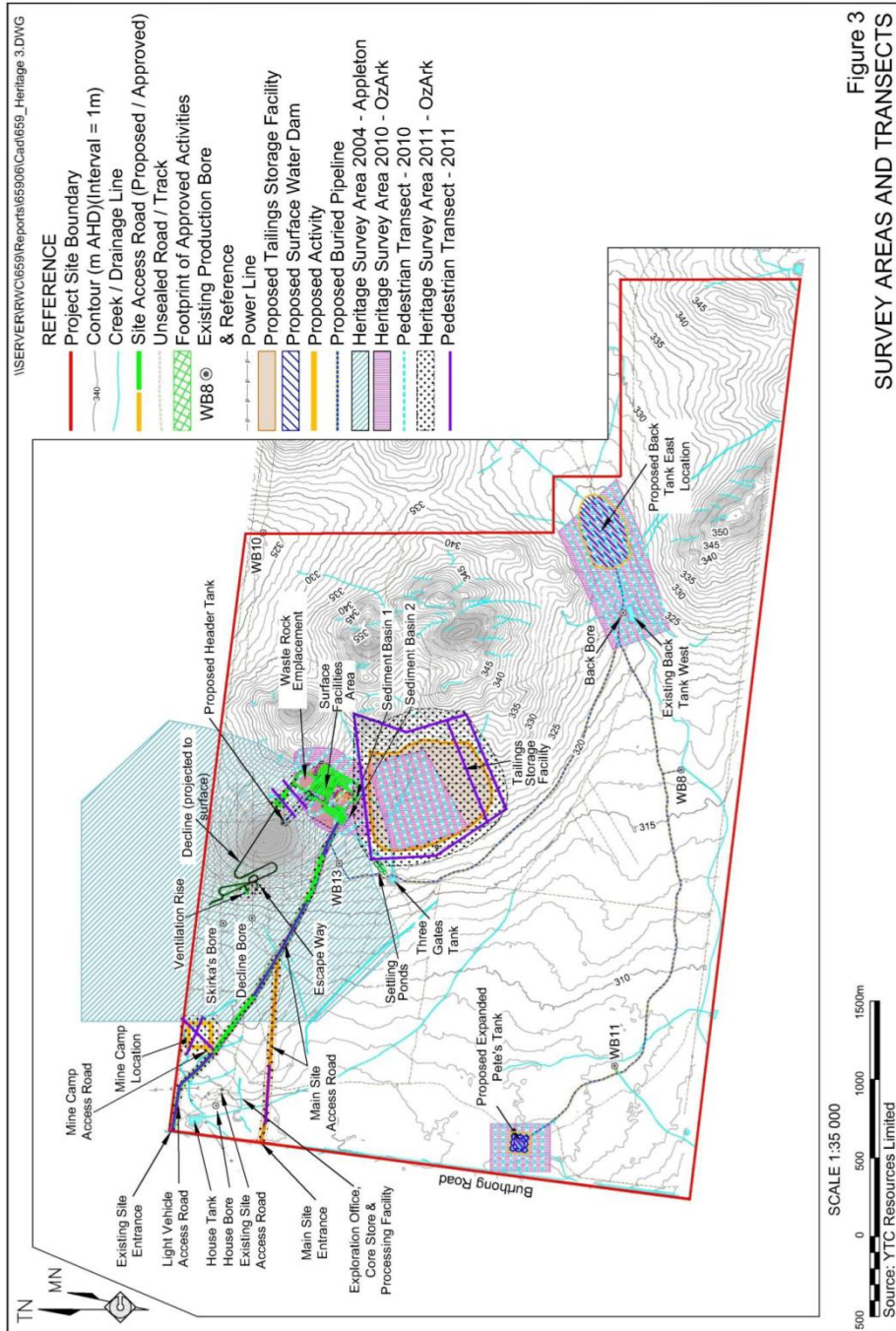
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Copies of this draft report were sent to all registered stakeholders (the Condobolin, Cobar and Murrumbidgee LALCs, the Mt Grenfell Board of Management and Elaine Ohlsen) on 19 December 2011 for comment. All parties were requested to provide comments by 23 January 2012. An additional week was allowed for consultation to take in to account the end of year holiday period. At the conclusion of the period afforded for feedback no written comments were received from stakeholders. All registered organisations and individuals were subsequently contacted and in conversation with Elaine Ohlsen she conveyed that she approved the draft report, noting that if Aboriginal sites were uncovered at any time during works they should be reported. Similarly, Cobar and Condobolin LALC were satisfied that the assessments were thorough and both organisations supported the recommendations noted in the report. A log of Aboriginal community consultation can be found in **Appendix 2**.

1.5 OZARK EHM INVOLVEMENT

The assessment was undertaken by Ben Churcher (Senior Archaeologist) of OzArk EHM. Ben Churcher wrote the report and it was edited by Dr Jodie Benton (Director).

2. LIMITED PROJECT DESCRIPTION

A number of components of the Hera Project have been previously approved, shown in green on **Figure 2**. Those activities, as well as the proposed activities are described in full in Section 1.7 and Section 2 of the *Environmental Assessment*.

OzArk (2011) assessed the proposed area of disturbance as they were then understood. However, following modification of the Project, the following areas were not assessed as part of OzArk (2011).

- Expanded size of the Tailings Storage Facility;
- The Main Site Access Road and the associated intersection to allow site access from Burthong Road.
- The Mine Camp to house mine personnel.
- The Ventilation Rise and Header Tank.

3. ABORIGINAL HERITAGE

3.1 SURVEY AREAS

The current assessment investigated the following locations within the Project Site that were outside the OzArk (2011) survey area.

- Access Roads: 40m to 50m wide corridors.
- Tailings Storage Facility (TSF): 100m offset from the southern, western and northern boundaries, with 200m offset to the east (to allow for up slope water diversions).
- Box Cut: footprint plus 25m in all directions.

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- Ventilation rises: 50m radius around marked locations.
- Header tank and pipeline: Footprint plus 25m.
- Mine Camp: footprint plus 50m.

The 2011 OzArk assessment undertook pedestrian transects as shown in **Figure 3**. Each line represents two surveyors. The areas shaded in red on this figure constitute the 2011 Survey Area.

3.2 HERITAGE ASSESSMENT METHODOLOGY

The current area was walked by two surveyors keeping at least 5m apart. Transects were designed to not replicate assessed areas from OzArk's 2010 survey but rather to complement this assessment by confining the 2011 survey transects to areas that had not been previously assessed. Transects were placed so as a representative cross section of each area was obtained.

3.3 HERITAGE SURVEY CONSTRAINTS

The weather for the OzArk survey in 2011 was warm and fine, although rain had preceded the survey work.

The 2011 survey had no constraints in accessing the survey areas within the Project Site even if regenerating Cypress pine made access difficult at times (**Appendix 3**). Generally speaking, the ground surface visibility was high as there were many naturally bare areas.

Background noise to the detection of Aboriginal artefacts was low as across most of the Project Site where there was little natural stone on the surface and, if Aboriginal objects had been present, they would have been highly visible against the red clay soils. In one area at the location of the proposed Surface Facilities Area, natural quartz littered the ground surface making the detection of Aboriginal objects more difficult.

Overall, there were no heritage survey constraints that prevented the efficient deployment of the survey methodology as set out above.

3.4 TOPOGRAPHY OF THE PROJECT SITE

The majority of the Project Site area is located on the alluvial plains below the one prominent feature in the landscape, The Peak. Typically these lower areas are flat with clay soils. In places, very infrequently, there are quartz reefs exposed.

As the land rises towards The Peak (to a maximum altitude of 360m AHD), the land becomes more rocky with large concentrations of quartz. Only the additional areas of the Header Tank and the Ventilation rises fall into this topographic category; while the Tailings Storage Facility and Mine Camp and Access Roads are located on the flat, alluvial plains.

3.5 HYDROLOGY OF THE PROJECT SITE

No discernable watercourses cross the Project Site and surface water would have only been available following rain events. Recent rains had demonstrated that instead of being channelled into drainage lines, the whole landscape was awash with flood waters up to a depth of 30 cm in places.

This indicated that Aboriginal occupation in the Project Site would have been sporadic at best as it would have only been possible during good seasons when more water was available.

3.6 VEGETATION OF THE PROJECT SITE

The vegetation has been totally changed from its natural regime by farming and other land-use practices. While the remnants of large Red and Bimble Box trees remind us that this region would have once supported an open woodland/grassland with trees of some size, the area is now characterised by denuded soils and dense Cypress Pine regrowth (**Appendix 3**).

As the original composition of vegetation has been dramatically altered, this would diminish the opportunity of recording certain site types, such as modified tress, as well as denying us the opportunity to critically examine the resource base that would have been available prior to European settlement.

3.7 CLIMATE OF THE PROJECT SITE

The region experiences low average rainfall (around 400mm) and can experience very hot weather in the summer and cool to cold evenings in the winter.

This environment would have made accessibility to water sources a major concern for any pre-European inhabitants and this would have always ensured that the majority of Aboriginal occupation would be concentrated near waterways containing permanent water.

3.8 EXISTING LEVELS OF DISTURBANCE

The Project Site has been heavily disturbed. The range of disturbances comprises the following.

- Flooding would remove top soil exposing buried Aboriginal objects and would move artefacts from their original context. Flooding has removed most of the top soil and this reduces the possibility of locating sub-surface archaeological deposits within the Project Site;
- Historic vegetation clearing targeting older trees has possibly removed certain site types such as modified trees from the Project Site. The area was once an open grassy woodland but since European occupation the timber has become more dense.
- The Project Site has been subjected to repeated episodes of mineral exploration including the construction of roads and drill pads. This disturbance has removed vegetation and has impacted the ground surface; possibly displacing Aboriginal artefacts had they been present.

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- Farm infrastructure such as water dams exists within the Project Site. These excavations may have impacted Aboriginal sites had they been present.
- Numerous roads have been constructed within the Project Site. These roads are either farm tracks or more recent exploration tracks. In all cases, the ground surface has been affected and there is a small chance that Aboriginal sites, if they were present, may have been impacted.

3.9 ETHNOGRAPHIC AND ARCHAEOLOGICAL CONTEXT

Please refer to OzArk (2011) for both the ethnographic and archaeological context for the Project Site.

As it pertains to the landform of the Survey Area one study will be cited here: that of Paton and Hughes (1984). That study focussed on two areas along the Lachlan River between Condobolin and Hillston. The results of that study noted that site densities were highest along the Lachlan River and extremely high artefact frequencies occurred close to the river (up to one artefact per square metre), decreasing rapidly with distance from the river. These results led the authors to the conclusion that Aboriginal people primarily focussed their activity along the resource-rich Lachlan River and the nearby wetlands and lakes. Occupation of the surrounding areas (such as the Project Site) where water was scarce and the land less fertile would have been sporadic.

Paton & Hughes (1984) therefore indicates that the Project Site would have only been sporadically occupied and would have a correspondingly low site density.

3.10 LOCAL ARCHAEOLOGICAL CONTEXT

A search of a 10km x 10km area centred on the Project Site on the OEH AHIMS database revealed no previously recorded sites within the search area.

This should not, however, be seen as a true reflection of past Aboriginal settlement patterns but should rather be seen as indicative of the small amount of archaeological research that has taken place in the past. The lack of previously recorded sites in the immediate area would more likely be associated with the relative remoteness of the Project Site and the few development driven projects, with associated archaeological assessments, that have taken place.

Appleton 2004 surveyed areas immediately north of the OzArk 2010 Study Area including The Peak: a prominent hill (approximately 360m AHD) within the Project Site. Appleton recorded no Aboriginal objects or sites and concluded that there was little probability for there to be further artefacts in his study area. Appleton suggests that The Peak may have played a role in past Aboriginal religious or ceremonial practices but evidence is lacking as to what significance, if any, The Peak held with past Aboriginal inhabitants.

The 2010 OzArk survey targeted the Tailings Storage Facility, Pete's Tank, Back Tank and the Surface Facilities Area (Figure 3) recorded no Aboriginal sites and, further, no landform was assessed as having potential to contain further, undetected, sub-surface Aboriginal sites.

3.11 PREDICTIVE MODEL FOR SITE LOCATION

The current 2011 Survey Area was contiguous or nearby to areas surveyed during 2010 by OzArk. Therefore, the probable archaeological character of the 2011 Survey Area is reasonably well known. It was therefore not necessary to build a predictive model as the 2010 survey had already tested the veracity of the predictive model that governed this survey.

In summary, the previous archaeological research that has been conducted nearby shows that there is a low possibility of recording Aboriginal sites within the Survey Area. The low density of sites is mainly attributable to the fact that there is no permanent water within proximity to the Survey Area. Should sites occur they are likely to have been disturbed from their original context either by erosion or previous land use.

3.12 SURVEY RESULTS

3.12.1 Aboriginal Sites Recorded

No Aboriginal sites or objects were recorded as a result of the 2011 assessment of the Survey Area. Further, it is assessed that there was and remains a low potential for the existence of further, undetected, Aboriginal sites or objects within the Survey Area. This assessment is based on the results of the 2004 and 2010 surveys, an assessment of the landform occupied by the Survey Area and the likely impact to any previously existing sites by European disturbances: not the least being timber felling and topsoil erosion through clearing, stocking and flood events.

3.12.2 Aboriginal Community Input

An Aboriginal representative from the Condobolin LALC (Mark Powell) accompanied the OzArk survey team in the field. Mark's input into the survey methodology and local knowledge of past Aboriginal occupation and land use was valuable. No areas inspected during the survey were known by the accompanying representative to hold cultural significance.

3.13 DISCUSSION

The predictive model presented in Section 3.11 indicates that there was a low probability of recording Aboriginal objects or sites within the Survey Area due to the landform characteristics of the Project Site, specifically that there are no discernable drainage systems within the area.

This was confirmed by the survey that recorded no sites and little potential for further, undetected sites.

A number of factors have influenced the possibility of locating Aboriginal sites within the Project Site. Extensive tree clearing (of old growth timber) in the past has removed certain site types such as modified trees (had they existed) and past land use patterns and frequent widespread flooding, has denuded the topsoil thereby displacing or removing cultural material.

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The lack of permanent water within the Project Site (for a general view of the landforms of the Survey Area, see **Appendix 3**), the lack of potential Aboriginal quarry locations (apart from at the location of the proposed TSF where quartz suitable for knapping was noted, however, without any evidence that this area was actually used as a quarry) and disturbances to the Project Site have resulted in an altered landscape and the probable disruption or destruction of what would have probably been, at best, low density Aboriginal sites.

3.14 ASSESSMENT OF HERITAGE SIGNIFICANCE

No Aboriginal sites or objects were recorded in the 2011 OzArk assessment, therefore no further assessments of heritage significance were undertaken.

3.15 LIKELY IMPACTS ON ABORIGINAL HERITAGE FROM THE PROJECT

No Aboriginal sites or objects were recorded as part of the 2011 OzArk assessment and no area within the Project Site has been assessed as holding archaeological potential. As such, there will be no known or probable impact to cultural heritage arising from the Project.

3.16 MANAGEMENT OPTIONS

As no Aboriginal sites or objects were recorded as part of the assessment, there are no specific management recommendations concerning the management of Aboriginal heritage sites.

The following general management recommendations should be adhered to:

- Land-disturbing activities should be confined within the areas set out in **Figure 2**. Should the project design alter and land outside of the areas previously surveyed be impacted, then a suitably qualified archaeologist should be engaged to assess, in consultation with the Aboriginal Community, the archaeological potential of those areas.
- Should Aboriginal sites or objects be found during ground-clearing construction works, then work in the vicinity should immediately cease and advice from Office of Environment and Heritage be sought on how to best proceed (Cobar National Parks office; Phone: 02 6836 2692).

4. HISTORIC HERITAGE

4.1 INTRODUCTION

During the assessment of adequacy phase of the Project, Department of Planning and Infrastructure requested that additional historical research be undertaken to attempt to better contextualise the historic remains recorded within the Project Site, specifically the toe-hold trees that the OzArk 2010 survey recorded.

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These toe holds were historic in date and OzArk 2011 concluded that they had been made by timber gathers scaling trees to harvest the upper limbs. Due to the size of the toe-holds, OzArk 2011 suggested that the toe-holds may have been made by Chinese workers who were known locally to have supplied the Nymagee Mine with timber: for both furnaces, as well as for mine stays.

This additional historic material is presented below but it has been unable to absolutely link the toe hold trees to Chinese work practices.

4.2 HISTORICAL CONTEXT

4.2.1 Pastoralism at 'Nymagee'

Despite the area's later association with mining, historical settlement at Nymagee was originally pastoral in nature. The earlier spelling of Nymagee appears to have been 'Nimagee' (SMH 1880a), although the 'Nymagee' spelling is also well-attested in newspaper reports from the same period. In that form, early reports from the area indicate that a pastoral industry had been established by 1878: in March of that year, George Howatt reported that he had sold 6,540 ewes and wethers on behalf of Messrs. Ellis and Knox of Nimagee Station (Alexandra and Yea Standard 1878: 2). By 1880, Messrs Ellis and Knox, together with E. Roset of Hartwood Station, are named as the principal pastoralists in the area (1880a). Mr Howatt apparently continued to operate on behalf of Ellis and Knox, offering Nimagee Station for auction during May 1881 following the death of Mr J.E. Ellis. The auction included 128,000 acres, subdivided into eight paddocks watered by eight tanks and two large dams, 23,803 head of sheep, 35 horses and four cattle. Attention was also drawn to improvements including a homestead, woolshed and stockyards (Argus 1881a: 15). The property was sold to Mr John A. Davies 'at a satisfactory price' (Argus 1881b: 4).

4.2.2 'The Peak' Property Background

The property now known as 'The Peak' is located some 4.5km south of the township of Nymagee. It lies within the Bogan Gold Field, proclaimed in 1880. An examination of the area's Parish Maps indicates that the property today broadly retains the same boundaries as in 1931 when George Jacobs held the perpetual lease (VLL 2455) on the property (Figure 4). By 1939, four small Mining Leases were held near the northern boundary of the property (Figure 5).

A series of posts on the website Roots Web¹ make reference to contracts accepted in New South Wales for the conveyance of Post Office mail, c.1900. The list includes a certain 'George Jacobs, Nymagee' who delivered mail to the Welsh's, Dine, Eremeran and Moothumbil Stations (a distance of 82 miles / 132km) once per week via a four-wheeled vehicle pulled by two horses. The annual fee for Mr Jacobs' services was £97-10-0. Mr Jacobs' contract terminated on 31 December 1902 (Craig 2005).

Bordering the property during the 1930s was a property held as a perpetual lease by Walter Roset, presumably a descendant of the E. Roset referred to as holding the Hartwood Station in 1880 (SMH 1880a). It is probable that the Parish name Roset derives from this local family.

¹ (<<http://archiver.rootsweb.ancestry.com/th/read/AUS-NSW-WEST/2005-08/1125276187>>)

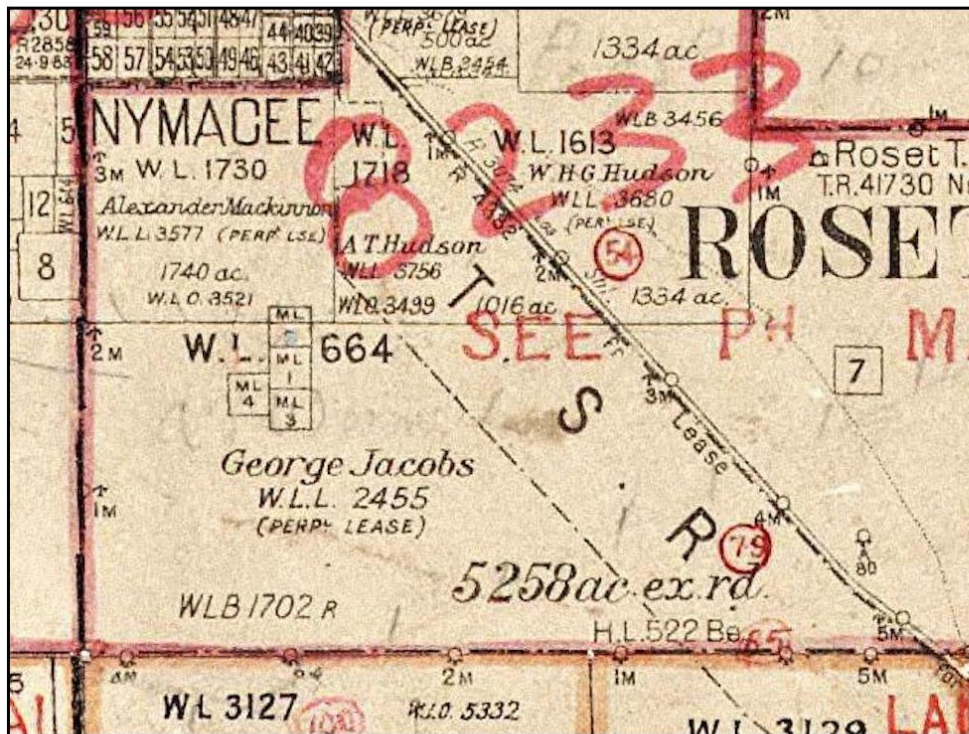
² The figure of 1320 includes both males and females, however the SMH report is unclear on whether this is a total of European,

[illegible]

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Figure 5 Parish Map: Parish of Roset, County of Mouramba, 1939 (Source: Parish Map Preservation Project, Lands and Property Management Authority).



In connection with both Mr Jacobs' two-year service delivering mail and the Roset family, the Forbes' Times / SMH correspondent had complained in 1880 (SMH 1880a) that mail was only delivered once per week and then only to the Roset property (whence it was disseminated by Mr Roset at his own cost). By 1881, a certain John Buckley had been contracted to supply a mail service along similar lines to Mr Jacobs' later contract (SMH 1881).

4.2.3 Mining at Nymagee

Geologists were aware of the rich copper deposits in the wider Cobar region from at least the late 1860s (SMH 1880a). By 1880, the Nymagee lode was found to be a connecting link between the Mount Hope and Cobar mines. In March, a certain Edmund John Barton was awarded a 320 acre mineral selection in the 'county of Mowramba, Nymagee' (SMH 1880b). Mining was, by July 1880, taking place approximately 6 miles / 9.7 km west of Mr Roset's station. The mine was at that time managed by Captain Wills and Captain Daniels, 'experienced miners... well up to their work' (SMH 1880a). The mine managed by Wills and Daniels is described as being approximately 320 acres in size, suggesting that this is also the mine taken up by Mr Barton in March. At that time, 100 people were employed at the mine, four shafts had been sunk and plans were in place to link them via an underground tunnel. A 20,000 yard tank had been excavated for water provision and a smelter was under construction; in connection with the smelter, the Forbes Times / SMH correspondent observed

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that large quantities of fireclay and timber were available locally. Whilst one must always be alert to the possibility of sensationalism in newspaper reports, particularly those seeking to advertise the advantages of the settlement at Nymagee, it is interesting to note that the correspondent also reported that 'many experienced miners do not hesitate to say that the quality is better, if anything, than that at Cobar' (1880a). By 6 August 1880, the directors of the Nymagee Copper Mining Company made a call of 2s. per share (SMH 1880c) – by 1884, Nymagee shares were selling for 43s. to 44s. (Brown Bros and Co. 1884). Mining at Nymagee, having commenced in earnest in March 1880, was forging ahead relentlessly.

By September of 1880, W.H.J. Slee, Inspector of Mines, reported that the property had the 'appearance of permanency', however Slee also qualified that assessment with the observation that the depth of the shafts was at that time insufficient to 'form a fair estimate of its value' (SMH 1880d). That 'appearance of permanency', created through 'a spirit of enterprise such as perhaps has never been equalled in metallic mining in the history of the colony', was no doubt enhanced by the presence of four roasting and reducing furnaces, brick kilns, powder magazines, a shed, large tank, 20 timber and iron cottages, storerooms, a 40 horsepower engine, a donkey-engine and the report of additional machinery in transit from Orange (SMH 1880d).

The newspapers of the early 1880s were principally interested in the economic and operational aspects of the Nymagee mines. A glimpse of the ethnic and recreational aspects of the mining community at Nymagee is provided, however, in a short report in the *Maitland Mercury & Hunter River General Advertiser* in which the Nymagee Cricket Club proved too strong for a picked team of miners – described as 'the Cornishmen' – in a Good Friday cricket match (Maitland Mercury & Hunter River General Advertiser 1882: 3).

4.2.4 Chinese Workers

During the second half of the nineteenth century, intensifying during the 1880s as a result of the copper boom, Chinese workers were employed as 'scrub-cutters' or 'ring-barkers' throughout the Riverina and western New South Wales. Rations, equipment and transport for these teams were supplied and arranged via Chinese merchants in the larger centres (McGowan 2005). Following clearing, the land was used for grazing and cropping. It is noteworthy that late nineteenth century station managers regarded the Chinese labourers as essential to the clearing – and hence pastoral viability – of land:

It is noticeable, by the way, that the scrubbing and clearing of these vast acres of land is in nearly every case carried out by Chinamen... they are declared to be invaluable. In fact, as Mr. Crombie, the manager of Coan Downs [near Hillston], remarked "If it had not been for the Chinamen, I could never have got this station cleared. Since I came here about five years ago, I have scrubbed more land than any other station in the neighbourhood, and the result is that in a good season the land will carry a sheep to every three acres." Mr. Crombie's opinion about the Chinamen is that of nearly all the pastoralists whom I have met. It is not so much that they work cheaper. In many cases the Chinamen get the same wages, or even more than the white man. It is because the Chinamen are steadier and more reliable (SMH 1890a).

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Nymagee's population in 1888 consisted of 'about 1,200 Europeans and a large number of Chinese' (McGowan 2005); both populations had shrunk in 1891 to 1320 and 49, respectively² (SMH 1891: 10). In contrast, the SMH reported that approximately 800 Chinese were living within 50 miles of Nymagee (SMH 1890b: 7). The Chinese population apparently dwelt on the eastern side of town in approximately twelve bark houses and were employed as scrub-cutters, ring-barkers and market gardeners. The location of the principal Nymagee market garden is today dominated by the town dam, but an extant example is located at Nymagee Station (15km north of the township). The Nymagee Station market garden is approximately 180m long and 60m wide. Embankments and fences border the garden, which was irrigated via channels and a wing dam. The orchard contained fig trees, quinces and mulberries. McGowan regards market gardening and scrub-cutting as inter-related components of the Chinese experience in early pastoral areas, noting that members of Chinese communities were often employed in both gardening and timber clearing (McGowan 2005).

Reference to the Chinese population of Nymagee in newspapers is sporadic. In 1889, the Chinese were regarded as 'fairly invading the Nymagee and Mount Hope district rendering it almost impossible for a white man to obtain station work... [the Chinese] are taking contracts for scrub cutting, fencing, &c., at prices on which white men would starve' (Bathurst Free Press and Mining Journal 1889: 3), a complaint that contrasts sharply with the remarks of Mr Crombie and the SMH correspondent noted above in 1890 (SMH 1890). Crimes involving Chinese people occasioned brief reports – in 1899, near Nymagee, Ah Ping attacked Wong Ah Cooy with an axe. Wong Ah Cooy sustained injuries that were likely to be fatal (Bathurst Free Press and Mining Journal 1899: 3). In January 1900, Jimmy Ah Yin, a Chinese gardener, was found drowned in a tank; a co-worker was arrested 'on suspicion of foul play' (Advertiser 1900: 5; SMH 1900: 10).

4.2.5 Timber carting

In 1880, sawn timber was sold in the area at 17s. 6d. per hundred feet (1880a). At least one local timber carting company was established to transport timber to the Nymagee smelter during the 1880s. John Cahill, an Irish immigrant and grandfather of Joe Cahill (who founded Cahill Transport in 1951, a company that today services Brisbane, Sydney, Melbourne and Adelaide), established a small business carting timber on horse-drawn drays to the smelter (Loscam n.d.).

4.3 HISTORIC HERITAGE ASSESSMENT

No items of historic heritage were identified within the survey area.

4.4 CONCLUSION

The evidence of Chinese being involved in the local timber gathering industry and the proximity of the Nymagee Mine further reinforces the conclusions of OzArk 2011 that suggested that the

² The figure of 1320 includes both males and females, however the SMH report is unclear on whether this is a total of European, Chinese and Aboriginal adults or European adults only. As Chinese and Aboriginal adults are reported separately, it is assumed that 1320 refers to the European population alone.

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toe holds were created by workers, possibly Chinese, scaling trees to harvest upper limbs, perhaps for use as mine stays.

As further information about the ethnicity of the workers who created the toe holds is likely to be sparse, the heritage assessment for these historic relics remains as having little heritage value for the following reasons:

- The items do not meet any of the criteria for inclusion on the State Heritage Register at either a local or state level of significance;
- The nature of the items are such that their retention will not increase our knowledge about the history or culture of the region;
- The toe-holds are in dead timber that already shows signs of decay and termite attack. It would therefore be difficult to conserve the items;
- The items are located on private property and are difficult for the general public to access;
- The toe-holds are difficult for the general public to appreciate as they are small and have no associated features that would aid interpretation; and
- Some of the best examples of the toe-holds are located outside the proposed impacts within the Project Site and will therefore not suffer impact if the recommendations in OzArk 2011 are followed.

5. RECOMMENDATIONS

5.1 ABORIGINAL HERITAGE

The recommendations included in this section are made on the basis of the following.

- Legal requirements under the terms of the *National Parks and Wildlife Act 1974* (as amended) whereby it is illegal to damage, deface or destroy an Aboriginal relic/object without the prior written consent of the Director, OEH.
- The findings of the 2011 investigation undertaken within the Project Site where no Aboriginal sites or objects were recorded.
- The interests of the Condobolin and Cobar Local Aboriginal Land Councils and other Aboriginal community members and groups and the broader community.

Recommendations concerning Aboriginal heritage are as follows.

1. All land-disturbing activities must be confined to within the assessed survey areas (accumulatively includes the 2004, 2010 and 2011 survey areas.
2. Should any previously unidentified 'objects' or other Aboriginal sites be uncovered during the course of construction, work in that area should cease and OEH (Cobar National Parks office; Phone: 02 6836 2692) and the Condobolin and Cobar Local Aboriginal Land Councils be contacted to discuss how to proceed.
3. One copy of this report should be sent to:

Condobolin LALC
c/- Ms R Shepherd
18 William Street (PO Box 114)

ADDENDUM HERITAGE ASSESSMENT
Report No. 659/08

YTC RESOURCES LIMITED
Hera Project

Condobolin NSW 2877

Cobar LALC
c/- Ms R Clements
PO Box 410
Cobar NSW 2835

4. Two copies of this report (one CD and one hard copy) should be sent to:

Office of Environment and Heritage
Central Environment Protection and Regulation Division
PO Box 1967
HURSTVILLE, NSW, 2221

5.2 HISTORIC HERITAGE

Although the additional historical contextual data compiled for this addendum report improves the backdrop through which the “toe-hold” trees can possibly be viewed, it still does not allow a certain connection between these trees and Chinese wood cutting, although on the balance of probability it is likely these trees may bear evidence of this association.

As the current Survey Area will not disturb the observed “toe-hold” trees, there are no alterations to the historic heritage recommendations of OzArk 2011 as a result of the additional historical research.

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6. REFERENCES

- Paton and Hughes 1984 Paton, R and Hughes P. *An archaeological survey of two proposed re-regulation wires along the Lachlan River near Condobolin and Hillston, NSW*. Report to NSW Water and Resources Commission.
- Advertiser 1900 The Advertiser 1900, New South Wales, *The Advertiser*, 31 January 1900: 5.
- Alexandra & Yea Standard 1878
- The Alexandra and Yea Standard, Station Produce Report, *The Alexandra and Yea Standard*, 9 March 1878: 2.
- Appleton 2004 Appleton, J. *The archaeological investigation for sites of Indigenous cultural significance on gold mining prospects at 'Hera' south of Nymagee, Overflow Project at Bobadah and "Fountain Dale" at Mineral Hill*. Report to Triako Resources Limited.
- Argus 1881a The Argus, Thursday May 5, 1881. Nymagee Station, Lachlan District, N.S.W., *The Argus*, 9 April 1881: 15.
- Argus 1881b The Argus, Commercial Intelligence, *The Argus*, 6 May 1881: 4.
- Bathurst Free Press and Mining Journal 1889 Bathurst Free Press and Mining Journal, Cobar, *Bathurst Free Press and Mining Journal*, 30 July 1889: 3.
- Bathurst Free Press and Mining Journal 1899, Chinese Quarrel, *Bathurst Free Press and Mining Journal*, 7 April 1899: 3.
- Brown Bros and Co. 1884 Brown Bros and Co., Brown Bros, and Co.'s Report, *The Maitland Mercury & Hunter River General Advertiser*, 16 September 1884: 3.
- Craig 2005 R. Craig³, Subject: 1900 Mail Contracts – Western Road. Archived post at *RootsWeb*. Website viewed 2 November 2011, <<http://archiver.rootsweb.ancestry.com/th/read/AUS-NSW-WEST/2005-08/1125220619>>.
- Loscam n.d. Loscam n.d., 120 years of transport history and seeking new ways to offer better service, *Loscam Leader*: 7. Website viewed 2 November 2011, <<http://98.129.115.99/nit-loscam/sites/default/files/Issue%207.pdf>>.
- Maitland Mercury & Hunter River General Advertiser 1882, Telegraphic Intelligence: Nymagee, *Maitland Mercury & Hunter River General Advertiser*, 13 April 1882: 3.

³ Craig also provides an extended version of the same list at <http://www.dcstechnical.com.au/Rusheen/11.5_Mail_Contracts_1900.htm>.

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McGowan 2005	B. McGowan, Chinese market gardens in southern and western New South Wales, <i>Australian Humanities Review</i> . Website viewed 2 November 2011, < http://www.australianhumanitiesreview.org/archive/Issue-July-2005/10McGowan.html >.
OzArk 2011	OzArk EHM <i>Aboriginal and Historical Assessment: Hera Gold, Cobar LGA, NSW</i> . Report for YTC Resources.
Paton and Hughes 1984	Paton, R and Hughes P. <i>An archaeological survey of two proposed re-regulation wires along the Lachlan River near Condobolin and Hillston, NSW</i> . Report to NSW Water and Resources Commission.
SMH 1880a	Sydney Morning Herald, The New Mining Township of Nimagee (By the Forbes Times' own Correspondent.), <i>Sydney Morning Herald</i> , 31 July 1880: 3.
SMH 1880b	Sydney Morning Herald, Hay, <i>Sydney Morning Herald</i> , 16 March 1880: 5.
SMH 1880c	Sydney Morning Herald, Calls on Shares: Nimagee Copper Mining Company (Limited.), <i>Sydney Morning Herald</i> , 21 August 1880: 1.
SMH 1880d	Sydney Morning Herald, The Nimegee [sic] Copper Mine, <i>Sydney Morning Herald</i> , 9 September 1880: 2.
SMH 1881	Sydney Morning Herald, Government Notices, <i>Sydney Morning Herald</i> , 24 October 1881: 13.
SMH 1890a	Sydney Morning Herald, In Rabbit Country, <i>Sydney Morning Herald</i> , 30 December 1890: 3.
SMH 1890b	Sydney Morning Herald, Country News, <i>Sydney Morning Herald</i> , 5 February 1890: 7.
SMH 1891	Sydney Morning Herald, The Census Returns, <i>Sydney Morning Herald</i> , 2 May 1891: 10.
SMH 1900	Sydney Morning Herald, Country Hospitals, <i>Sydney Morning Herald</i> , 31 January 1900: 10.

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APPENDICES

(No. of pages including blank pages = 20)

Appendix 1	Aboriginal Community Correspondence
Appendix 2	Aboriginal Community Consultation Log
Appendix 3	Plates

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Appendix 1

Aboriginal Community Consultation

(No. of pages including blank pages = 8)

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Report No. 659/08



YTC RESOURCES LIMITED
Hera Project

Environmental & Heritage Management P/L

ABN: 59 104 582 354

4th November 2011

Members – Cobar LALC
c/- Ms R Clements
PO Box 410
Cobar NSW 2835

Dear Renee

Re: Aboriginal Heritage Assessment for the proposed Hera Project, Nymagee, NSW. One additional day of fieldwork needed

As one of the stakeholder group to be consulted concerning potential Indigenous heritage issues for the proposed Hera Project ("the project") near Nymagee, NSW, we are writing to let you know that some changes to impacts at the proposed mine have required an additional day of fieldwork.

The proposed methodology will be same as that provided in 2010, primarily field survey to identify the presence of Aboriginal sites

Project Location: The study area for the proposed project is located approximately 5 km to the south of Nymagee.

Proposal: This project can be defined by the following activities.

- An underground mine.
- An onsite processing facility, potentially including tailings and on-ground leach facilities. Alternatively, ore material may be transported by road to an off-site processing facility.
- Associated infrastructure, including offices, workshops, hardstand areas, power supply (grid or on-site generation), water supply and storage, etc.

A larger Tailings Storage Facility than first surveyed is required as well as a mine access road and a mine camp area. These will be the focus of our survey

- To undertake survey of the Study Area we would like to offer **one** position for a representative from Cobar LALC (and one from Condobolin LALC) to participate in this current survey. This will ensure Indigenous involvement with the additional physical archaeological assessment of the study area. It is necessary for each organisation to have relevant workers compensation insurance, failure to provide a copy of a 'Certificate of Currency for Workers Compensation' will mean that the nominated representative will be **unable** to participate in the field survey component of the assessment.
- Each stakeholder group is responsible for their Occupational Health and Safety (OH&S). Any participant must be fully assessed by their respective organisation and deemed as 'fit for field work'. OzArk reserves the right to exclude any participants that may be placed at risk or injury from field work. The respective organisation will also ensure their participant has adequate Personal Protective Equipment.

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- Discuss in the field, at the end of the field survey, any findings, identified cultural values, management of cultural heritage and culturally acceptable mitigation measures to be considered within the Study Area.
- Each group is asked to prepare a letter which clearly documents their understanding of the project, detail any associated cultural values of the study area and to provide any comment on proposed management and/or mitigation measures to be employed within the study area.
- OzArk will update the existing report OR write a supplementary draft report based on the field survey that will include letters from the stakeholder groups and their assessment of cultural significance for the area or recorded sites. Each group will be invited to review this draft report and provide comment within a given time frame and feedback will be included in report finalisation and provided as an appendix to the final report.
- A copy of the final report, or advice of its availability, will be provided to each stakeholder group prior to the Proponent submitting it to the relevant authorities.

The field assessment: OzArk would like to invite one member of Condobolin LALC to participate in the field assessment, planned for **Wednesday 16th November 2011**. Your representative will need to meet the OzArk team Nymagee outside the pub at **8.30am**.

Requirements prior to field assessment: A group wishing to send a representative for the field assessment ***must have current workers compensation insurance*** and are required to provide a certificate of currency to our office no later than three days prior to the assessment. Unfortunately we will not be able to allow participation in the field assessment without this certificate (due to NSW OH&S legislation). If you are unable to provide this insurance, we will still be able to involve your group in the consultation process through phone and letter.

Fee offer: The Proponent is offering \$600.00 (excl. GST) per day for participation in the field survey for an experienced, senior Sites Officer or Elder; this fee is all inclusive of travel, accommodation and meal expenses. Invoices are to be addressed to R W Corkery, Suite 15, 256-258 Anson Street, Orange, NSW, 2800 and Attention: Mitchell Bland.

In relation to the fee offer and scheduled dates we would appreciate confirmation of your representative's participation in the field assessment and a copy of your current workers compensation insurance.

If you have any queries, please feel free to contact our office.

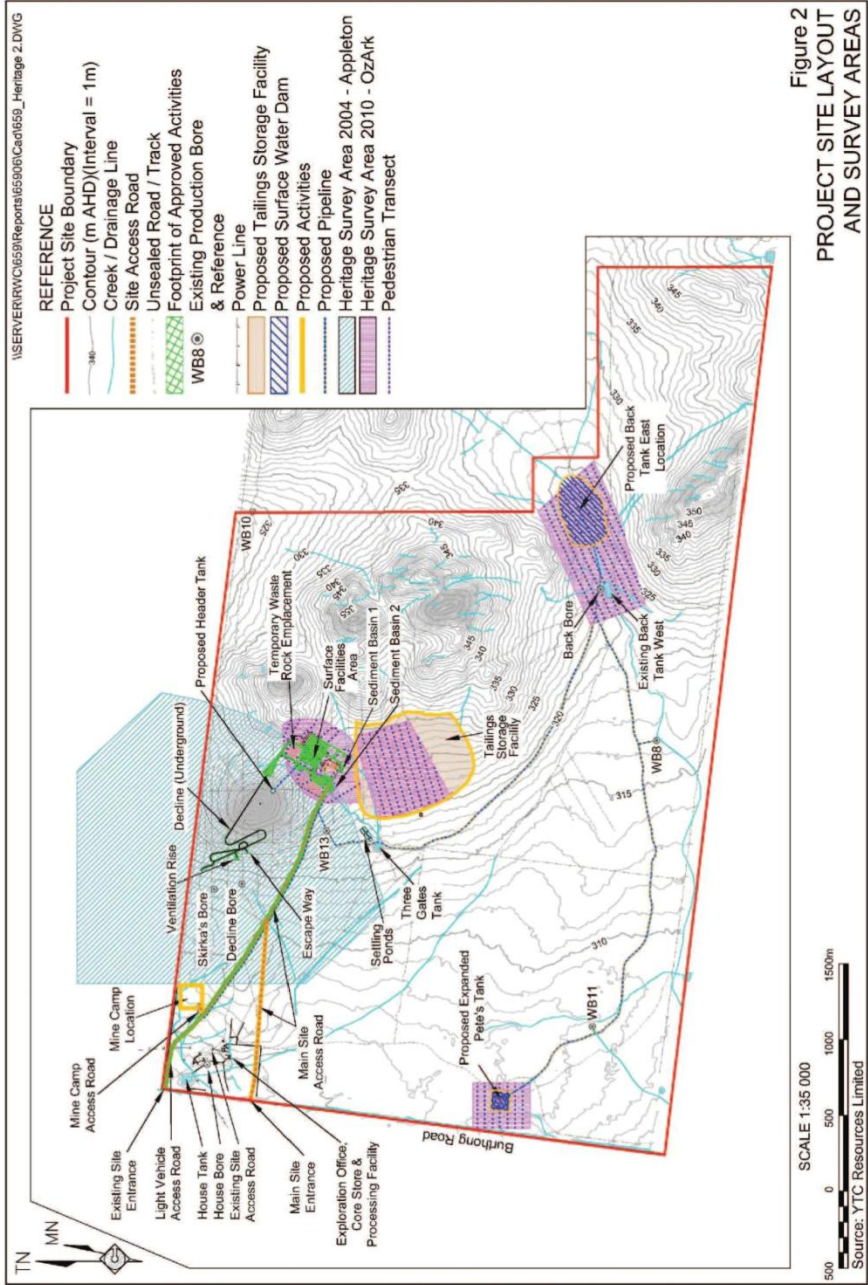
Kind regards


D Jodie Benton
Director

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Figure 1. Study Area(s) for this survey are the unsurveyed portion of the TSF, mine access road and the mine camp.



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Environmental & Heritage Management P/L

ABN: 59 104 582 354

ADDENDUM HERITAGE ASSESSMENT
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4th November 2011

Members – Condobolin LALC
c/- Ms R Shepherd
18 William Street (PO Box 114)
Condobolin NSW 2877

Dear Rebecca

Re: Aboriginal Heritage Assessment for the proposed Hera Project, Nymagee, NSW.

One additional day of fieldwork needed

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A larger Tailings Storage Facility than first surveyed is required as well as a mine access road and a mine camp area. These will be the focus of our survey

- To undertake survey of the Study Area we would like to offer **one** position for a representative from Condobolin LALC (and one from Cobar LALC) to participate in this current survey. This will ensure Indigenous involvement with the additional physical archaeological assessment of the study area. It is necessary for each organisation to have relevant workers compensation insurance, failure to provide a copy of a 'Certificate of Currency for Workers Compensation' will mean that the nominated representative will be unable to participate in the field survey component of the assessment.
- Each stakeholder group is responsible for their Occupational Health and Safety (OH&S). Any participant must be fully assessed by their respective organisation and deemed as 'fit for field work'. OzArk reserves the right to exclude any participants that may be placed at risk or injury from field work. The respective organisation will also ensure their participant has adequate Personal Protective Equipment.

ADDENDUM HERITAGE ASSESSMENT
Report No. 659/08

YTC RESOURCES LIMITED
Hera Project

- Discuss in the field, at the end of the field survey, any findings, identified cultural values, management of cultural heritage and culturally acceptable mitigation measures to be considered within the Study Area.
- Each group is asked to prepare a letter which clearly documents their understanding of the project, detail any associated cultural values of the study area and to provide any comment on proposed management and/or mitigation measures to be employed within the study area.
- OzArk will update the existing report OR write a supplementary draft report based on the field survey that will include letters from the stakeholder groups and their assessment of cultural significance for the area or recorded sites. Each group will be invited to review this draft report and provide comment within a given time frame and feedback will be included in report finalisation and provided as an appendix to the final report.
- A copy of the final report, or advice of its availability, will be provided to each stakeholder group prior to the Proponent submitting it to the relevant authorities.

The field assessment: OzArk would like to invite one member of Condobolin LALC to participate in the field assessment, planned for **Wednesday 16th November 2011**. Your representative will be collected from the LALC offices at **7am**.

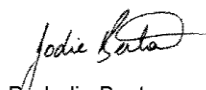
Requirements prior to field assessment: A group wishing to send a representative for the field assessment ***must have current workers compensation insurance*** and are required to provide a certificate of currency to our office no later than three days prior to the assessment. Unfortunately we will not be able to allow participation in the field assessment without this certificate (due to NSW OH&S legislation). If you are unable to provide this insurance, we will still be able to involve your group in the consultation process through phone and letter.

Fee offer: The Proponent is offering \$600.00 (excl. GST) per day for participation in the field survey for an experienced, senior Sites Officer or Elder; this fee is all inclusive of travel, accommodation and meal expenses. Invoices are to be addressed to R W Corkery, Suite 15, 256-258 Anson Street, Orange, NSW, 2800 and Attention: Mitchell Bland.

In relation to the fee offer and scheduled dates we would appreciate confirmation of your representative's participation in the field assessment and a copy of your current workers compensation insurance.

If you have any queries, please feel free to contact our office.

Kind regards



Dr Jodie Benton
Director

Same figure as shown in Cobar LALC letter

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ADDENDUM HERITAGE ASSESSMENT
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Appendix 2

Aboriginal Community Consultation Log

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ADDENDUM HERITAGE ASSESSMENT
Report No. 659/08

YTC RESOURCES LIMITED
Hera Project

HERA GOLD PROJECT - COMMUNITY CONSULTATION				
Date	Organisation /	Contact Name	Comment	OzArk staff/ method
04.11.11	Cobar LALC	Rena Clements (CEO) fax: 02 6836 1292 e <cobarlalc@bigpond.com	Sent fax about upcoming fieldwork day	JB - fax
04.11.11	Condobolin LALC	Rebecca Shepherd fax: 02 6895 3729 e <condolalc@westserv.net.au	Sent fax about upcoming fieldwork day	JB- fax
10.11.11	Cobar LALC	Rena Clements (CEO) ph: 6836 1144 e <cobarlalc@bigpond.com	Rena emailed that Cobar LALC did not have a representative available that day.	email - CB & JB
08 - 10.11.11	Condobolin LALC	Rebecca Shepherd ph: 6895 3639 e <condolalc@westserv.net.au	Rebecca said she would be able to send a rep	email & phone
16.11.11			On 16 November additional survey was undertaken with Ben Churcher (OzArk) and Mark Powell (Condo LALC) - no additional sites were recorded.	
20.12.11			ALL STAKEHOLDERS WERE sent a copy of the addendum report for comment - CLOSURE DATE FOR FEEDBACK 23.01.2012	
23.01.12	Condobolin LALC	Rebecca Shepherd ph: 6895 3639 e <condolalc@westserv.net.au	emailed Rebecca requesting any feedback and as a reminder comments are due today 23.01.12	CB - email
23.01.12	Cobar LALC	Rena Clements (CEO) ph: 6836 1144 e <cobarlalc@bigpond.com	emailed Rena requesting any feedback and as a reminder comments are due today 23.01.12	CB - email
23.01.12	Traditional Owner	Elaine Ohlsen 0488 690 287 e <elaineohlsen@hotmail.com	emailed Elaine requesting any feedback and as a reminder comments are due today 23.01.12	CB - email
23.01.12	Condobolin LALC	Rebecca Shepherd ph: 6895 3639 e <condolalc@westserv.net.au	Called office about comment for final report they are emailing the response to cheryl this morning.	phone
23.01.12	Cobar LALC	Rena Clements (CEO) ph: 6836 1144 e <cobarlalc@bigpond.com	Called office spoke to Rena about leaving a comment for the final report she had additional questions (which were another project) so talked to PJC and Danielle emailed through the information about the additional Hera survey - subsequently no comment received from Cobar LALC	phone/email
23.01.12	Traditional Owner	Elaine Ohlsen 0488 690 287 e <elaineohlsen@hotmail.com	Talked to Elaine about comment for final report she stated that it would only be the usual comment that "If any sites were uncovered during operations they should be reported".	phone
24.01.12	Mt Grenfell Historic Site BOM	Richard Kennedy ph: 0409 208 203	Called Richard about comment for final report no answer so message was left	phone
24.01.12	Murrin Bridge LALC	ph: 6898 1119	Called about comment for final report no answer so message was left	phone
24.01.12	Condobolin LALC	Rebecca Shepherd ph: 6895 3639 e <condolalc@westserv.net.au	EMAIL RECEIVED FROM CLALC Thanks Cheryl, The report is fine, and as you have indicated there were no findings to report. Thanks Rebecca Shepherd, CEO, CLALC	email

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Appendix 3

Plates

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Report No. 659/08

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Plate 1 Landform in the east of the TSF.



Plate 2 Landform in the south of the TSF.



Plate 3 Landform in the vicinity of the Header Tank location.



Plate 4 Landform in the vicinity of Ventilator Rise location.



Plate 5 Landform in the vicinity of Mining Camp location.

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Appendix 2

Biobanking Assessment

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“CHELSEA”, THE OFFSET SITE.

PRELIMINARY BIOBANKING ASSESSMENT:

HERA PROJECT VIA NYMAGEE NSW.

Cobar Local Government Area

February 2012

Report Prepared by
OzArk Environmental & Heritage Management Pty Ltd
For
YTC Resources Ltd



**Environmental and
Heritage Management P/L**

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YTC Resources Ltd | Hera Project | Biodiversity Offset Strategy

DOCUMENT CONTROLS

Proponent	YTC Resources Ltd		
Client	RW Corkery & Co Pty Limited.		
Project	Hera Project		
Document Description	BioBanking Assessment		
Name of Project	BioBanking Assessment		
Clients Reviewing Officer	Mitchell Bland		
OzArks Document Manager	Phillip Cameron Senior Project Manager.		
OzArk Job No.	#619		
Local Government Area: Cobar			
Document Status FINAL	Version	Date	Action
Document History			
Draft V1.0 Internal edit	V1.0	9.01.2012	PJC data check
Draft V2.0 for release to client	V2.0	9.01.2012	OzArk Client to
FINAL DRAFT V3.0	V3.0	16.2.2012	OzArk Client to
FINAL Approved	FINAL	16.2.2012	OzArk Client to
Prepared For	Prepared By		
Mitchell Bland Principal Environmental Consultant RW Corkery & Co Pty Limited Geological and Environmental Consultants 62 Hill Street ORANGE NSW 2800 Phone: (02) 6362 5411 (02) 6393 2302 Fax: (02) 6361 3622 Email: orange@rwcorkery.com	Phillip Cameron Senior Project Manager OzArk Environmental & Heritage Management Pty Limited PO Box 2069 Dubbo, NSW 2030 (02) 6882 0118 / 0423 198 898 phil@ozarkehm.com.au		

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BioBanking Assessment: Cobar LGA, near Nymagee, NSW.

OzArk Environmental & Heritage Management Pty Limited.

2



YTC Resources Limited: Hera Project, Nymagee NSW.

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Appendix 1: Development Site BioBanking Credit Report
Appendix 2: Offset Site BioBanking Credit Report (Western CMA)
Appendix 3: Offset Site BioBanking Credit Report (Central Western CMA)
Appendix 4: Photos of the Offset Site
Appendix 5: EPA response on the draft version of this report.

YTC Resources Limited: Hera Project, Nymagee NSW.

1. Proponet and Assesor

1.1. Proponent

YTC Resources Limited
2 Corporation Place
ORANGE NSW 2800
Tel: (02) 6361 4700
Fax: (02) 6361 4711
Email: office@ytcreources.com

1.2. Assessor:

Phillip Cameron
Ozark Environmental & Heritage Management Pty Ltd
PO Box 2069
DUBBO NSW 2830
Tel: (02) 6882 0118
Fax: (02) 6882 0630
Email: phil@ozarkehm.com.au
BioBanking Assessor Number: To be advised (Submitted December 2011, OEH determined mid-February 2012, OEH requested additional information mid February 2012).

1.3. Project summary

A summary of the Development Site "Hera Project" has been provided as **Table1** and **Table 2**.

YTC Resources Limited: Hera Project, Nymagee NSW.

Table 1: Summary of the Hera Project.

Project Details					
Proponent		YTC Resources Limited			
Area of the Project Site		1,532ha			
Mining method		Sublevel open stoping			
Maximum rate of production		Approximately 350 000t of ore per year			
Project life		9 years			
Hours of operation- Site preparation and box cut		7 days per week, 7:00am to 6:00pm			
Transportation operations		7 days per week, 7:00am to 10:00pm			
Rehabilitation operations		7 days per week, 7:00am to 6:00pm			
All other activities		7 days per week, 24 hours per day			
Capital cost		Approximately \$80 million			
Number of employees		Approximately 100			
Economic Contribution		- local and regional - State and national - taxes, royalties and rates			
		Approximately \$15 million/year Approximately \$25 million/year Approximately \$3 million/year			
Area of Proposed Disturbance (ha)					
Component		Area of REF approved disturbance	Area of proposed disturbance	Total area of disturbance	
Surface facilities area and box cut		4.8	8.8	13.6	
Tailings storage facility		-	43.8	43.8	
Surface water storages		-	13.0	13.0	
Mine camp		-	1.4	1.4	
Site access roads (assuming 8m width)		1.8	2.8	4.6	
Vegetation Communities within "The Peak" (ha)					
Community	Area to be disturbed	Area that would not be disturbed	Total	Approximate proportion of Project Site %	Approximate proportion of Project Site % to be disturbed
Poplar Box – Gum-barked Coolibah – White Cypress Pine shrubby woodland (Benson 103)	54.3	1649.1	1703.4	80.0	2.6
Poplar Box – Gum-barked Coolibah – White Cypress Pine shrubby woodland (Benson 103) – Bimble Box dominated	10.2	119.0	129.2	6.1	0.5
Poplar Box – Gum-barked Coolibah – White Cypress Pine shrubby woodland (Benson 103) – White Cypress Pine dominated	0.8	58.5	59.3	2.8	0.0
Grey Mallee – White Cypress Pine woodland (Benson 180)	-	60.6	60.6	2.8	0.0
Mallee – Smooth-barked Coolibah woodland (Benson 174)	0.1	92.0	92.1	4.3	0.0
Eremophila and hopbush regrowth	1.3	13.9	15.2	0.7	0.1
Cleared grassland / shrubland and cleared area from tracks	1.0	68.1	69.1	3.2	0.0
Total Property			2128	100	3.18

YTC Resources Limited: Hera Project, Nymagee NSW.

Note: The extent and proportions of vegetation communities and cleared areas are based on GIS mapping techniques and as such are approximate figures only

Table 2: Native vegetation to be affected by the Hera Project.

Area of Proposed Disturbance (ha)			
Surface Infrastructure	Total Area (ha)	Area Vegetation to be removed (ha)	Vegetation Community Type
Tailings Storage Facility	43.8	0.8	Benson 103 – White Cypress Pine Dominated Area
		43	Benson 103
Back Tank East	11.3	8.51	Benson 103 – Bimble Box Dominated Area
		2.8	Benson 103
Pete's Tank	1.7	0.02	Benson 103
		1.68	Benson 103 – Bimble Box Dominated Area
Mine Camp	2.2	0.9	Cleared Grassland / Shrubland / Disturbed
		1.3	Benson 103 Eremophila & Hopbush Regrowth
Surface Facilities Area	15.4	3	Benson 174
		0.13	Benson 180
		12.27	Benson 103
Main Site Access Road	0.96	0.48	Cleared Grassland / Shrubland / Disturbed
		0.18	Benson 174
		0.34	Benson 103 – White Cypress Pine Dominated Area
Light Vehicle Access Road	1.84	0.69	Cleared Grassland / Shrubland / Disturbed
		0.33	Benson 103 – Eremophila & Hopbush Regrowth
		0.54	Benson 103 – White Cypress Pine Dominated Area
		0.29	Benson 103
Mine Camp Road	0.064	0.064	Benson 103 – Eremophila & Hopbush Regrowth
Total Area to be Disturbed	77.3	77.3	

2. Development Site

- Local Government Area: Cobar (**Figure 1**)
- Locality: Nymagee
- Name: The Hera Project located on "The Peak".
- DP: 761702 (**Figure 2**)
- Lot: 664
- Other: TSR TSR8792 on the eastern portion of The Peak. It is 4.6km x 1.6km (1 mile wide).
- Size of Property: 2,214.9ha, 2128ha assessed as the Hera Project (**Figure 3**).
- CMA: Western (Nymagee-Rankins Springs)
- Mitchells' Landscape: Nymagee Downs.
- Distance to Offset Ste: 25km
- **Appendix 1** provides a BioBanking Credit Report.

YTC Resources Limited: Hera Project, Nymagee NSW.

2.1 Mitchells landscape description

Ngd Nymagee Downs

CP Nymagee

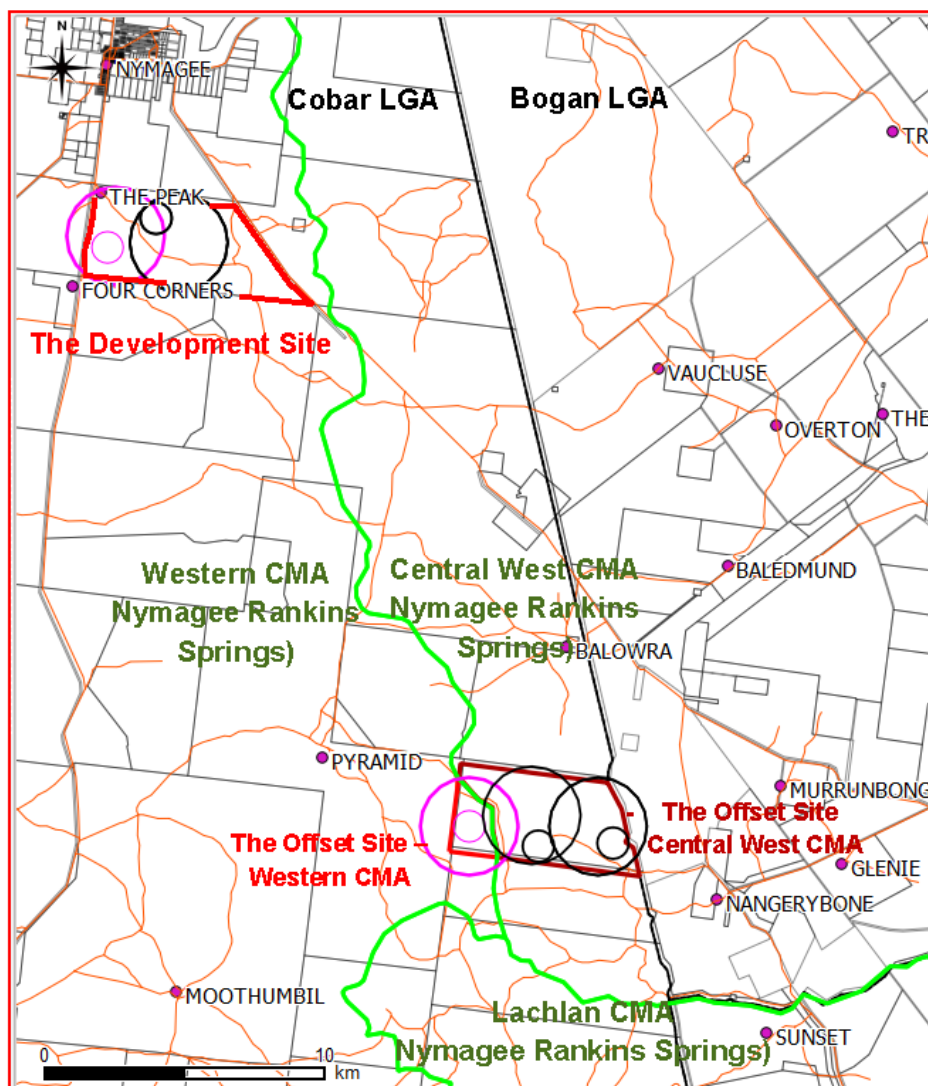
Nymagee Downs landscape includes parts of eleven land systems: *Boulkra*, *Cobar*, *Cottage*, *Hartwood*, *Ironstone*, *Killala*, *Kopyje*, *Lilyvale*, *Taringa* and *Yackerboon*.

Undulating rounded Ordovician, Silurian or Devonian quartzite, sandstone or phyllite ridges with narrow and broad drainage flats, relief 10 to 20m. Undulating silcrete ridges with long low slopes and broad level plains, relief to 20m. Drainage lines up to 1 km wide. Shallow, stony, loamy and sandy soils on crests, deep, calcareous red earths and solonized brown soils with gilgai on plateau, grading to deeper acid, neutral or calcareous red earths and red texture-contrast soils with hardpan down slope.

Bimble box (*Eucalyptus populnea*), western red box (*Eucalyptus intertexta*), mallee (*Eucalyptus* sp.), mulga (*Acacia aneura*), warrior bush (*Apophyllum anomalum*), rosewood (*Alectryon oleifolius*), turpentine (*Eremophila sturtii*), narrow-leaf hopbush (*Dodonaea attenuata*), western golden wattle (*Acacia decora*), budda (*Eremophila mitchellii*), kurrajong (*Brachychiton populneus*), silver cassia (*Senna artemisioides*), broad-leaved hopbush (*Dodonaea viscosa*), wire grass (*Aristida* sp.), rough spear grass (*Austrostipa scabra*), red-leg grass (*Bothriochloa macra*), and windmill grass (*Chloris truncata*) on crests. Bimble box, red box, wilga (*Geijera parviflora*), turpentine, budda, punty bush (*Senna eremophila*), hopbush (*Dodonaea* sp.), yarran (*Acacia homalophylla*) and ironwood (*Acacia excelsa*) with many other woody shrubs and grasses on lower slopes. Western red box, bimble box, yarran and budda with grasses in drainage lines.

YTC Resources Limited: Hera Project, Nymagee NSW.

Figure 1: The Development Site and Offset Site (1000ha and 100ha circles shown).



YTC Resources Limited: Hera Project, Nymagee NSW.

Figure 2: The Development Site: Mitchells landscapes

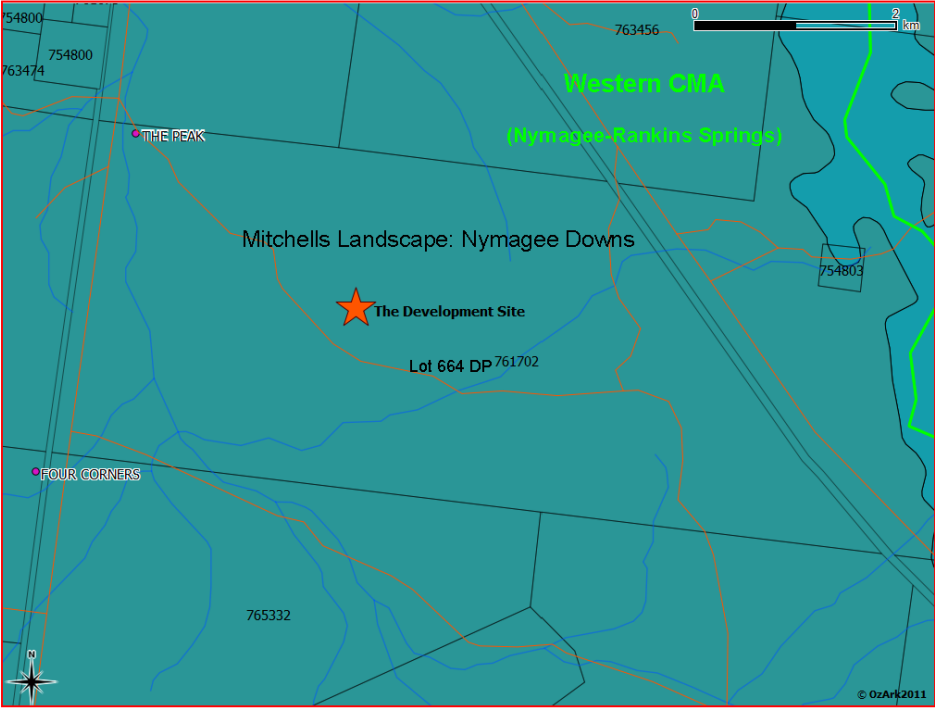
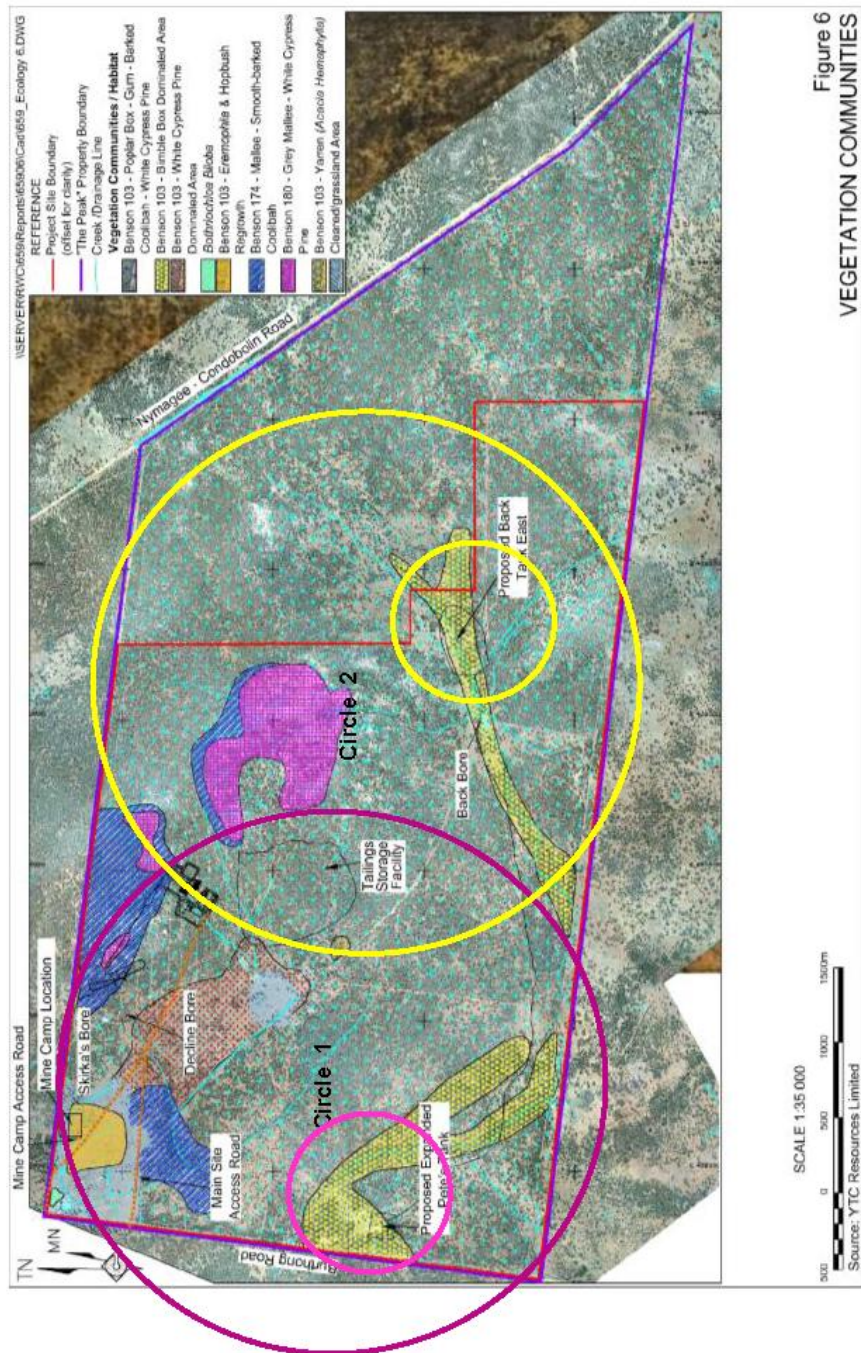


Figure 3: The Development Site: BioMetric Vegetation Mapping.



YTC Resources Limited: Hera Project, Nymagee NSW.

2.2 Circle 1

Cross reference this section against hectares and areas identified in **Table 2**.

2.2.1 Landscape values

Step 1a - Enter Assessment Circles

Done

Assessment Circle Number / Name

CMA Subregion

calculate landscape value score

Circle 1

Nymagee-Rankins Springs

Before Development

After Development

% Native Vegetation Cover in 1000ha Circle:

91-100%

91-100%

% Native Vegetation Cover in 100ha Circle:

91-100%

81-90%

Status:

Completed

Landscape Score

12.5

Enter Threatened Species Sub Zones

Connectivity Value

Before Development

After Development

Width:

>500m

>500m

Condition:

Woody vegetation types

Before Development

After Development

Over-storey condition:

PFC >25% of lower BM

PFC >25% of lower BM

Mid-storey or ground cover condition

PFC mid-storey/ground cover >25% of lower E

PFC mid-storey/ground cover >25% of lower E

Non woody vegetation types

Before Development

After Development

Grassland veg condition:

Delete this Assessment Circle and Related Threatened Species Sub Zones

YTC Resources Limited: Hera Project, Nymagee NSW.

2.2.2 Threatened Species sub-zones

Step 1b - Enter Threatened Species Sub Zones			
Assessment Circle: Circle 1			
Threatened Species Sub Zone Number:	TSF B103	Condition class:	Moderate/Good
TS Sub Zone Area:	43.80 ha	Ancillary Code: (optional)	
Adjacent Remnant Vegetation Area:	2,084.00 ha	Vegetation Zone:	WE91_Moderate/Good
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE91		
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)		
Threatened Species Sub Zone Number:	PetesTank B103	Condition class:	Moderate/Good
TS Sub Zone Area:	1.70 ha	Ancillary Code: (optional)	
Adjacent Remnant Vegetation Area:	2,126.30 ha	Vegetation Zone:	WE91_Moderate/Good
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE91		
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)		
Threatened Species Sub Zone Number:	MineCamp	Condition class:	Low
TS Sub Zone Area:	2.20 ha	Ancillary Code: (optional)	MineCamp
Adjacent Remnant Vegetation Area:	0.00 ha	Vegetation Zone:	WE91_Low_MineCamp
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE91		
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)		

YTC Resources Limited: Hera Project, Nymagee NSW.

Step 1b - Enter Threatened Species Sub Zones

Assessment Circle: Circle 1

Threatened Species Sub Zone Number:	SurfFacility_B174	Condition class:	Moderate/Good	Status:	Completed	Delete th Sub Zon
TS Sub Zone Area:	3.00 ha	Ancillary Code: (optional)	B174Surface			
Adjacent Remnant Vegetation Area:	2,125.00 ha	Vegetation Zone: WE84_Moderate/Good_B174Surface				
Patch Size, Including Low Condition Veg:	2,128.00 ha					
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)					
	Choose veg type from the drop-down menu					
Veg Type:	WE84					
Veg Type Name:	Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)					
Threatened Species Sub Zone Number:	SurfFacility_B180	Condition class:	Moderate/Good	Status:	Completed	Delete th Sub Zon
TS Sub Zone Area:	0.13 ha	Ancillary Code: (optional)	SurfFac_B180			
Adjacent Remnant Vegetation Area:	2,127.87 ha	Vegetation Zone: WE61_Moderate/Good_SurfFac_B180				
Patch Size, Including Low Condition Veg:	2,128.00 ha					
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)					
	Choose veg type from the drop-down menu					
Veg Type:	WE61					
Veg Type Name:	Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion (Benson 180)					
Threatened Species Sub Zone Number:	SurfFacility_B103	Condition class:	Moderate/Good	Status:	Completed	Delete th Sub Zon
TS Sub Zone Area:	12.27 ha	Ancillary Code: (optional)	SurfFac_B103			
Adjacent Remnant Vegetation Area:	2,115.73 ha	Vegetation Zone: WE91_Moderate/Good_SurfFac_B103				
Patch Size, Including Low Condition Veg:	2,128.00 ha					
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)					
	Choose veg type from the drop-down menu					
Veg Type:	WE91					
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)					

YTC Resources Limited: Hera Project, Nymagee NSW.

Step 1b - Enter Threatened Species Sub Zones			
Assessment Circle: Circle 1			
Threatened Species Sub Zone Number:	MainAccessRd_B103	Condition class:	Low
TS Sub Zone Area:	0.48 ha	Ancillary Code: (optional)	MainAccessB013
Adjacent Remnant Vegetation Area:	0.00 ha	Vegetation Zone: WE91_Low_MainAccessB013	
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE91		
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)		
Threatened Species Sub Zone Number:	MainAccessRd_B174	Condition class:	Moderate/Good
TS Sub Zone Area:	0.18 ha	Ancillary Code: (optional)	MainAccessRd_B174
Adjacent Remnant Vegetation Area:	2,127.82 ha	Vegetation Zone: WE84_Moderate/Good_MainAccessRd_B174	
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE84		
Veg Type Name:	Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)		
Threatened Species Sub Zone Number:	MainAccessRd_B103	Condition class:	Moderate/Good
TS Sub Zone Area:	0.34 ha	Ancillary Code: (optional)	MainAccess_B103
Adjacent Remnant Vegetation Area:	2,127.66 ha	Vegetation Zone: WE91_Moderate/Good_MainAccessRd_B103	
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE91		
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)		

Step 1b - Enter Threatened Species Sub Zones			
Assessment Circle: Circle 1			
Threatened Species Sub Zone Number:	MineCampRd	Condition class:	Low
TS Sub Zone Area:	0.06 ha	Ancillary Code: (optional)	MineCampRd
Adjacent Remnant Vegetation Area:	0.00 ha	Vegetation Zone: WE91_Low_MineCampRd	
Patch Size, Including Low Condition Veg:	2,128.00 ha		
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)		
	Choose veg type from the drop-down menu		
Veg Type:	WE91		
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)		

YTC Resources Limited: Hera Project, Nymagee NSW.

2.3 Circle 2

Cross reference this section against hectares and areas identified in **Table 2**.

2.3.1 Landscape values

Step 1a - Enter Assessment Circles

Done

Assessment Circle Number / Name

CMA Subregion

calculate landscape value score

Circle 2

Nymagee-Rankins Springs

Enter Threatened Species Sub Zones

Before Development

After Development

% Native Vegetation Cover in 1000ha Circle:

91-100%

91-100%

% Native Vegetation Cover in 100ha Circle:

91-100%

81-90%

Status:

Completed

Landscape Score

12.5

Connectivity Value

Before Development

After Development

Width:

>500m

>500m

Delete this Assessment Circle and Related Threatened Species Sub Zones

Condition:

Woody vegetation types

Before Development

After Development

Over-storey condition:

PFC at BM

PFC at BM

Mid-storey or ground cover condition

PFC mid-storey/ground cover >25% of lower E

PFC mid-storey/ground cover >25% of lower E

Non woody vegetation types

Before Development

After Development

Grassland veg condition:

YTC Resources Limited: Hera Project, Nymagee NSW.

2.3.2 Threatened Species sub-zones

Step 1b - Enter Threatened Species Sub Zones

Assessment Circle: Circle 2	
Threatened Species Sub Zone Number: BackTankEast	Condition class: Moderate/Good Status: Completed
TS Sub Zone Area: 11.30 ha	Ancillary Code (optional): BackTankEast
Adjacent Remnant Vegetation Area: 2,116.70 ha	Vegetation Zone: WE91_Moderate/Good_BackTankEas
Patch Size, Including Low Condition Veg: 2,128.00 ha	
Veg Formation: Semi-arid woodlands (shrubby sub-formation)	
Choose veg type from the drop-down menu	
Veg Type: WE91	
Veg Type Name: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	
Threatened Species Sub Zone Number: LightVAccessTrack_B103	Condition class: Moderate/Good Status: Completed
TS Sub Zone Area: 1.16 ha	Ancillary Code (optional): LightVtrack_B103
Adjacent Remnant Vegetation Area: 2,126.84 ha	Vegetation Zone: WE91_Moderate/Good_LightVtrack_E
Patch Size, Including Low Condition Veg: 2,128.00 ha	
Veg Formation: Semi-arid woodlands (shrubby sub-formation)	
Choose veg type from the drop-down menu	
Veg Type: WE91	
Veg Type Name: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	
Threatened Species Sub Zone Number: LightVAccessTrack_B103	Condition class: Low Status: Started
TS Sub Zone Area: 0.33 ha	Ancillary Code (optional): LightVtrack_B103
Adjacent Remnant Vegetation Area: 0.00 ha	Vegetation Zone: _Low_LightVtrack_B103
Patch Size, Including Low Condition Veg: 2,128.00 ha	
Veg Formation: Semi-arid woodlands (shrubby sub-formation)	
Choose veg type from the drop-down menu	
Veg Type: WE91	
Veg Type Name: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	

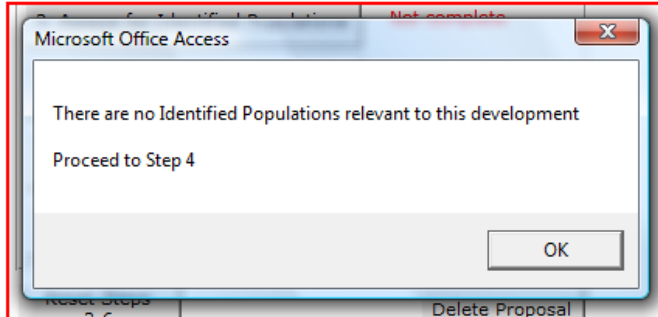
2.4 Geographic and habitat features

Step 2 - Identify Geographic and Habitat Features		Print Form	Close
Does any part of the development impact on:			
land containing within 100 m of riparian woodland on inland rivers containing mature living eucalypts or isolated padlock trees overhanging water or dry watercourses			Yes

Refer to Figures 1 to 3.

YTC Resources Limited: Hera Project, Nymagee NSW.

2.5 Assess for identified populations



2.6 Undertake Site Survey

Step 4 - Undertake Site Survey

Proposed Survey Times

☐ January ☐ July
☐ February ☐ August
☐ March ☐ September
☒ April ☒ October
☐ May ☐ November
☐ June ☐ December

Threatened Species Requiring an Expert Report or are to be assumed to be present

Survey Time Matrix

Scientific Names	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Dilris tricolor</i>									Yes	Yes	Yes	
<i>Falsimyrmeleon</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Pterostylis cooperianalis</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Julingia procumbens</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Targeted assessment undertaken 25 to 29 April 2010 and 15th October 2011 for the purpose of orchid detection.

YTC Resources Limited: Hera Project, Nymagee NSW.

2.7 Enter survey results and vegetation red flag status

Surface Facility Benson 180

Vegetation Zone Name: WE61_Moderate/Good_SurfFac_B180

Vegetation Type: Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Penneplain Bioregion (Benson 180)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 1

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Northing:	Zone:	Plot status:
	>=20	1 to 8	3 to 8	0 to 3	0 to 5	0 to 2	See Manu	>=0	1	>=20				
Benson 180 (1)	13	4	2	2	0	2	0	0	0.33	15	437729	6446929	55	Complete

Surface Facility Benson 174

Vegetation Zone Name: WE84_Moderate/Good_B174Surface

Vegetation Type: Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Penneplain Bioregion (Benson 174)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 2

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Northing:	Zone:	Plot status:
	>=20	5 to 25	0 to 3	0 to 2	5 to 20	0 to 5	See Manu	>=3	1	>=40				
Surface Facility (2)	13	3	0	2	5	2	0	0	0.33	13	436603	6446958	55	Complete
Surface Facility (3)	13	3	0	2	5	5	0	0	0.33	3	436089	6447016	55	Complete

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YTC Resources Limited: Hera Project, Nymagee NSW.

Surface Facility Benson 103. Judgement applied, homogenous western landscape (one assessed two modelled)

Vegetation Zone Name: WE91_Moderate/Good_SurfFac_B103

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 3

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Northing:	Zone:	Plot status:
	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Surface Facility 1	10	30	0	5	1	4	10	0	0.33	5	436778	6446803	55	Complete
Surface Facility 2	10	30	0	5	1	4	10	0	0.33	5	436846	6447055	55	Complete
Surface Facility 3	10	30	0	5	1	4	10	0	0.33	5	437011	6447113	55	Complete

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YTC Resources Limited: Hera Project, Nymagee NSW.

Main Access Road

Step 5b - Enter Vegetation Transect/Plot Information Done

Vegetation Zone Name: WE84_Moderate/Good_MainAccessRd_B174

Vegetation Type: Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 1

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Nothing:	Zone:	Plot status:
	Benchmarks													
	>=20	5 to 25	0 to 3	0 to 2	5 to 20	0 to 5	See Manu	>=3	1	>=40				
Transect/Plot Number/Name:														
MainAccessRd	15	5	0	1	5	3	0	0	0.33	0	435196	6446832	55	Complete

Step 5b - Enter Vegetation Transect/Plot Information Done

Vegetation Zone Name: WE91_Low_MainAccessB013

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 1

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Nothing:	Zone:	Plot status:
	Benchmarks													
	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Transect/Plot Number/Name:														
MainAccessLow	6	0	0	6	2	0	15	0	0	0	435138	6446910	55	Complete

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YTC Resources Limited: Hera Project, Nymagee NSW.

Main Access Road (cont.)

Vegetation Zone Name: WE91_Moderate/Good_MainAccess_B103

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 1

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Nothing:	Zone:	Plot status:
	Benchmarks													
	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Transect/Plot Number/Name:														
Main Access Track	13	40	5	6	2	2	15	1	0.33	15	434663	6446444	55	Complete

Light Vehicle Track

Vegetation Zone Name: WE91_Low_LightVtrack_B103

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 1

Edit Benchmarks	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Nothing:	Zone:	Plot status:
	Benchmarks													
	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Transect/Plot Number/Name:														
LightVtrack	13	5	5	7	5	5	10	0	0.33	0	438476	6444833	55	Complete

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YTC Resources Limited: Hera Project, Nymagee NSW.

Mine Camp

Step 5b - Enter Vegetation Transect/Plot Information Done

Vegetation Zone Name: WE91_Low_MineCamp

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepplain Bioregion (Benson 103)

Required Plots
Minimum No. required transect/ plots: 1

Enter measurements for each site attribute

Local Benchmark used: No

Edit Benchmarks

	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Northing:	Zone:	Plot status:
Benchmarks	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Transect/Plot Number/Name:														
Mine Camp Low	6	0	2	4	2	2	15	0	0	0	435440	6447346	55	Complete

Mine Camp Rd

Vegetation Zone Name: WE91_Low_MineCampRd

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepplain Bioregion (Benson 103)

Required Plots
Minimum No. required transect/ plots: 1

Enter measurements for each site attribute

Local Benchmark used: No

Edit Benchmarks

	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Northing:	Zone:	Plot status:
Benchmarks	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Transect/Plot Number/Name:														
MineCampRd	8	0	0	6	2	0	10	0	0	0	435216	6447259	55	Complete

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YTC Resources Limited: Hera Project, Nymagee NSW.

Tailings Storage Facility – Note judgement employed here, homogenous landscape. (2 plots taken – two modelled)

Vegetation Zone Name: WE91_Moderate/Good

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepplain Bioregion (Benson 103)

Required Plots
Minimum No. required transect/ plots: 4

Enter measurements for each site attribute

Local Benchmark used: No

Edit Benchmarks

	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Northing:	Zone:	Plot status:
Benchmarks	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Manu	>=0	1	>=20				
Transect/Plot Number/Name:														
1	9	40	1	5	2	2	5	1	0	5	436865	6445745	55	Complete Delete Transect/Plot
2	10	40	1	5	2	2	5	1	0	5	436681	6446036	55	Complete Delete Transect/Plot
3	11	40	1	5	2	2	5	1	0	5	436914	6446191	55	Complete Delete Transect/Plot
4	12	40	1	5	2	2	5	1	0	5	437030	6445939	55	Complete Delete Transect/Plot

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YTC Resources Limited: Hera Project, Nymagee NSW.

Back Tank East: Note, judgement employed homogenous western landscape.

Vegetation Zone Name: WE91_Moderate/Good_BackTankEast
Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 3

Transect/Plot Number/Name:	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Nothing:	Zone:	Plot status:
	Benchmarks	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Menu	>=0	1	>=20			
BackTankEast 1	10	40	1	5	2	2	5	1	0	5	439087	6445318	55	Complete Delete Transect/Plot
BackTankEast 2	10	40	1	5	2	2	5	1	0	5	439019	6445076	55	Complete Delete Transect/Plot
BackTankEast 3	10	40	1	5	2	2	5	1	0	5	438563	6445085	55	Complete Delete Transect/Plot

Light Vehicle Track

Vegetation Zone Name: WE91_Moderate/Good_LightVtrack_B103
Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/ plots: 1

Transect/Plot Number/Name:	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Easting:	Nothing:	Zone:	Plot status:
	Benchmarks	>=15	3 to 22	0 to 30	5 to 30	2 to 10	2 to 30	See Menu	>=0	1	>=20			
LightVehicleTrack	15	20	5	5	4	5	10	0	0	0	437428	6445124	55	Complete

YTC Resources Limited: Hera Project, Nymagee NSW.

2.8 Vegetation zone: EEC and red flag status

Step 5 - Enter Survey Results

Enter Vegetation Plot Information and Red Flag Status

Complete

Enter Threatened Species Survey Information

Complete

Step 5a - Vegetation Zones: EEC and Red Flag Status Done

Name	% Cleared	EEC?	Red Flag?	Have minimum number of Transects/ plots been entered?	Area (ha)	Enter Transects/ Plots	Enter Management Scores
WE64_MudroorooGood_EurPod_3 Grey Mallee - White Cypress Pine woodland on rocky soils of the eastern Coblar Perseplain Biorégion (Benson 150)	5	Not an EEC	No	Yes	0.15	Enter Transects/ Plots Complete	Enter Management Scores Complete
WE64_MudroorooGood_E174Sulla Mallee - Smooth-barked Coolibah woodland on red earth soils of the eastern Coblar Perseplain Biorégion (Benson 174)	20	Not an EEC	No	Yes	3.00	Enter Transects/ Plots Complete	Enter Management Scores Complete
WE64_MudroorooGood_MainRooce Mallee - Smooth-barked Coolibah woodland on red earth soils of the eastern Coblar Perseplain Biorégion (Benson 174)	25	Not an EEC	No	Yes	0.15	Enter Transects/ Plots Complete	Enter Management Scores Complete
WE61_Low_Lookback_E103 Paper Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Coblar Perseplain Biorégion (Benson 103)	10	Not an EEC	No	Yes	0.33	Enter Transects/ Plots Complete	Enter Management Scores Complete
WE61_Low_MainRooceE100 Paper Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Coblar Perseplain Biorégion (Benson 103)	10	Not an EEC	No	Yes	0.40	Enter Transects/ Plots Complete	Enter Management Scores Complete
WE61_Low_MineCamp Paper Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Coblar Perseplain Biorégion (Benson 103)	10	Not an EEC	No	Yes	2.20	Enter Transects/ Plots Complete	Enter Management Scores Complete
WE61_Low_MineCampHd Paper Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Coblar Perseplain Biorégion (Benson 103)	10	Not an EEC	No	Yes	0.05	Enter Transects/ Plots Complete	Enter Management Scores Complete

YTC Resources Limited: Hera Project, Nymagee NSW.

Name	% Cleared	EEC?	Red Flag?	Have minimum number of Transect/ plots been entered?	Area (ha)	Enter Transect/ Plots Complete	Enter Management Scores Complete
WE91_Low_MineCamp Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	2.20	Complete	Complete
WE91_Low_MineCampRd Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	0.06	Complete	Complete
WE91_Moderate/Good Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	45.50	Complete	Complete
WE91_Moderate/Good_BackTank1 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	11.30	Complete	Complete
WE91_Moderate/Good_LightVTrack Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	1.16	Complete	Complete
WE91_Moderate/Good_MainAcces Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	0.34	Complete	Complete
WE91_Moderate/Good_SurfFac_B Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	No	Yes	12.27	Complete	Complete

2.9 Report on credit requirements

Assessment of a Development Site

Development Details

Process ID:

Development Name:

Development Location:

Street Address:

[Enter Site Details](#)

Proponent Details

Proponent Name:

Proponent Address:

Proponent Phone:

Assessor Details

Assessor Name:

Assessor Address:

Assessor Phone:

Assessor Accreditation Number:

Location Details

LGA Name:

Mitchell Landscape:

Assessment Steps

- Landscape Assessment Circles - Threatened Species Zone Data Complete
- Identify Geographic and Habitat Features Complete
- Assess for Identified Populations Not Required
- Undertake Site Survey Complete
- Enter Survey Results and Vegetation Red Flag Status Complete
- Report on Credit Requirements Complete

[Reset Steps 2-5](#) [Delete Proposal](#)

See Appendix 1.

YTC Resources Limited: Hera Project, Nymagee NSW.

3. Offset Site

- Local Government Area: Cobar (Figure 1)
- Locality: Nymagee
- Name of Property 'Chelsea'
- DP: 763624 (Figure 4)
- Lot: 1752
- Size of Property: 1,950ha (Figure 5).
- CMA:
 - Western (Nymagee-Rankins Springs) = 310ha
 - Central West CMA (Nymagee-Rankins Springs) = 1640ha
- Mitchells' Landscape: Nangerybone Hills.
- BioBanking Credit Report have been provided as:
 - **Appendix 2** Western CMA Offsets
 - **Appendix 3** Central West CMA Offsets
- Photos of the offset site have been provided in **Appendix 4**.
- Distance to Development Site: 25km (The Peak is NNE of the Offset Site).

3.1. Constraints

Physical inspection of the Offset Site was incomplete, in essence the eastern portion was physically inspected however the western portion was observed through binoculars from a high vantage point. The vegetation map used in this report was based upon:

- Physical inspection field notes.
- Dykes 2002 vegetation map (covered 100% of the property) but does not use BioMetric.
- The Central Western CMA vegetation map (not covered Central Western CMA), uses Broad Vegetation Types, not BioMetric.
- Mitchells Landscapes Version 3.
- Aerial photography and topographical maps – an experienced ecologist would understand that vegetation relationships with landforms in the western region can be modelled with a fair degree of accuracy especially when the above mentioned resources are used.

The major constraint was time. The Proponent invited the OzArk principle ecologist to attend a property inspection for sale; hence the focus was the landholder showing a potential buyer the property, not spending prolonged time with an ecologist for the purpose of vegetation assessments.

For this reason the benchmarks have been used for each threatened species sub-zone (judgement applied for each zone as required based upon physical inspection). Having a degree of experience in the western landscape and recognising the homogenous characteristics of habitat values, the consultant believes the time spent on the property was sufficient to align it with the benchmark, and then add values to be broadly consistent with the sites values.

The consultant has a reasonable degree of confidence with the vegetation map, especially with Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in

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the Cobar Penepine Bioregion (Benson 103) and Benson Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Penepine Bioregion (Benson 184).

Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Penepine Bioregion (Benson 174) is a 'best fit' community. The distinguishing feature of this area was the presence of Smooth-barked Coolibah and Inland Grey Box surrounding the waterways (see photo on the front cover and **Appendix 3**).

The most salient issue is that 310ha of the property is located within the Western CMA (Nymagee Rankins Springs) the rest in the Central West (Ranking Springs) CMA. Other considerations are:

- Whilst its standard procedure to offset within the same CMA, it would be better to offset in the Central West CMA portion of *Chelsea* as it adjoins the Nangerybone State Forest, this maximise the 'patch size' outcome for land to be managed for conservation in the locality (**Figure 4**).
- The Development Site BioBanking Credit Report states that offsets in the Lachlan CMA (Nymagee Rankins Springs) would be acceptable but makes no reference to the same vegetation types in the Central Western CMA (Nymagee Rankin's Springs) CMA.
- **Figure 1** shows that *Chelsea* is approximately 1km north of the Lachlan CMA and is essentially at the meeting points of the three CMAs, hence the consultant is requesting OEH to apply judgement as the vegetation in the Central Western CMA portion is no different to that in the Western CMA portion and is closer than the Lachlan CMA.

3.2. Mitchells landscape description

Ngb Nangerybone Hills

CP Nymagee

Nangerybone Hills landscape includes parts of seven land systems: *Boppy*, *Eremeran*, *Mineshaft*, *Shepherds Hill*, *Warrowie* and *Yarambie*.

Rounded ridges of Devonian quartzite, conglomerate, and sandstone, over Ordovician or Silurian phyllite and schist, narrow incised drainage lines, relief to 180m. High peaked, steep hillcrests with tors of granite; poorly defined radial drainage, relief to 100m. Strike ridges of highly-rounded hills on Silurian quartz-feldspar porphyry, rhyolites and tuffs interbedded with slate and chert, relief 15 to 50m. Abundant rock outcrop with shallow sandy lithosols on crests. Shallow gravelly loams, grading to deep acid and neutral red earths with hardpan downslope, red earths with abundant surface grit on granites and in drainage lines.

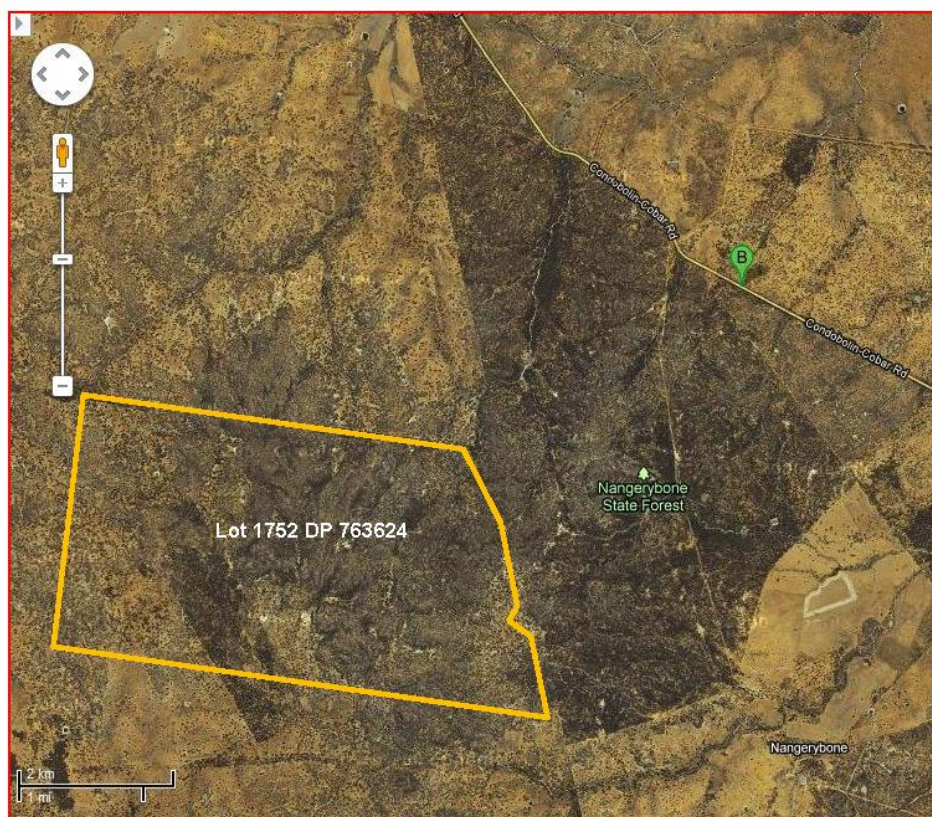
Grey mallee (*Eucalyptus morrisii*), white cypress pine (*Callitris glaucophylla*), Dwyer's mallee gum (*Eucalyptus dwyeri*), mulga (*Acacia aneura*), kurrajong (*Brachychiton populneus*), currawang (*Acacia doratoxylon*), bumble box (*Eucalyptus populnea*), western golden wattle (*Acacia decora*), silver cassia (*Senna artemisioides*), mint bush (*Prostanthera* sp.), cough bush (*Cassinia laevis*), variable spear grass (*Austrostipa variabilis*), wire grass (*Aristida* sp.), and rock fern (*Cheilanthes sieberi*) on crests. Bumble box and grasses increase down slope with green mallee (*Eucalyptus viridis*), white cypress pine, western red box (*Eucalyptus intertexta*), broad-leaf hopbush (*Dodonaea viscosa* sp. *spatulata*), long greybeard grass (*Amphipogon caricinus* var. *caricinus*), rough spear grass (*Austrostipa scabra* var. *scabra*), and rock fern (*Cheilanthes sieberi*). Lower slopes and flats with dense red mallee (*Eucalyptus socialis*), moderate western red box, white cypress pine, budda (*Eremophila mitchellii*), warrior bush (*Apophyllum anomalum*), rosewood (*Alectryon oleifolius*), curly-bark

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wattle (*Acacia curranii*), shrubby rice-flower (*Pimelea microcephala*), long greybeard grass, white-top (*Austrodanthonia caespitosa*), mulga grass (*Thyridolepis mitchelliana*), and variable speargrass. Dense white cypress pine, bimbale box, broad-leaf hopbush, budda, and kangaroo grass (*Themeda triandra*) along drainage lines. River red gum (*Eucalyptus camaldulensis*) and bimbale box along major creeks.

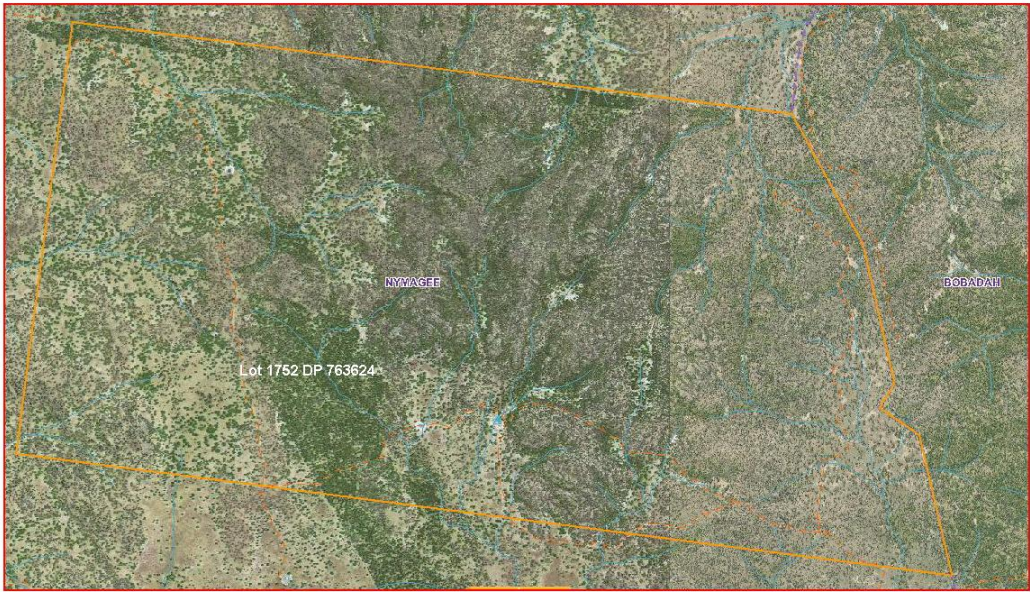
Notes: The offset property is dominated by Bimbale box and White Cypress Pine, Green and Grey Mallee and Dwyers Red Gum on hill tops and Inland Grey Box and Smooth barked Coolibah along drainage lines.

Figure 4: Local environmental setting of the Offset Site



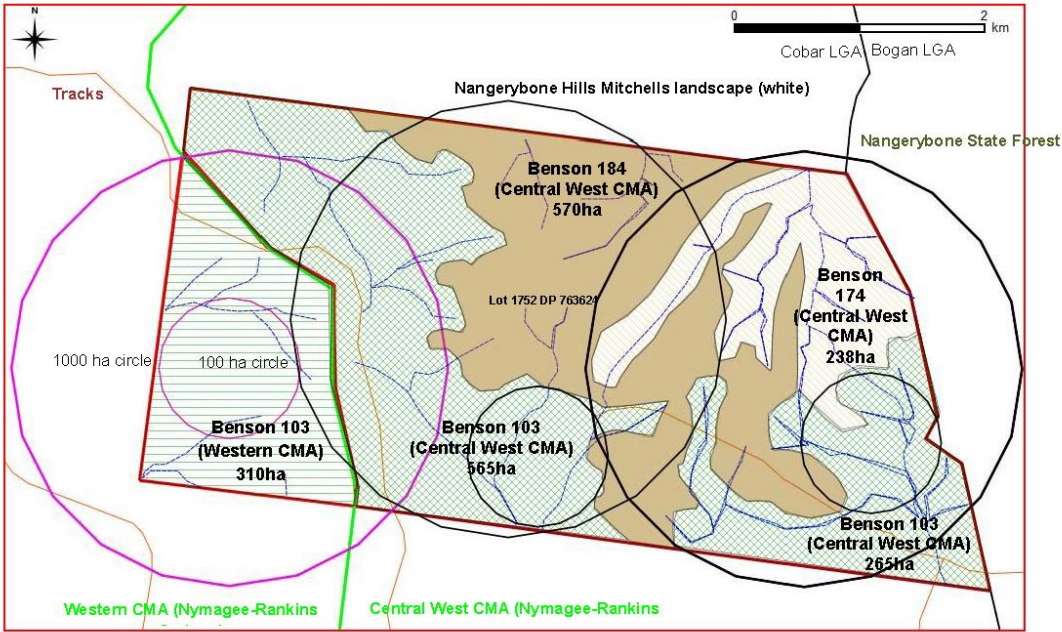
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Figure 5: The Offset Site



YTC Resources Limited: Hera Project, Nymagee NSW.

Figure 6: Details of the Offset Property showing Mitchells Landscapes



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Mapping has been developed by utilising Mitchells Landscapes, the Dykes 2000 LGA vegetation map, aerial photography and a site visit on the 15th of October 2011.

Constraints are limited to time; whilst the broad boundaries and the communities shown on the map are considered to be accurate it believed that more work would result in a tighter final product. It is important to note that all maps produced (CW-CMA, Dykes 2002 and Mitchell's Landscapes) have not been ground truthed on this property however, from experience they are generally accurate but errors (due to scale of mapping issues) can be detected by either a site visit or observing the canopy through binoculars and annotating the respective map as required as has occurred in this situation.

3.2.1. Western CMA

This area was only observed with binoculars in the field however, it was easily enough to accurately determine community. For the purpose of BioBanking, the requisite benchmark value will be used and the values of the same community where observed was applied. The consultant does not see this as issues in the western division due to the homogenous nature of such landforms and experience from field work undertaken in the same vegetation community over many years.

Only one community was recorded in the Western CMA (Nymagee-Rankins Springs):

- Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103). This community covers the full **310ha** in the Western CMA (Nymagee-Rankins Springs) portion of the Offset Property.

Canopy in the Western CMA area consisted Poplar or Bimble Box (*Eucalyptus populnea* subsp. *bimbil*), White Cypress Pine (*Callitris glaucophylla*), Smooth-barked Coolibah or Western Red Box (*Eucalyptus intertexta*), a higher proportion of Belah (*Casuarina cristata*) and White Mallee (*Eucalyptus dumosa*) was observed which is consistent with the Dykes vegetation map. It is mapped as a Bimble Box community in Mitchell's landscape.

3.2.2. Central West CMA

This area was inspected in detail in the eastern and middle portions and observed with binoculars in the field however, it was easily enough to accurately determine community. For the purpose of BioBanking a combination of field results and requisite benchmark value will be used. The consultant does not see this as issues for reasons details above.

Three communities were recorded in the Central West CMA (Nymagee-Rankins Springs):

- Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103). This community occupies **830ha** in the Central West CMA (Nymagee-Rankins Springs) portion of the Offset Property.
- Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184). This community occupies **570ha** in the Central West CMA (Nymagee-Rankins Springs) portion of the Offset Property.
- Benson 174 'Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174). This community occupies **565ha** in the Central West CMA (Nymagee-Rankins Springs) portion of the Offset Property.

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Benson 174 'Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Penneplain Bioregion (Benson 174)

Red Mallee (*Eucalyptus socialis*), White Mallee (*Eucalyptus dumosa*), Smooth-barked Coolibah or Western Red Box (*Eucalyptus intertexta*).

Narrow-leaved Red Mallee (*Eucalyptus leptophylla*), Inland Grey Box (*Eucalyptus microcarpa*), Green Mallee (*Eucalyptus viridis*), Mugga Ironbark (*Eucalyptus sideroxylon*), Kurrajong (*Brachychiton populneus* subsp. *populneus*), Currawang (*Acacia doratoxylon*), Belah (*Casuarina cristata*), Western Rosewood (*Alectryon oleifolius* subsp. *canescens*)

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)

Collectively these communities represent 1960ha of native vegetation in the Offset Property Central West CMA (Nymagee-Rankins Springs).

Canopy in the Western CMA area consisted of Poplar or Bimble Box (*Eucalyptus populnea* subsp. *bimbil*), White Cypress Pine (*Callitris glaucophylla*), Smooth-barked Coolibah or Western Red Box (*Eucalyptus intertexta*), Inland Grey Box (*Eucalyptus microcarpa*), Dwyer's Red Gum (*Eucalyptus dwyeri*), Belah (*Casuarina cristata*), Narrow-leaved Red Mallee (*Eucalyptus leptophylla*), Green Mallee (*Eucalyptus viridis*), Kurrajong (*Brachychiton populneus* subsp. *populneus*), Currawang (*Acacia doratoxylon*), Western Rosewood (*Alectryon oleifolius* subsp. *canescens*) was observed which was mostly accurate with the Mitchells landscape and Dykes vegetation map.

Understory species were generally sparse given it was a grassy open woodland (or dense pines on occasion). Observed species included *Dodonaea boroniifolia*, *Cassinia laevis*, *Leptospermum divaricatum*, *Prostanthera nivea* var. *nivea*, *Melichrus urceolatus*, *Pandorea pandorana*, *Acacia decora*, Budda (*Eremophila mitchellii*), Emubush (*Eremophila longifolia*), *Eremophila serrulata*, *Pimelea microcephala* subsp. *microcephala*, *Pimelea pauciflora*, Wilga (*Geijera parviflora*), Warrior Bush (*Apophyllum anomalum*), Thorny Saltbush (*Rhagodia spinescens*), Western Boobialla (*Myoporum montanum*), Needlewood (*Hakea leucoptera* subsp. *leucoptera*), Silver Cassia (*Senna* form taxon 'artemisioides'), *Capparis lasiantha*, Ironwood (*Acacia excelsa* subsp. *angusta*).

Groundcovers included Ruby Saltbush (*Enchylaena tomentosa*), *Sida cunninghamii*, *Paspalidium constrictum*, *Aristida jerichoensis* var. *subspinulifera*, *Austrostipa nitida*, *Eragrostis eriopoda*, *Eragrostis setifolia*, *Thyridolepis mitchelliana*, Speargrass (*Austrostipa scabra* subsp. *scabra*), *Einadia nutans* subsp. *nutans*, *Xerochrysum bracteata*, *Sclerolaena bicornis* var. *bicornis*, Windmill Grass (*Chloris truncata*), *Atriplex stipitata*, *Eragrostis laniflora*, *Aristida contorta*, *Calotis cuneifolia*, *Harmsiodoxa blennodioides*, *Oxalis corniculata*, *Rhodanthe floribunda*, *Tetragonia eremaea*, *Rutidosia helichrysoides*, *Wahlenbergia stricta* subsp. *stricta*, *Pittosporum angustifolium*.

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**Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain
Bioregion (Benson 184)**

The canopy consisted of Dwyer's Red Gum (*Eucalyptus dwyeri*), Currawang (*Acacia doratoxylon*), White Cypress Pine (*Callitris glaucophylla*), Black Cypress Pine (*Callitris endlicheri*). Midstorey species included *Acacia decora*, *Dodonaea lobulata*, *Dodonaea viscosa* subsp. *angustifolia*, *Prostanthera striatiflora*, Budda (*Eremophila mitchellii*) *Cassinia laevis*, *Dodonaea boroniifolia*, *Pandorea pandorana* (inland form), *Prostanthera ringens*, Sticky Wallaby Bush (*Beyeria viscosa*).

3.3 Threatened species

The landholder confirmed the present of two threatened species:

- Kultarr (*Antechinomys laniger*). Conservation status in NSW: Endangered
 - Occasionally seen (once every three to four years – distinctive hopping).
 - No trend to vegetation types was purported.
- Superb Parrot (*Polytelis swainsonii*). Conservation status in NSW: Vulnerable, National conservation status: Vulnerable, EPBC listed migratory species.
 - Breeding site on the property near Zone 55 GDA 453319E / 6424319N.
 - 1 x pair using hollow tree for breeding mostly every year.
- 4. Grey-crowned Babbler (*Pomatostomus temporalis temporalis*) Conservation status in NSW: Vulnerable.
 - 4.1.1. Regularly seen throughout the property.

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4 Circle 1 Western CMA (Nymagee Rankins Springs)

4.2. Step 1a assessment circle

Step 1a - Enter Assessment Circles

Done

Assessment Circle Number / NameCMA Subregion

Calculate landscape value score

Circle 1Nymagee-Rankins Springs

Enter Threatened Species Sub Zones

Before BiobankAfter Biobank

% Native Vegetation Cover in 1000ha91-100%91-100%

% Native Vegetation Cover in 100ha Circle:91-100%91-100%

Status:Completed

Landscape score:12

Connectivity ValueBefore BiobankAfter Biobank

Width:>500m>500m

Delete this Assessment Circle and Related Threatened Species Sub Zones

Condition:

Woody vegetation types

Before BiobankAfter Biobank

Over-storey condition:

PFC at BMPFC at BM

Mid-storey or groundcover condition

PFC of mid-storey/ground cover at BMPFC of mid-storey/ground cover at BM

Non woody vegetation types

Before BiobankAfter Biobank

Grassland veg condition:

Assessment Circle:Circle 1

Threatened Species Sub Zone Number:WesternCMA

Condition class:Moderate/Good

Status:Completed

Delete This Sub Zone

TS Sub Zone Area:310.00 ha

Ancillary Code:(optional)

Vegetation Zone:WE91_Moderate/Good

Adjacent Remnant Vegetation Area:310.00 ha

Patch Size, Including Low Condition Veg:310.00 ha

Veg Formation:Semi-arid woodlands (shrubby sub-formation)

Choose veg type from the drop-down menu

Veg Type:WE91

Veg Type Name:Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobarr Peninsula Bioregion (Benson 103)

4.3. Step 2 identify geographic and habitat features

Step 2 - Identify Geographic and Habitat Features

Print Form

Done

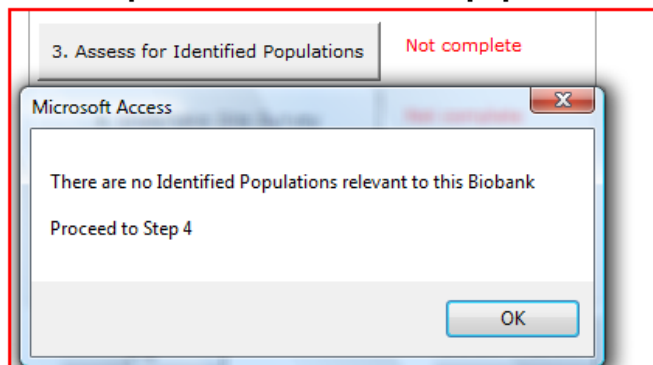
Is any part of the biobank site on:

land containing within 100 m of riparian woodland on inland rivers containing mature living eucalypts or isolated paddock trees overhanging water or dry watercourses

Yes

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4.4. Step 3 assess for identified populations



4.5. Step 4 undertake site survey

Step 4 Undertake Site Survey

Done

Proposed Survey Times

☐ January ☐ July
☐ February ☐ August
☐ March ☐ September
☐ April ☐ October
☐ May ☒ November
☐ June ☐ December

Threatened Species that won't be surveyed

First list of threatened species requiring field survey or checking for known pop. decline
 First list of threatened species predicted on site
 First list of vegetation zones requiring field survey

Survey Time Matrix

Scientific Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Diuris tricolor</i>										Yes	Yes	Yes
<i>Falco hypoleucos</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Pterostylis cobarensis</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>Rulingia procumbens</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Threatened Species Requiring Survey

Assessor Name: Phillip Cameron
 Assessor Accreditation Number: TBA late January 2012
 Tool Version: 1.2
 Report Created: 07-Jan-2012 21:48

Proposed Survey Time(s):

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐

List of species requiring survey

Common Name	Scientific Name
Pine Donkey Orchid	<i>Diuris tricolor</i>
Grey Falcon	<i>Falco hypoleucos</i>
Greenhood Orchid	<i>Pterostylis cobarensis</i>
Rulingia procumbens	<i>Rulingia procumbens</i>

YTC Resources Limited: Hera Project, Nymagee NSW.

Threatened Species Predicted on Site

Assessor Name: Phillip Cameron
Assessor Accreditation Number: TBA late January 2012
Tool Version: 1.2
Report Created: 07-Jan-2012 21:49

Threatened Species reliably predicted to utilize the site. No surveys are required for these species. Ecosystem credits apply to these species.

Barking Owl	Ninox connivens
Bush Stone-curlew	Burhinus grallarius
Diamond Firetail	Stagonopleura guttata
Gilbert's Whistler	Pachycephala inornata
Greater Long-eared Bat (south eastern form)	Nyctophilus timoriensis
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Koala	Phascolarctos cinereus
Kultarr	Antechinomys laniger
Little Pied Bat	Chalinolobus picatus
Painted Honeyeater	Grantiella picta
Pied Honeyeater	Certhionyx variegatus
Pink Cockatoo	Cacatua leadbeateri
Superb Parrot	Polytelis swainsonii
Yellow-bellied Sheathtail-bat	Saccolaimus flaviventris

Vegetation Zones Requiring Transect/Plots Survey

Assessor Name: Phillip Cameron
Assessor Accreditation Number: TBA late January 2012
Tool Version: 1.2
Report Created: 07-Jan-2012 21:51

Vegetation zone name: WE91_Moderate/Good

Vegetation type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Vegetation condition: Moderate/Good

Ancillary code:

Total area of zone (ha): 310

Number of TS sub zones in the zone: 1

Minimum number of survey transect/plots required within the zone: 7

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4.6. Step 5a enter survey results

Step 5a - Vegetation Zone: Plot and EEC data

Name	% Cleared	EEC?	Have minimum number of transect/ plots been entered?	Area (ha)	Enter Transect/ Plots Complete	Enter Management Zone Complete
WE91_Moderate/Good Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	10	Not an EEC	Yes	310.00	Complete	Complete

4.7. Step 5b enter vegetation transect / plot information

Step 5b - Enter Vegetation Transect/Plot Information Done

Vegetation Zone Name: WE91_Moderate/Good

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Enter measurements for each site attribute

Local benchmark used: No

Native plant species: Native overstorey cover: Native mid storey cover: Native ground cover (grass-): Native ground cover (shrub-): Native ground cover (other): Exotic plant cover: Number of trees with hollows: Overstorey regeneration: Total length of fallen logs: Felling: Logging: Fire: Pests:

Required Plots: Minimum No. required: 7

Transsect/Plot Number/Name: 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

2 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

3 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

4 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

5 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

6 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

7 15 10 10 10 4 10 0 5 0.33 10 44036 342072 52 Complete

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4.8. Step 5c management zones

Enter additional site value increase or decrease

Management Zone Offset

Vegetation Zone: WE91_Moderate/Good

Vegetation Zone Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)

TS Sub Zone WesternCMA

Any additional gain in the site value score requires the approval of the Director General. Additional gain in the site value score will only be approved where it can be demonstrated that additional management actions will be undertaken

	Current Score (0-3)	Default Increased Score (0-3)	Score with management (0-3)	Reason for score changes
Native plant species:	3	3	3	
Native over-storey cover:	3	3	3	
Native mid-storey cover:	3	3	3	
Native ground cover (grasses):	3	3	3	
Native ground cover (shrubs):	3	3	3	
Native ground cover (other):	3	3	3	
Exotic plant cover:	3	3	3	
Number of trees with hollows:	0	0	0	
Overstorey regeneration:	1	2	2	Feral animal control
Total length of fallen logs:	2	3	3	
Current Site Value (out of 100)	87	Default Increased Site Value (out of 100)	97	Future Site Value (out of 100)
			97	Increase in Site Value
				10

Step 5 - Enter Survey Results

Enter Vegetation Plot Information and EEC Status

Complete

Enter Threatened Species Survey Information

Complete



Environment, Climate Change & Water

Note: No opportunity to note presence of Kultarr, Grey-crowned babbler or Superb Parrot.

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4.9. Credit Report

See Appendix 2.

5. Central West CMA (Nymagee Rankins Springs)

5.1. Assessment circle 1

Step 1a - Enter Assessment Circles Done

Assessment Circle Number / Name: CMA Subregion:

Calculate landscape value score

Enter Threatened Species Sub Zones

% Native Vegetation

	Before Biobank	After Biobank
Cover in 1000ha	91-100%	91-100%
Cover in 100ha Circle:	91-100%	91-100%

Connectivity Value

	Before Biobank	After Biobank
Width:	500m	500m

Condition:

☒ **Woody vegetation types**

Before Biobank	After Biobank
Over-storey condition:	
PFC at BM	PFC at BM
Mid-storey or groundcover condition	
PFC of mid-storey/ground cover at BM	PFC of mid-storey/ground cover at BM

☐ **Non woody vegetation types**

Before Biobank	After Biobank
Grassland veg condition:	

Status: Completed
Landscape score: 12

Delete this Assessment Circle and Related Threatened Species Sub Zones

YTC Resources Limited: Hera Project, Nymagee NSW.

5.2. Circle 1 threatened species sub-zones

Step 1b - Enter Threatened Species Sub Zones					Done
Assessment Circle: Circle 1					
Threatened Species Sub Zone Number:	C1Benson103	Condition class:	Moderate/Good	Status: Completed	Delete This Sub Zone
TS Sub Zone Area:	265.00 ha	Ancillary Code: (optional)			
Adjacent Remnant Vegetation Area:	1,000.00 ha	Vegetation Zone: CW169_Moderate/Good			
Patch Size, Including Low Condition Veg:	1,000.00 ha				
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)				
Choose veg type from the drop-down menu					
Veg Type:	CW169				
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)				
Threatened Species Sub Zone Number:	C1Benson174	Condition class:	Moderate/Good	Status: Completed	Delete This Sub Zone
TS Sub Zone Area:	238.00 ha	Ancillary Code: (optional)			
Adjacent Remnant Vegetation Area:	1,000.00 ha	Vegetation Zone: CW150_Moderate/Good			
Patch Size, Including Low Condition Veg:	1,000.00 ha				
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)				
Choose veg type from the drop-down menu					
Veg Type:	CW150				
Veg Type Name:	Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)				
Threatened Species Sub Zone Number:	C1Benson184	Condition class:	Moderate/Good	Status: Completed	Delete This Sub Zone
TS Sub Zone Area:	257.00 ha	Ancillary Code: (optional)			
Adjacent Remnant Vegetation Area:	1,000.00 ha	Vegetation Zone: CW134_Moderate/Good			
Patch Size, Including Low Condition Veg:	1,000.00 ha				
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)				

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5.3. Circle 2 threatened species sub-zones

Step 1b - Enter Threatened Species Sub Zones Done

Assessment Circle: Circle 2

Threatened Species Sub Zone Number:	C2Benson103	Condition class:	Moderate/Good	Status:	Completed	Delete This Sub Zone
TS Sub Zone Area:	565.00 ha	Ancillary Code: (optional)				
Adjacent Remnant Vegetation Area:	1,000.00 ha	Vegetation Zone:	CW169_Moderate/Good			
Patch Size, Including Low Condition Veg:	1,000.00 ha					
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)					
	Choose veg type from the drop-down menu					
Veg Type:	CW169					
Veg Type Name:	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)					

Threatened Species Sub Zone Number:	C2Benson184	Condition class:	Moderate/Good	Status:	Completed	Delete This Sub Zone
TS Sub Zone Area:	313.00 ha	Ancillary Code: (optional)				
Adjacent Remnant Vegetation Area:	1,000.00 ha	Vegetation Zone:	CW134_Moderate/Good			
Patch Size, Including Low Condition Veg:	1,000.00 ha					
Veg Formation:	Semi-arid woodlands (shrubby sub-formation)					
	Choose veg type from the drop-down menu					
Veg Type:	CW134					
Veg Type Name:	Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184)					

5.4. Identify geographic and habitat features

Step 2 - Identify Geographic and Habitat Features Print Form Done

Is any part of the biobank site on:

land containing within 100 m of riparian woodland on inland rivers containing mature living eucalypts or isolated paddock | trees overhanging water or dry watercourses Yes

5.5. Assess for identified populations

3. Assess for Identified Populations Not complete

Microsoft Access

There are no Identified Populations relevant to this Biobank

Proceed to Step 4

OK

YTC Resources Limited: Hera Project, Nymagee NSW.

5.6. Undertake site survey

Step 4 - Undertake Site Survey

Proposed Survey Times

☐ January
☐ July
☐ February
☐ August
☐ March
☐ September
☐ April
☐ October
☐ May
☒ November
☐ June
☐ December

Threatened Species that won't be surveyed

Print list of threatened species requiring field survey or checking for known populations

Print list of threatened species predicted on site

Print list of vegetation zones requiring field survey

Done

Survey Time Matrix

ScientificName:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Austrotipa wakoolica										Yes	Yes	Yes	Yes
Circus assimilis	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Falco hypoleucos	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Hieraaetus morphnoides	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Lophoictinia isura	Yes	Yes	Yes						Yes	Yes	Yes	Yes	
Monotaxis macrophylla						Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Pterostylis cobarensis	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

Threatened Species Requiring Survey

Assessor Name: Phillip Cameron

Assessor Accreditation Number: TBA late January 2012

Tool Version: 1.2

Report Created: 08-Jan-2012 00:11

Proposed Survey Time(s):

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ ☐

List of species requiring survey

Common Name	Scientific Name
A spear-grass	Austrotipa wakoolica
Spotted Harrier	Circus assimilis
Grey Falcon	Falco hypoleucos
Little Eagle	Hieraaetus morphnoides
Square-tailed Kite	Lophoictinia isura
Large-leafed Monotaxis	Monotaxis macrophylla
Greenhood Orchid	Pterostylis cobarensis

YTC Resources Limited: Hera Project, Nymagee NSW.

Threatened Species Predicted on Site

Assessor Name: Phillip Cameron
Assessor Accreditation Number: TBA late January 2012
Tool Version: 1.2
Report Created: 08-Jan-2012 00:13

Threatened Species reliably predicted to utilize the site. No surveys are required for these species. Ecosystem credits apply to these species.

Australian Bustard	Ardeotis australis
Barking Owl	Ninox connivens
Diamond Firetail	Stagonopleura guttata
Gilbert's Whistler	Pachycephala inornata
Glossy Black-cockatoo	Calyptorhynchus lathami
Greater Long-eared Bat (south eastern form)	Nyctophilus timoriensis
Grey-crowned Babbler (eastern subspecies)	Pomatostomus temporalis temporalis
Koala	Phascolarctos cinereus
Kultarr	Antechinomys laniger
Little Pied Bat	Chalinolobus picatus
Malleefowl	Leipoa ocellata
Masked Owl	Tyto novaehollandiae
Painted Honeyeater	Grantiella picta
Pied Honeyeater	Certhionyx variegatus

Pink Cockatoo	Cacatua leadbeateri
Speckled Warbler	Pyrrholaemus sagittatus
Superb Parrot	Polytelis swainsonii
Yellow-bellied Sheath-tail-bat	Saccolaimus flaviventris

YTC Resources Limited: Hera Project, Nymagee NSW.

Vegetation Zones Requiring Transect/Plots Survey

Assessor Name: Phillip Cameron
Assessor Accreditation Number: TBA late January 2012
Tool Version: 1.2
Report Created: 08-Jan-2012 00:15

Vegetation zone name: CW134_Moderate/Good

Vegetation type: Dwyer's Red Gum - Currswang low woodland mainly of the Cobar
Penneplain Bioregion (Benson 184)
Vegetation condition: Moderate/Good Ancillary code:
Total area of zone (ha): 570 Number of TS sub zones in the zone: 2
Minimum number of survey transect/plots required within the zone: 7

Vegetation zone name: CW150_Moderate/Good

Vegetation type: Mallee - Smooth-barked Coolibah woodland on red earth flats of the
eastern Cobar Penneplain Bioregion (Benson 174)
Vegetation condition: Moderate/Good Ancillary code:
Total area of zone (ha): 565 Number of TS sub zones in the zone: 1
Minimum number of survey transect/plots required within the zone: 7

Vegetation zone name: CW169_Moderate/Good

Vegetation type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby
woodland mainly in the Cobar Penneplain Bioregion (Benson 103)
Vegetation condition: Moderate/Good Ancillary code:
Total area of zone (ha): 830 Number of TS sub zones in the zone: 2
Minimum number of survey transect/plots required within the zone: 7

YTC Resources Limited: Hera Project, Nymagee NSW.

5.7. Step 5b and 5e enter vegetation transect / plot information

Step 5a - Vegetation Zone: Plot and EEC data

Name	% Cleared	EEC?	Have minimum number of transect/ plots been entered?	Area (ha)	Enter Transect/ Plots	Enter Management Zone
CW134_Moderate/Good Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Penepine Bioregion (Benson 184)	25	Not an EEC	Yes	570.00	Complete	Complete
CW150_Moderate/Good Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Penepine Bioregion (Benson 174)	55	Not an EEC	Yes	238.00	Complete	Complete
CW169_Moderate/Good Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepine Bioregion (Benson 103)	35	Not an EEC	Yes	830.00	Complete	Complete

Step 5b - Enter Vegetation Transect/Plot Information Done

Vegetation Zone Name: CW134_Moderate/Good

Vegetation Type: Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Penepine Bioregion (Benson 184)

Enter measurements for each site attribute

Local Benchmark used: No

Est. Benchmarks

Native plant species: 27, Native over-story cover: 11, Native mid-story cover: 11, Native ground cover (grasses): 10, Native ground cover (forbs): 5, Native ground cover (shrub): 5, Exotic plant species: 0, Number of trees with hollows: 3, Overstorey regeneration length of fallen logs: 0.33, Easing: Notring, Zone: 20, Plot size: 642655

Benchmarks

Transect/Plot Number/Name

	>=27	8 to 30	5 to 35	5 to 25	5 to 20	3 to 8	See Menu	>=1	1	>=30				
1	27	11	11	10	5	5	0	3	0.33	20	642655	642655	65	Complete
2	27	11	11	10	5	5	0	3	0.33	20	642657	642657	65	Complete
3	27	11	11	10	5	5	0	3	0.33	20	642659	642659	65	Complete
4	27	11	11	10	5	5	0	3	0.33	20	642661	642661	65	Complete
5	27	11	11	10	5	5	0	3	0.33	20	642663	642663	65	Complete
6	27	11	11	10	5	5	0	3	0.33	20	642665	642665	65	Complete
7	27	11	11	10	5	5	0	3	0.33	20	642667	642667	65	Complete

YTC Resources Limited: Hera Project, Nymagee NSW.

Enter additional site value increase or decrease Done

Management Zone 1

Vegetation Zone: CW134_Moderate/Good

Vegetation Zone Type: Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Penneplain Bioregion (Benson 184)

TS Sub Zone C1Benson184

Any additional gain in the site value score requires the approval of the Director General. Additional gain in the site value score will only be approved where it can be demonstrated that additional management actions will be undertaken

	Current Score (0-3)	Default Increased Score (0-3)	Score with management (0-3)	Reason for score changes
Native plant species:	3	3	3	
Native over-storey cover:	3	3	3	
Native mid-storey cover:	3	3	3	
Native ground cover (grasses):	3	3	3	
Native ground cover (shrubs):	3	3	3	
Native ground cover (other):	3	3	3	
Exotic plant cover:	3	3	3	
Number of trees with hollows:	3	3	3	
Overstorey regeneration:	1	2	2	Feral animal control
Total length of fallen logs:	2	3	3	
Current Site Value (out of 100)	83	Default Increased Site Value (out of 100)	94	Increase in Site Value
				11

Vegetation Zone Name: CW150_Moderate/Good

Vegetation Type: Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Penneplain Bioregion (Benson 171)

Enter measurements for each site attribute

Local Benchmark used: No

Required Plots
Minimum No. required transect/plots: 7

Transect/Plot Number/Name	Native plant species:	Native over-storey cover:	Native mid-storey cover:	Native ground cover (grasses):	Native ground cover (shrubs):	Native ground cover (other):	Exotic plant cover:	Number of trees with hollows:	Overstorey regeneration:	Total length of fallen logs:	Fading	Wilding	Fire	Plot status
1	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete
2	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete
3	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete
4	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete
5	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete
6	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete
7	11	15	5	0	0	0	0	0	0.33	25	453540	642300E	55	Complete

YTC Resources Limited: Hera Project, Nymagee NSW.

Enter additional site value increase or decrease

Done

Management Zone1

Vegetation Zone: CW150_Moderate/Good

Vegetation Zone Type: Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)

TS Sub Zone C1Benson174

Any additional gain in the site value score requires the approval of the Director General. Additional gain in the site value score will only be approved where it can be demonstrated that additional management actions will be undertaken

	Current Score (0-3)	Default Increased Score (0-3)	Score with management (0-3)	Reason for score changes
Native plant species:	1	1.5	1.5	
Native over-storey cover:	3	3	3	
Native mid-storey cover:	3	3	3	
Native ground cover (grasses):	3	3	3	
Native ground cover (shrubs):	3	3	3	
Native ground cover (other):	3	3	3	
Exotic plant cover:	3	3	3	
Number of trees with hollows:	3	3	3	
Overstorey regeneration:	1	2	2	Feral Animal Control
Total length of fallen logs:	2	3	3	
	Current Site Value (out of 100)	Default Increased Site Value (out of 100)	Future Site Value (out of 100)	Increase in Site Value
	67	82	82	15

YTC Resources Limited: Hera Project, Nymagee NSW.

Vegetation Zone Name CW169_Moderate/Good

Vegetation Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepine Bioregion (Benson 103)

Required Plots
Minimum No. required transect/plots: 7

Enter measurements for each site attribute

Local Benchmark used: No

Benchmarks
Native plant species: >=35
Native over-storey cover: 8 to 30
Native mid-storey cover: 5 to 35
Native ground cover (grasses): 10 to 25
Native ground cover (shrubs): 1 to 15
Native ground cover (other): 3 to 15
Exotic plant cover: See Menu
Number of trees with hollows: >=1
Overstorey regeneration: 1
Total length of fallen logs: >=30

Transect/Plot Number/Name	Native plant species	Native over-storey cover	Native mid-storey cover	Native ground cover (grasses)	Native ground cover (shrubs)	Native ground cover (other)	Exotic plant cover	Number of trees with hollows	Overstorey regeneration	Total length of fallen logs	Easting	Nothing	Zone	Plot status
1	35	11	12	15	5	8	0	3	0.33	30	453063	6423519	55	Complete
2	35	11	12	15	5	8	0	3	0.33	30	453251	6423496	55	Complete
3	35	11	12	15	5	8	0	3	0.33	30	453533	6423606	55	Complete
4	35	11	12	15	5	8	0	3	0.33	30	453768	6423488	55	Complete
5	35	11	12	15	5	8	0	3	0.33	30	454050	6423386	55	Complete
6	35	11	12	15	5	8	0	3	0.33	30	454348	6423276	55	Complete
7	35	11	12	15	5	8	0	3	0.33	30	454261	6423786	55	Complete

Management Zone 2

Vegetation Zone: CW169_Moderate/Good

Vegetation Zone Type: Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepine Bioregion (Benson 103)

TS Sub Zone C1Benson103

Any additional gain in the site value score requires the approval of the Director General. Additional gain in the site value score will only be approved where it can be demonstrated that additional management actions will be undertaken

	Current Score (0-3)	Default Increased Score (0-3)	Score with management (0-3)	Reason for score changes
Native plant species:	3	3	3	
Native over-storey cover:	3	3	3	
Native mid-storey cover:	3	3	3	
Native ground cover (grasses):	3	3	3	
Native ground cover (shrubs):	3	3	3	
Native ground cover (other):	3	3	3	
Exotic plant cover:	3	3	3	
Number of trees with hollows:	3	3	3	
Overstorey regeneration:	1	2	2	Feral Animal Control
Total length of fallen logs:	3	3	3	

Current Site Value (out of 100)	Default Increased Site Value (out of 100)	Future Site Value (out of 100)	Increase in Site Value
89	94	94	6

YTC Resources Limited: Hera Project, Nymagee NSW.

5.8. Step 5f Enter vegetation transect / plot information

Step 5f- Threatened Species- Survey Results				No.
		Is the species present and to be managed at the Biobank site?	Identification Method	size of species polygon Units
Austrostipa wakoolica	A spear-grass	No	Survey	0 individuals
Circus assimilis	Spotted Harrier	No	Survey	0 ha
Falco hypoleucos	Grey Falcon	No	Survey	0 ha
Hieraaetus morphnoides	Little Eagle	No	Survey	0 ha
Lophoictinia isura	Square-tailed Kite	No	Survey	0 ha
Monotaxis macrophylla	Large-leafed Monotaxis	No	Survey	0 individuals
Pterostylis cobarensis	Greenhood Orchid	No	Survey	0 individuals

Step 5 - Enter Survey Results

Enter Vegetation Plot Information and EEC Status

Complete

Enter Threatened Species Survey Information

Complete

YTC Resources Limited: Hera Project, Nymagee NSW.

6. How to submit the results to OEH

How to submit results to DECC

The applicant is required to submit the following information as part of their application for a Biobanking statement.

- Biobanking agreement application form
- Biobanking Assessment Report including additional information required to support the application including expert report (as required), use of local benchmark data (as required), request of increase in gain in site value (as required), use of local data (as required)
- Copy of the BioBanking Credit Report
- Copy of the xml file for the proposal from the Credit Calculator
- A digital map (either satellite image or ortho-rectified aerial image) identifying the development site, boundary, vegetation zones, species polygons (showing location of any threatened species for which species credits are created) and any management areas where an increase in gain in site value is requested
- Copy of draft management plan (prepared in accordance with the biobanking agreement template)
- Proof of ownership of the property
- Any other information required by the biobanking agreement application form

Once completed, the information should be sent to:
BioBanking Team
Department of Environment and Climate Change
PO Box A290
Sydney South
NSW 1232

Summary:

- A draft management plan will be required for Chelsea.
- Property ownership will need to be documented.
- The consultant will be able to submit the electronic files are requested.

7. Adequacy

The Environmental Protection Authority reviewed this draft document and provided a response on the 10.12.2012. This response has been provided as **Appendix 5**. A summary of the EPA response has been provided below:

1. The proposed offset does not meet the Tier 1 'Maintain or Improve' or Tier 2 'No Net Loss' standards in all respects, as defined in the Interim Offset Policy. If appropriate in-perpetuity security for the offset is established, the proposal would provide a Tier 3 'Mitigated Net Loss' outcome.
2. The offset proposal will need to include more detail regarding the design of the offset and the credits to be retired for the current mine proposal.
3. The offset proposal has not yet been demonstrated to meet the in-perpetuity security requirements of the Interim Offset Policy.

EPA recommendations are that:

- a. The draft 'Response to Submissions' is amended to include the correct and final versions of the BioBanking report.
- b. The entire 'Chelsea' property, as assessed via the BBAM, should be set aside as an offset and managed for conservation as a whole. The 'Response to

YTC Resources Limited: Hera Project, Nymagee NSW.

Submissions' document, any approval granted, and any subsequent management plan should then stipulate:

- i. The quantum of credits from 'Chelsea' that will be retired as an offset for the current development; and
 - ii. The quantum of credits remaining on 'Chelsea' that can be made available as an offset for a future development.
- c. That the proponent secure the offset via appropriate on-title in-perpetuity conservation arrangements which are demonstrated to meet the criteria set out in the Interim Offset Policy.

This report has been amended to include the correct appended as noted by EPA in Point 3a above. **Tables 3, 4 and 5** provide a summary of the BioBanking Credit reports generated for the Development Site (Hera) and the Offset Site (Chelsea).

Table 3: BioBanking Credit report summary: Development Site (Western CMA, Nymagee Rankins Springs).

Group	Community	Credits	Area (ha) required	Red Flag	Total credits required	Total ha required	Veg that can used to offset
1	Benson 180	9	100	No	100	100	Western CMA - Nymagee Rankins Springs Sub-region Benson 184 - Benson 256 - Benson 176 - Benson 180 - Benson 175 - Benson 72 Lachlan CMA - Nymagee Rankins Springs Sub-region - Benson 184 - Benson 185
2	Benson 174	193	100	No	200	200	Western CMA - Nymagee Rankins Springs Sub-region - Benson 174
3		12	100				Western CMA Nymagee Rankins Springs Sub-region Benson 174
4	Benson 103	2438	25	No	3928	425	Western CMA - Nymagee Rankins Springs Sub-region / Barnato Downs (Part B). - Benson 103.
5		605	25				
6		74	25				
7		19	25				
8		657	25				
9		19	25				
10		19	25				
11		94	25				
12		3	25				
	Total	4228	725 ha			725 ha	

YTC Resources Limited: Hera Project, Nymagee NSW.

Table 4: BioBanking Credit report summary: Offset Site (Western CMA, Nymagee Rankins Springs).

Group	Community	Credits	Area (ha)	Total ha	Comment
1	Benson 103	2377	310	310	3928 credits / 425ha required to offset Benson 103 at the development site. Group 1 Western CMA offset is 1551 credits and 115ha deficient.

Table 5: BioBanking Credit report summary: Offset Site (Central Western CMA, Nymagee Rankins Springs).

Group	Community	Credits	Area (ha)	Total ha	Total credits	Comment
1	Benson 184	2447	313	570	4456	- Benson 184 can be used to offset Benson 180 - Central West CMA not listed on the Development Site as a suitable location. 2009 credits available, 100 required 570ha available, 100ha required.
3		2009	257			
2	Benson 103	3755	565	830	5516	If Group 1 Western CMA offset are used: 1551 credits and 115ha addition to that retired is required. - Central West CMA not listed on the Development Site as a suitable location. 5516 credits are available thus sufficient. 570ha are available thus sufficient. If Groups 2 and 5 are the only groups to be used: - Central West CMA not listed on the Development Site as a suitable location. 3928 credits and 425ha are required to offset the Development Site. - The CW-CMA Benson 103 remnant provides sufficient credits and hectares.
5		1761	265			
4	Benson 174	2009	238	238	2009	- Central West CMA not listed on the Development Site as a suitable location. 2009 credits available, 200 required 238ha available, 200ha required. The CW-CMA Benson 103 remnant provides sufficient credits and hectares.

YTC Resources Limited: Hera Project, Nymagee NSW.

8. Recommendations

It is recommended that:

- 1 The Proponent considers the EPA recommendations as detailed in Section 7 of this report (summary) and in **Appendix 5** (copy of the full response).
- 2 BioBanking Credit reports would need to be re-issued to OEH once BBAM assessment of the Offset property has occurred.
- 3 A management plan will be required for the Offset Property.
 - 3.1 This management plan would include further mapping of the vegetation communities on the Offset Site and re-issue of the BioBanking report and / or the vegetation map as required.

APPENDIX 1: DEVELOPMENT SITE BioBANKING CREDIT REPORT

BioBanking

Biodiversity Banking and Offsets Scheme

Biobanking Credit Report

This report identifies the number and type of credits required at a DEVELOPMENT SITE.

Date of report: 06/01/2012 Time: 15:00 Tool Version: 1.2

Development Details

Proposal ID:

Development Name: Hera Gold Project

Development Location: Cobar LGA

Development Address: "The Peak" Nymagee 2831

Lot: 664

Section:

DP: 761702

CMA: Western

Proponent Name: YTC Resources Limited

Proponent Address: 2 Corporation Place

Proponent Phone: (02) 6361 4700

Assessor Name: Phillip Cameron

Assessor Address: 6 Belmore Street Dubbo 2830

Assessor Phone: 0423 198 898

Assessor Accreditation Number: TBA Jan 2012

The following information is required to be submitted with this BioBanking Statement (where ticked)

☐ Local reference data is required for the following vegetation zones

☐ An Expert Report for the following species

The minimum number of plots were not entered for the following vegetation zones



Environment,
Climate Change
& Water

Improving or maintaining biodiversity values

The development is capable of improving or maintaining all biodiversity values

Ecosystem Credits

Vegetation Type	Area (ha)	Credits Required	Red Flag
Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion (Benson 180) [WE61]	0.1	9	No
Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) [WE84]	3.0	193	No
Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) [WE84]	0.2	12	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	45.5	2,438	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	11.3	605	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	1.2	74	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	0.3	19	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	12.3	657	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	0.3	19	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	0.5	19	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	2.2	94	No
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) [WE91]	0.1	3	No

Credit Profiles

Group: 1 Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion (Benson 180)

Ecosystem credits: 9 credits

Total area of vegetation(s): 0.13 ha



Environment,
Climate Change
& Water

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 100 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Lachlan

CMA Sub-Region(s)	Veg Type(s)
Barnato Downs	Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (LA143)
Darling Depression (Part B)	Dwyer's Red Gum - White Cypress Pine - Currawang shrubby woodland mainly of the NSW South Western Slopes Bioregion (Benson 185) (LA144)
Lachlan Plains	
Lower Slopes	
Nymagee-Rankins Springs	

Western

CMA Sub-Region(s)	Veg Type(s)
Canbelego Downs	Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (WE58)
Nymagee-Rankins Springs	Green Mallee - Black Cypress Pine tall mallee woodland on rises in central NSW (Benson 256) (WE133) Green Mallee - White Cypress Pine woodland on gravelly rises of central NSW (Benson 176) (WE59) Grey Mallee - White Cypress Pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion (Benson 180) (WE61) Ridge mallee woodland on hills of meta-sediments and volcanics, eastern Cobar Peneplain Bioregion (Benson 175) (WE62) White Cypress Pine - Poplar Box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion (Benson 72) (WE95)

Group: 2 Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)

Ecosystem credits: 193 credits

Total area of vegetation(s): 3 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 100 ha



Environment,
Climate Change
& Water



3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)	Veg Type(s)
Nymagee-Rankins Springs	Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) (WE84)

Group: 3 Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)

Ecosystem credits: 12 credits

Total area of vegetation(s): 0.18 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 100 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)	Veg Type(s)
Nymagee-Rankins Springs	Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) (WE84)

Group: 4 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Ecosystem credits: 2,438 credits

Total area of vegetation(s): 45.5 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)	Veg Type(s)
Barnato Downs (Part B)	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (WE91)



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Nymagee-Rankins Springs

Group: 5 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)

Ecosystem credits: 605 credits

Total area of vegetation(s): 11.3 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types	
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:	
Western	
CMA Sub-Region(s)	Veg Type(s)
Barnato Downs (Part B) Nymagee-Rankins Springs	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103) (WE91)

Group: 6 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)

Ecosystem credits: 74 credits

Total area of vegetation(s): 1.16 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types	
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:	
Western	
CMA Sub-Region(s)	Veg Type(s)
Barnato Downs (Part B) Nymagee-Rankins Springs	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103) (WE91)

Group: 7 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)



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Ecosystem credits: 19 credits

Total area of vegetation(s): 0.34 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)	Veg Type(s)
Barnato Downs (Part B) Nymagee-Rankins Springs	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (WE91)

Group: 8 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Ecosystem credits: 657 credits

Total area of vegetation(s): 12.27 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)	Veg Type(s)
Barnato Downs (Part B) Nymagee-Rankins Springs	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (WE91)

Group: 9 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Ecosystem credits: 19 credits

Total area of vegetation(s): 0.33 ha



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1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)

Barnato Downs (Part B)
Nymagee-Rankins Springs

Veg Type(s)

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (WE91)

Group: 10 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Ecosystem credits: 19 credits

Total area of vegetation(s): 0.48 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)

Barnato Downs (Part B)
Nymagee-Rankins Springs

Veg Type(s)

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (WE91)

Group: 11 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)

Ecosystem credits: 94 credits

Total area of vegetation(s): 2.2 ha



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1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)

Barnato Downs (Part B)
Nymagee-Rankins Springs

Veg Type(s)

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepine Bioregion (Benson 103) (WE91)

Group: 12 Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepine Bioregion (Benson 103)

Ecosystem credits: 3 credits

Total area of vegetation(s): 0.064 ha

1. Surrounding vegetation cover	2. Patch size, including low condition
Description: Minimum surrounding vegetation cover in which the credits must be obtained. Minimum percent cover: 10%	Description: Minimum area of contiguous vegetation in which credits must be obtained. Minimum area: 25 ha

3. CMA subregion & vegetation types
Credits must be obtained in any one or more of the following CMA Sub-regions and vegetation types:

Western

CMA Sub-Region(s)

Barnato Downs (Part B)
Nymagee-Rankins Springs

Veg Type(s)

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penepine Bioregion (Benson 103) (WE91)

Species Credits



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APPENDIX 2: OFFSET SITE BIOBANKING CREDIT REPORT WESTERN CMA

BioBanking

Biodiversity Banking and Offsets Scheme

Biobanking Agreement Credit Report

This report identifies the number and type of credits that may be created at a BIOBANK SITE.

Date of report: 07/01/2012 Time: 22:30 Tool Version: 1.2

Property Details

Proposal ID:

Biobank Name: Hera Offset Property
Biobank Location: Cobar LGA, 28km south of Nymagee
Biobank Address: 'Chelsea'
Lot: 1752 **Section:** **DP:** 763624

CMA: Western

Landholder Name: YTC Resources Limited
Landholder Address: 2 Corporation Place
Landholder Phone: (02) 6361 4700

Assessor Name: Phillip Cameron
Assessor Address: 6 Belmore Street Dubbo NSW
Assessor Phone: 0423 198 898

Assessor Accreditation Number: TBA late January 2012

The following information is required to be submitted with this BioBanking Agreement (where ticked)

- ☐ All or part of the biobank site is covered by a covenant, has received govt funding or is crown land
- ☐ Local reference data is required for the following vegetation zones
- ☐ Expert Report for the following species:
- ☒ Justification for request of additional increase in site value score with management for the following vegetation zones:
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103)
- ☐ The minimum number of plots were not entered for the following vegetation zones



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Ecosystem Credits

Vegetation Type	Area (ha)	Credits created
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	310	2,377

Credit Profile

Group 1 : Ecosystem credits: 2377 credits

p

CMA	Western
CMA Sub-region	Nymagee-Rankins Springs (799)
Vegetation type	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)
Surrounding vegetation cover class	>70%
Patch size, including low condition	>100 ha

Total area of Vegetation zone(s) included in this group: 310 ha



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Species Credits

Additional Management Actions

The following management actions are required at the property. These actions are in addition to the standard management actions required at the property

Cat and/or Fox control

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103) (WE91)	310 ha
--	--------

Exclude miscellaneous feral species

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103) (WE91)	310 ha
--	--------

Feral and/or native herbivore control/ exclusion (eg rabbit, goats, deer etc)

Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Penneplain Bioregion (Benson 103) (WE91)	310 ha
--	--------

**APPENDIX 3: OFFSET SITE BIOBANKING CREDIT REPORT CENTRAL WESTERN
CMA**

BioBanking

Biodiversity Banking and Offsets Scheme

Biobanking Agreement Credit Report

This report identifies the number and type of credits that may be created at a BIOBANK SITE.

Date of report: 09/01/2012 Time: 13:10 Tool Version: 1.2

Property Details

Proposal ID:

Biobank Name: Hera Offset Property
Biobank Location: Cobar LGA, 25km south of Nymagee
Biobank Address: 'Chelsea'
Lot: 1752 **Section:** **DP:** 763624

CMA: Central West

Landholder Name: YTC Resources Limited
Landholder Address: 2 Corporation Place
Landholder Phone: (02) 6361 4700

Assessor Name: Phillip Cameron
Assessor Address: 6 Belmore Street Dubbo NSW
Assessor Phone: 0423 198 898
Assessor Accreditation Number: TBA late January 2012

The following information is required to be submitted with this BioBanking Agreement (where ticked)

- ☐ All or part of the biobank site is covered by a covenant, has received govt funding or is crown land
- ☐ Local reference data is required for the following vegetation zones
- ☐ Expert Report for the following species:
- ☐ Justification for request of additional increase in site value score with management for the following vegetation zones:
- ☐ The minimum number of plots were not entered for the following vegetation zones



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Ecosystem Credits

Vegetation Type	Area (ha)	Credits created
Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184)	313	2,447
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	565	3,755
Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184)	257	2,009
Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)	238	2,009
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)	265	1,761

Credit Profile

Group 1 : Ecosystem credits: 2447 credits

p

CMA	Central West
CMA Sub-region	Nymagee-Rankins Springs (798)
Vegetation type	Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184)
Surrounding vegetation cover class	>70%
Patch size, including low condition	>100 ha

Total area of Vegetation zone(s) included in this group: 313 ha

Group 2 : Ecosystem credits: 3755 credits

p

CMA	Central West
CMA Sub-region	Nymagee-Rankins Springs (798)
Vegetation type	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)
Surrounding vegetation cover class	>70%
Patch size, including low condition	>100 ha

Total area of Vegetation zone(s) included in this group: 565 ha

Group 3 : Ecosystem credits: 2009 credits

p

CMA	Central West
CMA Sub-region	Nymagee-Rankins Springs (799)
Vegetation type	Dwyer's Red Gum - Currawang low woodland



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	mainly of the Cobar Peneplain Bioregion (Benson 184)
Surrounding vegetation cover class	>70%
Patch size, including low condition	>100 ha

Total area of Vegetation zone(s) included in this group: 257 ha

Group 4 : Ecosystem credits: 2009 credits

p

CMA	Central West
CMA Sub-region	Nymagee-Rankins Springs (799)
Vegetation type	Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174)
Surrounding vegetation cover class	>70%
Patch size, including low condition	>100 ha

Total area of Vegetation zone(s) included in this group: 238 ha

Group 5 : Ecosystem credits: 1761 credits

p

CMA	Central West
CMA Sub-region	Nymagee-Rankins Springs (799)
Vegetation type	Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103)
Surrounding vegetation cover class	>70%
Patch size, including low condition	>100 ha

Total area of Vegetation zone(s) included in this group: 265 ha

Species Credits

Additional Management Actions

The following management actions are required at the property. These actions are in addition to the standard management actions required at the property

Cat and/or Fox control

Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (CW134)	257 ha
Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (CW134)	313 ha
Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) (CW150)	238 ha
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (CW169)	265 ha
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (CW169)	565 ha

Exclude miscellaneous feral species

Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (CW134)	257 ha
Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (CW134)	313 ha
Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) (CW150)	238 ha
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (CW169)	265 ha
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (CW169)	565 ha

Feral and/or native herbivore control/ exclusion (eg rabbit, goats, deer etc)

Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (CW134)	257 ha
Dwyer's Red Gum - Currawang low woodland mainly of the Cobar Peneplain Bioregion (Benson 184) (CW134)	313 ha
Mallee - Smooth-barked Coolibah woodland on red earth flats of the eastern Cobar Peneplain Bioregion (Benson 174) (CW150)	238 ha
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (CW169)	265 ha
Poplar Box - Gum-barked Coolibah - White Cypress Pine shrubby woodland mainly in the Cobar Peneplain Bioregion (Benson 103) (CW169)	565 ha



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APPENDIX 4: OFFSET SITE PHOTOGRAPHS



Plate 1: Benson 103. South eastern corner of the property.



Plate 2: View west from Benson 103 southeast corner of the property over Benson 184. This photo shows that communities are easily distinguished by landforms (plain to low hill).



Plate 3: View west within Benson 103 eastern boundary of the property. Belah and Poplar Box.



Plate 4: View within Benson 174, north-eastern boundary of the property. Smooth-barked Coolibah, Inland Grey Box, White Cypress Pine and Red Mallee (?) were recorded along the drainage features.



Plate 5: Dwyers Red Gum and thick regenerating White Cypress Pine in Benson 184, central area of the property.



Plate 6: Vantage point in Benson 184 used to develop the vegetation map in areas that were not inspected

APPENDIX 5: EPA RESPONSE TO DRAFT VERSION OF THIS REPORT





ENVIRONMENT PROTECTION AUTHORITY

Our reference : DOC12/4898, LIC11/472
Contact : Brad Tanswell 02 6883 5330

Mr Howard Reed
NSW Department of Planning and
Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: George Mobayed
CC RW Corkery and Co

Dear Mr Reed,

I refer to the report entitled *Hera Mine via Nymagee Response to Submissions Draft for Consultation* (the draft report) dated January 2012 received by the Environment Protection Authority (EPA) on 24 January 2012 regarding the proposed Hera Mine Project (Department of Planning and Infrastructure (DoP) ref 10_0191).

The EPA understands that the draft report was provided to the EPA to specifically provide the EPA with an opportunity to review and make comment in relation to additional Aboriginal Cultural Heritage (ACH) and Historic Heritage survey work undertaken by the proponent following exhibition of the *Environmental Assessment* and prior to finalisation of this document.

The EPA also understands the draft report was provided to the EPA to comment on additional information provided by the proponent in relation to the final Biodiversity Offset Strategy, including identification of the final Biodiversity Offset Area (two separate alternatives were presented in the *Environmental Assessment* placed on exhibition).

It is important to note the EPA has not reviewed the remainder of the draft report and this letter refers only to the matters referred to above. It is the EPA's understanding that the EPA will be provided with an opportunity to review and comment on the remainder of the document once it has been finalised and prior to DoP preparing its draft recommended conditions of approval.

The EPA has reviewed the relevant sections of the draft report in relation to the matters set out above and would like to provide the comments in Attachment A for the proponent and the Department of Planning and Infrastructure's consideration.

Should you have any enquiries regarding this matter, please contact Brad Tanswell at the Dubbo Office of the EPA by telephoning (02) 6883 5330.

Yours sincerely

 .10-2-12.

CARMEN DWYER
Head Pesticides Operations and Planning
Environment Protection Authority

Encl: Attachment 1: EPA Comments on *Hera Mine via Nymagee Response to Submissions Draft for Consultation* report

ATTACHMENT A

EPA Comments on Hera Mine via Nymagee Response to Submissions Draft for Consultation report

BIODIVERSITY OFFSET

In relation to the proposed offset, the EPA has reviewed the draft 'Response to Submissions', BioBanking Assessment, and additional information supplied directly to the EPA by Phil Cameron of OzArk. The offset proposal has also been evaluated against our 'Interim Policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects' (the Interim Offset Policy).

In summary,

1. Contrary to the commitments in the EA, the proposed offset does not meet the Tier 1 'Maintain or Improve' or Tier 2 'No Net Loss' standards in all respects, as defined in the Interim Offset Policy. However, for the reasons set out below, if the offset proposal can be shown meet the in-perpetuity security requirements of the Interim Offset Policy, the EPA would be satisfied with this outcome in this instance.
2. The offset proposal will need to include more detail regarding the design of the offset and the credits to be retired for the current mine proposal.
3. The offset proposal has not yet been demonstrated to meet the in-perpetuity security requirements of the Interim Offset Policy.

Our recommendations are that:

- a) The draft 'Response to Submissions' is amended to include the correct and final versions of the BioBanking report.
- b) The entire 'Chelsea' property, as assessed via the BBAM, should be set aside as an offset and managed for conservation as a whole. The 'Response to Submissions' document, any approval granted, and any subsequent management plan should then stipulate:
 - i. The quantum of credits from 'Chelsea' that will be retired as an offset for the current development; and
 - ii. The quantum of credits remaining on 'Chelsea' that can be made available as an offset for a future development.
- c) That the proponent secure the offset via appropriate on-title in-perpetuity conservation arrangements which are demonstrated to meet the criteria set out in the Interim Offset Policy.

Further details are provided below.

Offset quantum and matching of vegetation types

We understand that the proponent has now abandoned the offset option on 'The Peak' due to the difficulty resolving the issue of the Travelling Stock Route (TSR). A basic assessment of the development site and 'Chelsea' using the BioBanking Assessment Methodology (BBAM) has now

been undertaken by OzArk. We note some deficiencies in the BBAM assessment contained within the draft 'Response to Submissions' - One of the reports currently contained in Appendix 2 is incorrect, and the report for the Western CMA component of the offset has been omitted from the Appendix. The correct information was sought and supplied directly to the EPA by Phil Cameron of OzArk, however the final 'Response to Submissions' should still be corrected.

We have reviewed the final assessment and observed that:

- The biobank credit profile generated for the development site stipulates that the vegetation communities present on the site (Benson 180 (9 credits), Benson 174 (205 credits), Benson 103 (3928 credits)) can only be offset with the same vegetation types in the Western Catchment Management Area (CMA) or Lachlan CMA in the Nymagee Rankin Springs Sub-region, if the proponent wants to achieve a Tier 1 or 2 outcome under the Interim Policy.
- The offsets proposed on 'Chelsea' include Benson 103 (2377 credits) in Western CMA Nymagee Rankin Springs Sub-region which is considered an appropriate match.
- All the remaining vegetation types within the proposed offset - including Benson 184 (4456 credits and offsetting Benson 180), Benson 103 (5516 credits) and Benson 174 (2009 credits), are in the Central West CMA Nymagee Rankin Springs Sub-region and were not listed as being an appropriate match for the communities on the development site.

On investigation of the threatened species assemblages in the vegetation types on the development site and those that are a match on the offset site, the following observations were made:

- *Benson 103* – The Bush Stone-curlew is listed in the Western CMA community but not in the same vegetation type in the Central West CMA. This is an anomaly as Bush Stone Curlews are known to occur widely throughout the Central West CMA and therefore has a high probability of occurrence in this vegetation type in the Central West CMA.
- *Benson 180* – The Speckled Warbler is listed for Western CMA community, but not for the Central West CMA community, again this is likely to be an anomaly as the Speckled Warbler has a wide distribution throughout the Central West CMA and therefore has a high probability of occurrence in this vegetation type in the Central West CMA.
- *Benson 174* – Marbled-faced Delma, Diamond Firetail and Western Blue-tongued Lizard is listed for the Western CMA community but not for the Central West CMA community. Both the Blue-tongued Lizard and Marbled-faced Delma are at the western edge of their distribution around the Nymagee area. The western Blue-tongue is a generalist species and is just as likely to occur in the vegetation community located on 'Chelsea' as the development site. The Diamond Firetail is widely distributed throughout the Central West CMA and therefore has a high probability of occurrence in this vegetation type in the Central West CMA. The Marbled-faced Delma is unlikely to occur in this vegetation type unless it has Spinifex in the understorey. If Spinifex (*Triodia sp.*) is not present it is unlikely this species would occur on either site.

Verbal verification has been received from Phil Cameron of Ozark that Spinifex is not present on either site. Given the above it is considered that 'Chelsea' offers scope for a suitable offset proposal. If appropriate in-perpetuity security for the offset is established, the proposal would provide a Tier 3 'Mitigated Net Loss' outcome.

Whilst a Tier 1 or Tier 2 outcome is preferred, given that the proponent is not clearing 'red flags', has previously offered to provide the entire quantum of credits required, and has matched vegetation types with the exception of the required CMA, the EPA is satisfied with this result in

this instance, if the full quantum of credits required is indeed secured in accordance with the Interim Offset Policy.

Offset design, management and security

Design

The credits estimated for the offset site within the BBAM report are for the 'Chelsea' property as a whole. From the BBAM report it appears that there is an excess of credits available on the property (i.e. beyond the credits required for the current development proposal).

In contrast, the EA indicates that only a portion of the property directly adjoining the Nangerybone State Forest will be included in the offset, and in the draft 'Response to Submissions' the proponent states that *'Commitment 4.25 has been amended to indicate that such fencing would be constructed, where practicable, adjacent to existing tracks or cleared areas to ensure that no further vegetation clearing is required'*. It is not clear from the draft 'Response to Submissions' whether the proponent still intends to only set aside the area on 'Chelsea' mapped within the EA as an offset.

The following issues would be associated with that approach:

- The BBAM report does not assess the credits available for each vegetation community within that specific portion of the property only, therefore it would be difficult to determine whether the correct quantum of credits was being secured;
- The offset would not include the 2377 credits for Benson 103 in Western CMA, Nymagee Rankin Springs Sub-region, the only completely matching vegetation type assessed as occurring on 'Chelsea';
- There would be a greater likelihood of clearing for new fence lines being required.

To address these issues the following approach would be appropriate:

- a) The entire property, as assessed via the BBAM, should be set aside as an offset and managed for conservation as a whole.
- b) The 'Response to Submissions' document, any approval granted, and any subsequent management plan should stipulate the quantum of credits from the offset property that will be retired as an offset for the current development, and therefore the quantum of credits remaining that can be made available as an offset for a future development.
- c) Consequently, new goat exclusion fencing may be more likely to be able to be contained to existing fence lines on the current lease boundary. We remain of the view that any clearing required to establish new fence lines would increase the quantum of the offset required for the current development.

Management and Security

We note that the TSR issue is no longer applicable with the proposal of the 'Chelsea' offset instead of 'The Peak'. Nevertheless, we are still of the view that Western Lands Leases are subject to some additional management restrictions in comparison to freehold land. It is the additional management actions/restrictions and security beyond that already applying to the land, and the associated condition improvement, that will constitute the offset. We are seeking further advice on how best to address this issue in relation to Western Lands Leases. Whilst it is important that this issue is clarified we remain confident that 'Chelsea' will still be able to provide

a suitable offset given the significant number of excess credits currently estimated for the property.

Please note however that issues also remain regarding the method of securing the offset. As previously advised, the Interim Offset Policy contains five criteria for determining the suitability of an offset site in relation to security including:

- a) The unambiguous principal objective of ongoing site management is biodiversity conservation;
- b) Management is undertaken in accordance with a Plan of Management;
- c) There is reasonable likelihood that sufficient resourcing will be available to implement the Plan of Management over time;
- d) The arrangements are in-perpetuity, and conservation obligations are transparently transferred and disclosed to any new owners of the land through appropriate administrative procedures; and
- e) There are appropriate accountability mechanisms to secure the outcomes and these mechanisms cannot be altered without alternative and comparable offsetting arrangements being put in place.

These criteria must be met in order for the proposed offset to be consistent with the Interim Offset Policy. Therefore the proponent will not be considered to even meet Tier 3 of the Interim Offset Policy unless all of these criteria have been adequately addressed.

The proposed change to the Western Lands Lease purpose as a method of securing the offset has not yet been demonstrated to meet the above criteria and we would prefer an on-title in-perpetuity conservation mechanism to be applied. It is our understanding that appropriate on-title in-perpetuity mechanisms can be applied to the Western Lands Lease. As stated in the Interim Offset Policy, in all cases the EPA order of preference for conservation mechanism options for offsets is:

- Biobanking Agreement;
- Transfer to OEH Estate;
- Conservation Agreements under the *National Parks and Wildlife Act 1974*;
- Trust Agreements under the *Nature Conservation Trust Act 2001*;
- A conservation Property Vegetation Plan registered on title under the *Native Vegetation Act (2003)* (only where the above options are not possible); and
- A Planning Agreement under s93F of the *Environmental Planning and Assessment Act 1979*.

In the absence of sufficient justification against the five criteria above, we do not support the paragraph in the draft 'Response to Submissions' which states *'The proponent has been advised by Department of Primary Industries – Catchment and Lands and the Environment Protect (sic) Authority (pers com, xx insert dates) that the proposed Biodiversity Offset Strategy may most appropriately be secured in perpetuity through a change to the conditions to WLL3881 to include 'Conservation'.*

Furthermore, in the event that this method of securing the offset is pursued, we do not support the proposal by the Catchment and Lands Division of the Department of Primary Industries (DPI) (email from Reuben Butler dated 3 February 2012) that *'any non compliance with those*

conditions is to be handled by the Environment Protection Authority'. Enforcement would rely on the consent authority and the body with which any covenant is made, not the EPA.

We continue to recommend that the proponent explore all of the above mentioned on-title in-perpetuity conservation arrangements for the final offset in consultation with the EPA and the Catchment and Lands Division of DPI.

Appendix 3

Western Lands Lease 3881

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STATE OF NEW SOUTH WALES IN THE COMMONWEALTH OF AUSTRALIA.

Lease Form No. 1.
Section 23.



WESTERN LANDS LEASE.

Edward VIII, by the Grace of God, of Great Britain, Ireland,
and of the British Dominions beyond the Seas, King,
Defender of the Faith, Emperor of India.

To all to whom these presents shall come, Greeting:—

Whereas certain Crown Lands in the Western Division of Our State of New South Wales were duly set apart for disposal by way of lease exclusively to holders of land under any tenure situated in the Central Division and/or Western Division within a reasonable working distance of such lands,

for the purpose of grazing

under the provisions of the Western Lands Act of 1901 as amended by subsequent Acts (hereinafter called the said Acts) AND WHEREAS CHARLES MILTON WEBER, of Tottenham

in Our said State
of New South Wales did on the thirteenth day of May,
1935 make an application under the provisions of the said Acts for a Lease of the land hereinafter mentioned and all things required by law have been done to enable a Lease of such land to be duly granted AND WHEREAS Our Minister for Lands of Our said State has granted to the said CHARLES MILTON WEBER

a lease of the land hereinafter mentioned in perpetuity at the rent and upon and subject to the exceptions reservations conditions and provisions hereinafter mentioned NOW KNOW YE that in pursuance of the provisions of the said Acts WE DO HEREBY grant unto the said CHARLES MILTON WEBER

(who with his executors administrators and assigns is hereinafter referred to as the Lessee)

ALL THAT piece or parcel of land containing four thousand eight hundred and fifty-nine (4,859) acres more or less

situated in the Parish of

County of Mouramba

(being Western Lands Lease No. 3881) as delineated in the diagram catalogued W.L.O. 3624 I in the Office of the Western Lands Commissioner (hereinafter called the Commissioner) in the City of Sydney in the said State but subject to any modification or adjustment of such diagram consequent upon survey duly authorised by the Commissioner TOGETHER WITH ALL rights easements and appurtenances to the same belonging EXCEPTING AND RESERVING unto US OUR HEIRS and SUCCESSORS all minerals as defined in the Mining Act 1906 or any Act amending the same and all metals gems precious stones coal and mineral oils which may be in under or upon the said land together with full power and authority for US OUR HEIRS and SUCCESSORS and for any person lawfully authorised in that behalf to enter upon the said land and search for work win and remove all or any of the said minerals metals gems precious stones coal and mineral oils: AND FURTHER RESERVING unto US OUR HEIRS and SUCCESSORS the unrestricted right to proclaim Travelling Stock Camping or other Reserves within the said land and to withdraw any land for the purpose of Roads Travelling Stock Camping or other Reserves Also the right to withdraw from this Lease land for a Travelling Stock Route or roads not exceeding ten chains in width without payment of any compensation therefore AND FURTHER RESERVING unto US OUR HEIRS and SUCCESSORS all powers and provisions necessary for the resumption as hereinafter provided of the said lands or any part thereof for mining purposes townships or any public purpose mentioned in or declared as such under the provisions of the Crown Lands Consolidation Act 1913 as amended by subsequent Acts TO HOLD the said land unto the Lessee as

a Western Lands Lease from the ninth day of September 1935 in perpetuity

subject to the provisions of the said Acts and the Regulations thereunder and to the Reservations Exceptions Conditions and Provisions herein contained YIELDING AND PAYING therefor the yearly rent of six pounds seventeen shillings and eight pence or such other rent as shall be or become payable by reason of the annual rent having been or being fixed or determined in due course of law (whether because of the capital value having been or being re-determined or otherwise) Provided Always that in the event of the said land being found on survey to contain an area in excess of or less than the area as aforesaid the rent hereby reserved shall as from a date to be fixed by the Commissioner increase

87955 A. J. KENT, L.S.O., GOVT. PRINTER.

or decrease proportionately to the increase or decrease so found as aforesaid ~~And it is hereby Declared~~ that all conditions and provisions contained in the said Acts and any Regulations made or to be made thereunder are in so far as the same are applicable hereto embodied and incorporated with these presents as conditions and provisions of the lease hereby expressed to be granted ~~And it is hereby Further Declared~~ as follows:—

1. THAT the Lessee shall and will duly pay annually in advance to the Colonial Treasurer of Our said State the rent hereby reserved at the dates appointed for payment of the same in accordance with the provisions of the said Acts without deduction or abatement on any account whatsoever ~~Provided~~ that if the said rent be not paid as aforesaid the Lessee shall pay to the Colonial Treasurer by way of penalty a sum calculated at such rate not to exceed Four per centum per annum as may be prescribed by the regulations under the said Acts for the time being in force or as may be fixed by the Commissioner.

~~2. THAT the Lessee shall subject to and in accordance with the provisions of the said Acts reside on the said land and make it his bona fide residence.~~

3. THAT the Lessee shall hold and use the said land *bona fide* for his own exclusive benefit.

4. THAT the Lessee will not use or permit to be used the said land for any purpose other than **grazing**

5. THAT the Lessee shall fence the external boundaries of the said land within such period and with such class of fencing as may be determined by the Commissioner and shall and will well and sufficiently repair and keep repaired the fence so to be erected during the residue of the terms of the Lease ~~Provided~~ that boundaries common to the land hereby granted and to other lands (if any) held by the Lessee need not be fenced as long as such other lands and the land hereby leased are held by the Lessee ~~Provided Also~~ that the Commissioner shall not be entitled under this clause to require rabbit-proof fencing to be erected.

6. THAT the Lessee shall subject to and in accordance with the said Acts and the regulations thereunder pay all survey fees and interest thereon payable in respect of the subject land.

7. THAT the Lessee shall—

(i) within such time as may be specified by the Commissioner take such steps and measures as the Commissioner shall direct to destroy rabbits dogs foxes and such other vermin and such weeds as may from time to time be declared noxious in the Government Gazette and to keep the said land free of such vermin and weeds during the currency of this Lease to the satisfaction of the Commissioner; and

(ii) as Our Minister for Lands of Our said State may from time to time direct foster and cultivate such edible shrubs and plants as the Commissioner may consider can be advantageously and successfully cultivated.

~~Provided~~ that during the currency of this Lease the Lessee shall not be compelled to expend annually for the purposes of destroying vermin and weeds as aforesaid and for the purpose of cultivating edible shrubs as aforesaid a sum exceeding one-farthing per acre of the whole area under Lease such sum to be expended on any of the purposes aforesaid in such proportions and in such manner as the Commissioner may from time to time direct ~~Provided Also~~ that the Commissioner may at any time require proof from the Lessee of the expenditure of all moneys so expended on each or any of the purposes aforesaid the onus to be on the Lessee of proving such expenditure in each case.

8. THAT the Lessee shall keep and preserve sufficient timber on the said land for shade and firebreaks.

9. THAT the Lessee shall not interfere with the timber upon any State Forest, Forest Reserve, or Timber Reserve which may now or hereafter be included within the said land without the permission in writing of the Commissioner and shall not prevent any person or persons duly authorised in that behalf from cutting or removing timber upon such State Forest, Forest Reserve or Timber Reserve or upon the said land.

10. THAT the Lessee shall not ringbark cut or otherwise destroy or permit the destruction of any timber or edible scrub without the written consent of the Commissioner ~~Provided~~ that the Lessee may use in such manner as the Commissioner may from time to time determine edible trees or scrub for stock feeding purposes and may take such timber and other material (not being within a State Forest Forest Reserve or Timber Reserve) as he may require for building and other purposes upon the land hereby leased.

11. THAT the Lessee shall not obstruct or interfere with any reserves roads or tracks or the lawful use thereof by any person.

12. THAT the Lessee shall and will maintain and keep in reasonable repair all improvements on the said land during the currency of this Lease and shall and will permit Our Minister for Lands the Commissioner and any person authorised by Our said Minister or the Commissioner at all times to enter upon and examine the whole or any part of the demised land and the buildings and other improvements thereon.

13. THAT the Lessee shall furnish such returns or statements as the Commissioner may from time to time require in connection with any Lease or License or Freehold or Conditional Purchase held by him or in which **he is** interested within the Western Division or which are or is worked in conjunction with any Lease or License in the Western Division held by him or in which **he is** interested and in connection with any sheep or large stock cost of improvements working expenses or any other matter relative to any such holding as aforesaid.

14. THAT the Lessee shall not transfer convey assign or sublet the said land or any portion thereof or mortgage or charge the same with the repayment of moneys advanced on the security thereof without having first obtained the written consent of Our said Minister,

15. THAT the Lessee shall not grant any grazing rights over the said land or agist stock thereon without first having obtained such consent as aforesaid,

16. THAT the Lessee shall not overstock or permit or allow to be overstocked the land hereby demised and that the decision of the Commissioner as to what constitutes overstocking shall be final and that the Lessee shall comply with any directions of the Commissioner to prevent or discontinue overstocking.

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3

17. THAT the Lessee shall permit any person duly authorised in that behalf to enter upon the said land and search for work win and remove all or any minerals metals gems precious stones coal or mineral oils in under or upon the said land.

The right is reserved to the Minister to withdraw from the lease, land for a travelling stock route, or for roads not exceeding ten chains in width, without payment of any compensation therefor.

18. ~~Prohibited Always~~ and it is ~~Hereby Agreed and Declared~~ as follows:—

- (a) That no transfer or assignment of this Lease or any agreement to sublet the said land or any part thereof shall affect any forfeitures incurred or any debt or liability accrued to US OUR HEIRS OR SUCCESSORS under or by virtue of these presents;
- (b) That no transfer of this Lease shall be registered or recognised if any rent payment or other dues to the Crown are in arrear;
- (c) That no public rights now existing or hereafter to be created in and over any Travelling Stock Route Reserve or Camping Reserve which may be included within the said land shall be affected by the granting of this Lease;
- (d) That it shall be lawful for Our Governor of Our said State by notification to be published in the Government Gazette to withdraw from this Lease any lands required for mining purposes townships or any public purpose mentioned in or declared as such under the provisions of the Crown Lands Consolidation Act 1913 or any Act amending the same ~~Prohibited~~ that upon such publication as aforesaid the Lessee shall be entitled to such compensation in respect of the land so withdrawn for the unexpired term of these presents and for the improvements owned by the Lessee upon the land so withdrawn as aforesaid as may be determined by Our said Minister after appraisalment by the Commissioner.

19. ~~Prohibited Always~~ and these presents are upon this express condition that if and whenever the rent hereby reserved or any part thereof shall be in arrear for more than six months after the time hereinbefore for the payment thereof appointed or whenever there shall be a breach or non-observance by the Lessee or his executors administrators and assigns of any other condition or provision herein contained or incorporated herewith and on the part of the Lessee to be observed and performed it shall be lawful for Our said Minister after report from the Commissioner to declare by notification in the *Government Gazette* that the Lease hereby expressed to be granted is cancelled and forfeited and thereupon these presents shall become of no effect and the term of the Lease hereby granted shall absolutely determine and Our said Minister may enter upon the said land and the Lessee or his executors administrators and assigns therefrom expel but without releasing the Lessee or his executors administrators or assigns from liability in respect of the breach or non-observance or non-performance of any covenant condition or stipulation herein contained or incorporated herewith.

20. ~~Prohibited Further~~ and it is ~~Hereby Declared~~ that such of the provisions and conditions of this Lease as require or prescribe any act or thing to be done or not to be done by the Lessee shall in addition to being read and construed as conditions of this Lease be also read and construed as covenant by the Lessee or his executors administrators and assigns with US OUR HEIRS and SUCCESSORS to observe and perform the said provisions and conditions.

21. The terms "Our Minister for Lands of Our said State" and "Our said Minister" when herein used shall mean and include Our Minister for Lands of Our said State for the time being or other Our Minister of Our said State for the time being charged with the administration of the said Acts.

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In Testimony Whereof we have caused this Our Lease to be sealed with the seal of Our said State.

Witness Our Trusty and Well-beloved the Honourable SIR PHILIP WHISTLER STREET, Knight
Commander of Our Most Distinguished Order of Saint Michael and Saint George, Lieutenant-
Governor of the State of New South Wales and its Dependencies in the Commonwealth of Australia,
at Sydney, in Our said State, this third day of August
in the first year of Our Reign, and in the Year of Our Lord
one thousand nine hundred and forty six

(Sgd) E.A. Battershaw

RECEIVED AND LABELED IN THE OFFICE OF
Western Lands Commissioner, Sydney
This second day of September 1946

E.A. Battershaw
for
Secretary.

(Sgd) P.W. Street

Lieutenant-Governor.

Transfer by way of Mortgage dated 18/12/1946
from Charles Milton Weber
to The Commercial Banking Company of Sydney Limited
of Western Lands Lease No. 3881 registered in
the Western Lands Office this 21st day of
January 1947
J.J. Bealin
For Secretary, Western Lands Office.

Transfer by way of Release dated 3/11/1947
from The Commercial Banking Company of Sydney Limited
to Charles Milton Weber
of Western Lands Lease No. 3881 registered in
the Western Lands Office this 6th day of
February 1948
J.J. Bealin
For Secretary, Western Lands Office.

Transfer by way of Mortgage dated 19/1/1948
from Charles Milton Weber
to Rural Bank of New South Wales
of Western Lands Lease No. 3881 registered in
the Western Lands Office this 6th day of
February 1948
J.J. Bealin
For Secretary, Western Lands Office.

Pursuant to the adoption of metric units of area,
the area of Western Lands Lease No. 3881 has
been altered from four thousand eight
hundred and fifty nine (4859) acres
to one thousand nine hundred
and sixty six (1966) hectares
D. J. Bealin
For Secretary, Western Lands Commission.

This is to Certify that in pursuance of authorisation (L.S. 2
No. 78/1666) dated 14/11/1978 Claude
John Weber, Amy May Weber and
Valerie Mary Kidston devisees of
the Will of Charles Milton Weber deceased
have been registered as the holders as such devisees of the
interest of the said deceased in Western Lands Lease No. 3881
D. J. Bealin
28 13 177. For Secretary, Western Lands Commission.

Transfer by way of Release dated 24/2/1978
from Rural Bank of New South Wales
to
Claude John Weber, Amy May Weber
and Valerie Mary Kidston
of Western Lands Lease No. 3881 registered in
the office of the Western Lands Commissioner
this 20th day of February 1979.
D. J. Bealin
For Secretary, Western Lands Commission.

Transfer by way of Sale dated 24/2/1979
from Claude John Weber, Amy
Mary Weber and Valerie Mary
Kidston to Claude John Weber
as to an undivided 1/3 share and
Kelvin John Weber as to an
undivided 2/3 share as to an
of Western Lands Lease No. 3881 registered in
the office of the Western Lands Commissioner
this 26th day of October 1979.
D. J. Bealin
For Secretary, Western Lands Commission.

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22 MAY, 1936.] NEW SOUTH WALES GOVERNMENT GAZETTE No. 87.

2061

(2707)

Western Lands Office,
Sydney, 22nd May, 1936.

IT is hereby notified that under the provisions of section 23 of the Western Lands Act of 1901, the Western Lands Leases of the lands specified in the annexed Schedule have been granted to the undermentioned persons.

The leases are subject to the general provisions and conditions of the Western Lands Act, 1901, and the Regulations thereunder, and to the covenants, reservations and exceptions set out at the foot of the Schedule.

The land is to be used only for the purpose or purposes for which the leases are granted.

Rent and survey fee are subject to adjustment consequent upon any recalculation of area or any survey.

All amounts due and payable to the Crown must be paid to the Colonial Treasurer within one month from date hereof.

E. A. BUTTENSCHAW, Minister for Lands.

SCHEDULE.

No. of W.L. Lease.	Reg. No. of Papers.	Name of Lessee.	County.	Area.	Term of Lease.		Annual Rent.	Survey Fee.
					From	To		
	W.L.O.			acres.	1935.		£ s. d.	£ s. d.
3,868	36-3,244	Philip Henry Pike ...	Blaxland ...	5,748	9 Sept. ...	Perpetuity	12 9 0	22 8 0
3,869	3,240	Henry Clements Moulder ...	do ...	5,172	9 " ...	do ...	11 4 1	21 12 0
3,870	3,241	William John Norris ...	do ...	3,218	9 " ...	do ...	6 19 6	16 16 0
3,874	3,238	George Allan Macgregor Mac- kinnon.	do ...	3,870	9 " ...	do ...	6 15 5	18 8 0
3,875	3,239	Margaret Gibson Morphy ...	do ...	3,240	9 " ...	do ...	6 4 2	16 16 0
3,876	3,231	Edward Leo Conley ...	Mouramba...	8,827	9 " ...	do ...	13 12 2	26 8 0
3,877	3,230	Harold William Colless ...	Blaxland ...	4,861	9 " ...	do ...	10 10 8	20 16 0
3,878	3,248	Lionel Cherry Willis ...	do ...	2,855	9 " ...	do ...	4 8 0	16 0 0
3,879	3,232	Eleanor Elizabeth Couchman ...	Mouramba...	6,639	9 " ...	do ...	8 11 6	24 0 0
3,880	3,233	Frank Mungeam Couchman ...	do ...	4,356	9 " ...	do ...	6 3 5	20 0 0
3,881	3,247	Charles Milton Weber ...	do ...	4,859	9 " ...	do ...	6 17 8	20 16 0
3,882	3,245	Isaac Roberts ...	Blaxland ...	3,453	9 " ...	do ...	6 12 4	17 12 0
3,883	3,236	James Arthur Hurley ...	do ...	4,406	9 " ...	do ...	7 14 3	20 0 0
3,884	3,246	Reginald Heber Singleton ...	do ...	4,412	9 " ...	do ...	6 16 0	20 0 0
3,885	3,243	Alexander Parker ...	do ...	3,783	9 " ...	do ...	5 16 8	18 8 0
3,886	3,235	Maurice Ford ...	do ...	2,835	9 " ...	do ...	4 7 5	16 0 0
3,887	3,234	Alan Ford and Walter Ford ...	Mouramba...	4,302	9 " ...	do ...	5 11 2	19 4 0
3,888	3,237	Arthur Milbourne Lowe ...	Blaxland ...	3,254	9 " ...	do ...	5 13 11	16 16 0
3,889	3,242	Hannah Elizabeth Ellen Orr ...	do ...	6,497	9 " ...	do ...	6 9 11	23 4 0

The leases are subject to the undermentioned covenants, reservations, and exceptions:—

The right is reserved to the Minister to withdraw from any lease, land for a travelling stock route, or for roads not exceeding 10 chains in width, without payment of any compensation therefor.

The lessee shall hold and use the land bona fide for his own exclusive benefit.

The lessee shall not grant any grazing rights over the said land or agist stock thereon without having first obtained the written consent of the Commissioner.

The lessee shall not overstock the lease, the decision as to overstocking to rest with the Commissioner.

The lessee shall within two years from date of commencement of the lease enclose it with a substantial stockproof fence provided that the

boundaries common to other lands held in the same interests need not be so fenced as long as such lands remain held in the same interests.

No timber shall be ringbarked or destroyed nor shall any timber be cut or removed from the land for the purpose of sale, except subject to the provisions of the Forestry Act, 1916, and the regulations thereunder at the time in force.

The lessee may, however, take from the land leased to him such timber and other material for building and other purposes upon such land as may be required by him as tenant thereof provided such land is not comprised within a timber reserve or State Forest.

Should the lease be forfeited all improvements on the land shall become the property of the Crown.

(2706)

Western Lands Office,
Sydney, 22nd May, 1936.

NOTIFICATION OF APPROVAL OF THE GRANTING OF WESTERN LANDS LEASES.

It is hereby notified, for public information, that the granting of Western Lands Leases for the undermentioned areas have been approved, and that, in pursuance of section 35n of the Western Lands Act of 1901, the occupation licensee's right of occupation shall cease on the expiration of thirty days from this date.

E. A. BUTTENSCHAW, Minister for Lands.

Name.	Area.	Date of Approval of Granting of Lease.	Holding out of which Lease is to be granted.
Andrews, Charles Richard ...	Acres. (About). 13,060	6 Feb., 1936 ...	} Preferential Occupation Licences Nos. 677, 678 and 679— Belalie Holding.
Williamson, William James and Wade, Ida Maude.	14,500	6 " " ...	
Mallon, Patrick ...	19,771	6 " " ...	
Biddulph, Bainbrigg Lester ...	5,000	6 " " ...	

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Appendix 4

Letter from Coffey Mining dated 5 January 2012

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5 January 2012

YTC Resources
2 Corporation Place
Orange NSW 2800

Attention: Dean Fredericksen

Dear Sir

RE: Tailings Storage Facility Design, EPA Comments, Hera Project, NSW

Further to your email of the 11 March 2011 attaching an Environmental Protection Authority (EPA) letter to the NSW Department of Planning and Infrastructure, ref PCU029197, on the project application and Environmental Assessment for the proposed Hera Gold Project, Coffey Mining Pty Ltd (Coffey Mining) as requested provides responses and clarifications to comments/recommendations on tailings storage aspects contained in the letter and its attachments relating to the Tailings Storage Facility (TSF).

Attachment B, Groundwater Page 8 and 9

Ground conditions at the TSF site, revealed by the geotechnical investigations comprised 0.8m (min) of gravelly sandy clay/sandy clay over weathered rock. Geotechnical investigations using insitu falling head permeability testing indicated that the ground at the TSF site to be typically very low permeability down to a depth of nominally 20m (permeability, k , in the range of 2×10^{-9} to 3×10^{-9} m/s). As stated in Coffey Mining's geotechnical report, to comply with NSW DEP requirements a 'thin' 'clay' liner will be left over the insitu 'rock' within the TSF. The target permeability of such a liner will be 10^{-8} m/s (typical DEC liner criteria 10^{-9} m/s). This target permeability was adopted as it is a practical limit to set for field testing on natural materials. The proposed liner system in the design report was essentially:

- A compacted insitu clay liner 0.3m thick with a target permeability of 10^{-8} m/s, overlying
- Insitu ground with k in the range of 2×10^{-9} to 3×10^{-9} m/s

It was noted that Project Environmental Consultants, R W Corkery have proposed a liner 0.6m thick with a target permeability 10^{-8} m/s, based on another approved project in NSW. Coffey Mining notes that the proposed liner system above, is equivalent or of lower permeability than a liner 0.6m thick with a target permeability 10^{-8} m/s.

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MWP00768AA-AD let1



Coffey Mining Pty Ltd

A liner system in strict compliance with the EPA requirements (liner 10^{-9} m/s, 0.9m thick) will likely require an artificial liner (ie HDPE or similar).

Further to the above, following excavation of clay borrow materials from with the TSF basin for embankment construction, the clay over the insitu rock should be a minimum of 0.3m thick. The remaining insitu clay following borrow material removal should be compacted to the same requirements of the clayey materials within the perimeter embankment to provide a compacted clay liner.

QA/QC requirements for the project are detailed in the draft scope of works/technical specification included with the TSF design report (refer Attachment D). Any clayey liner materials should be compacted to the same standard as the clayey materials within the perimeter embankments. Testing to check the target permeability of the clay liner should be carried out at a frequency of 1 test per 1.7ha of liner area.

The EPA also requires detailed groundwater/contaminant modelling despite the TSF being lined, it is understood that this aspect will be examined by others.

Attachment B, Water Page 12

The hydrological Analyses section of the TSF design report provides guidance on the temporary stormwater storage volume allowance on top of the TSF for Stage 3 (the stage with the greatest internal catchment area) and this is repeated below.

Given a hazard rating of Significant (DSC 2002)¹ for this structure, the containment embankment has been sized to contain a 1 in 10,000 year ARI 72 hour precipitation event which is estimated to be 288 mm of precipitation based on rainfall intensity information for Nymagee (BOM, 2010).

The design storage allowance (DSA) of the proposed TSF was estimated based on the approximate TSF Stage 3 catchment area of 40 ha. Table 8 details the DSA of the TSF.

Table 8 Design Storage Allowance (DSA)			
Storm Event	TSF Catchment Area (m²)	Approx. Precipitation (1:10,000 yr ARI 72 hr event)	Design Storage Allowance* (DSA) (m³)
1:10,000 AEP (TSF)	400,000	288 mm	115,200

Note: *Calculated with a runoff coefficient of 1

The freeboard to be provided for each stage is summarised below. It should be noted that the freeboard assumes that the decant water pond is kept to a minimum and water is not allowed to accumulate on the facility. Furthermore it should be noted that the TSF has been designed to store thickened tailings and as such reduced supernatant water is

Coffey Mining Pty Ltd

expected to be available for return (ie the decant pond should occupy less than 10% of the TSF basin area).

Table Design Freeboard Summary (DSA)			
Stage *	Crest RL (m)	Freeboard (m)*	Stormwater Volume (1:10,000 yr ARI 72 hr event)
Stage 1	326	1.5	52,000
R Stage 2	327.5	2	63,000
o Stage 3	328.5	2.5	115,000

* Rounded up to nearest 0.5m

The probability of the freeboard overtopping is estimated to be nominally 10^{-6} based on a storm event probability of 10^{-4} and probability of adverse operational conditions/negligent operational management of between 10^{-1} and 10^{-2} .

Given that the decant pond should occupy less than 10% of the TSF basin area, that is the decant pond volume should be of negligible volume to say $3,000\text{m}^3$, dilution of the design storm event if it were to be 'released' from the facility would vary between 1 in 17 and 1 in 38.

We trust that above information meets your present requirements, should you have any queries please contact the undersigned.

For and on behalf of Coffey Mining Pty Ltd



Christopher Hogg
Principal Civil Geotechnical Engineer

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Appendix 5

Letter from Environment Protection Agency dated 10 February 2012

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ENVIRONMENT PROTECTION AUTHORITY

Our reference : DOC12/4898, LIC11/472
Contact : Brad Tanswell 02 6883 5330

Mr Howard Reed
NSW Department of Planning and
Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: George Mobayed
CC RW Corkery and Co

Dear Mr Reed,

I refer to the report entitled *Hera Mine via Nymagee Response to Submissions Draft for Consultation* (the draft report) dated January 2012 received by the Environment Protection Authority (EPA) on 24 January 2012 regarding the proposed Hera Mine Project (Department of Planning and Infrastructure (DoP) ref 10_0191).

The EPA understands that the draft report was provided to the EPA to specifically provide the EPA with an opportunity to review and make comment in relation to additional Aboriginal Cultural Heritage (ACH) and Historic Heritage survey work undertaken by the proponent following exhibition of the *Environmental Assessment* and prior to finalisation of this document.

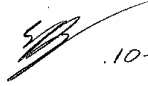
The EPA also understands the draft report was provided to the EPA to comment on additional information provided by the proponent in relation to the final Biodiversity Offset Strategy, including identification of the final Biodiversity Offset Area (two separate alternatives were presented in the *Environmental Assessment* placed on exhibition).

It is important to note the EPA has not reviewed the remainder of the draft report and this letter refers only to the matters referred to above. It is the EPA's understanding that the EPA will be provided with an opportunity to review and comment on the remainder of the document once it has been finalised and prior to DoP preparing its draft recommended conditions of approval.

The EPA has reviewed the relevant sections of the draft report in relation to the matters set out above and would like to provide the comments in Attachment A for the proponent and the Department of Planning and Infrastructure's consideration.

Should you have any enquiries regarding this matter, please contact Brad Tanswell at the Dubbo Office of the EPA by telephoning (02) 6883 5330.

Yours sincerely

 10-2-12.

CARMEN DWYER
Head Pesticides Operations and Planning
Environment Protection Authority

Encl: Attachment 1: EPA Comments on *Hera Mine via Nymagee Response to Submissions Draft for Consultation* report

ATTACHMENT A

EPA Comments on *Hera Mine via Nymagee Response to Submissions* *Draft for Consultation report*

BIODIVERSITY OFFSET

In relation to the proposed offset, the EPA has reviewed the draft 'Response to Submissions', BioBanking Assessment, and additional information supplied directly to the EPA by Phil Cameron of OzArk. The offset proposal has also been evaluated against our *'Interim Policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects'* (the Interim Offset Policy).

In summary,

1. Contrary to the commitments in the EA, the proposed offset does not meet the Tier 1 'Maintain or Improve' or Tier 2 'No Net Loss' standards in all respects, as defined in the Interim Offset Policy. However, for the reasons set out below, if the offset proposal can be shown meet the in-perpetuity security requirements of the Interim Offset Policy, the EPA would be satisfied with this outcome in this instance.
2. The offset proposal will need to include more detail regarding the design of the offset and the credits to be retired for the current mine proposal.
3. The offset proposal has not yet been demonstrated to meet the in-perpetuity security requirements of the Interim Offset Policy.

Our recommendations are that:

- a) The draft 'Response to Submissions' is amended to include the correct and final versions of the BioBanking report.
- b) The entire 'Chelsea' property, as assessed via the BBAM, should be set aside as an offset and managed for conservation as a whole. The 'Response to Submissions' document, any approval granted, and any subsequent management plan should then stipulate:
 - i. The quantum of credits from 'Chelsea' that will be retired as an offset for the current development; and
 - ii. The quantum of credits remaining on 'Chelsea' that can be made available as an offset for a future development.
- c) That the proponent secure the offset via appropriate on-title in-perpetuity conservation arrangements which are demonstrated to meet the criteria set out in the Interim Offset Policy.

Further details are provided below.

Offset quantum and matching of vegetation types

We understand that the proponent has now abandoned the offset option on 'The Peak' due to the difficulty resolving the issue of the Travelling Stock Route (TSR). A basic assessment of the development site and 'Chelsea' using the BioBanking Assessment Methodology (BBAM) has now

been undertaken by OzArk. We note some deficiencies in the BBAM assessment contained within the draft 'Response to Submissions' - One of the reports currently contained in Appendix 2 is incorrect, and the report for the Western CMA component of the offset has been omitted from the Appendix. The correct information was sought and supplied directly to the EPA by Phil Cameron of OzArk, however the final 'Response to Submissions' should still be corrected.

We have reviewed the final assessment and observed that:

- The biobank credit profile generated for the development site stipulates that the vegetation communities present on the site (Benson 180 (9 credits), Benson 174 (205 credits), Benson 103 (3928 credits)) can only be offset with the same vegetation types in the Western Catchment Management Area (CMA) or Lachlan CMA in the Nymagee Rankin Springs Sub-region, if the proponent wants to achieve a Tier 1 or 2 outcome under the Interim Policy.
- The offsets proposed on 'Chelsea' include Benson 103 (2377 credits) in Western CMA Nymagee Rankin Springs Sub-region which is considered an appropriate match.
- All the remaining vegetation types within the proposed offset - including Benson 184 (4456 credits and offsetting Benson 180), Benson 103 (5516 credits) and Benson 174 (2009 credits), are in the Central West CMA Nymagee Rankin Springs Sub-region and were not listed as being an appropriate match for the communities on the development site.

On investigation of the threatened species assemblages in the vegetation types on the development site and those that are a match on the offset site, the following observations were made:

- *Benson 103* – The Bush Stone-curlew is listed in the Western CMA community but not in the same vegetation type in the Central West CMA. This is an anomaly as Bush Stone Curlews are known to occur widely throughout the Central West CMA and therefore has a high probability of occurrence in this vegetation type in the Central West CMA.
- *Benson 180* – The Speckled Warbler is listed for Western CMA community, but not for the Central West CMA community, again this is likely to be an anomaly as the Speckled Warbler has a wide distribution throughout the Central West CMA and therefore has a high probability of occurrence in this vegetation type in the Central West CMA.
- *Benson 174* – Marbled-faced Delma, Diamond Firetail and Western Blue-tongued Lizard is listed for the Western CMA community but not for the Central West CMA community. Both the Blue-tongued Lizard and Marbled-faced Delma are at the western edge of their distribution around the Nymagee area. The western Blue-tongue is a generalist species and is just as likely to occur in the vegetation community located on 'Chelsea' as the development site. The Diamond Firetail is widely distributed throughout the Central West CMA and therefore has a high probability of occurrence in this vegetation type in the Central West CMA. The Marbled-faced Delma is unlikely to occur in this vegetation type unless it has Spinifex in the understorey. If Spinifex (*Triodia sp.*) is not present it is unlikely this species would occur on either site.

Verbal verification has been received from Phil Cameron of Ozark that Spinifex is not present on either site. Given the above it is considered that 'Chelsea' offers scope for a suitable offset proposal. If appropriate in-perpetuity security for the offset is established, the proposal would provide a Tier 3 'Mitigated Net Loss' outcome.

Whilst a Tier 1 or Tier 2 outcome is preferred, given that the proponent is not clearing 'red flags', has previously offered to provide the entire quantum of credits required, and has matched vegetation types with the exception of the required CMA, the EPA is satisfied with this result in

this instance, if the full quantum of credits required is indeed secured in accordance with the Interim Offset Policy.

Offset design, management and security

Design

The credits estimated for the offset site within the BBAM report are for the 'Chelsea' property as a whole. From the BBAM report it appears that there is an excess of credits available on the property (i.e. beyond the credits required for the current development proposal).

In contrast, the EA indicates that only a portion of the property directly adjoining the Nangerybone State Forest will be included in the offset, and in the draft 'Response to Submissions' the proponent states that *'Commitment 4.25 has been amended to indicate that such fencing would be constructed, where practicable, adjacent to existing tracks or cleared areas to ensure that no further vegetation clearing is required'*. It is not clear from the draft 'Response to Submissions' whether the proponent still intends to only set aside the area on 'Chelsea' mapped within the EA as an offset.

The following issues would be associated with that approach:

- The BBAM report does not assess the credits available for each vegetation community within that specific portion of the property only, therefore it would be difficult to determine whether the correct quantum of credits was being secured;
- The offset would not include the 2377 credits for Benson 103 in Western CMA, Nymagee Rankin Springs Sub-region, the only completely matching vegetation type assessed as occurring on 'Chelsea';
- There would be a greater likelihood of clearing for new fence lines being required.

To address these issues the following approach would be appropriate:

- a) The entire property, as assessed via the BBAM, should be set aside as an offset and managed for conservation as a whole.
- b) The 'Response to Submissions' document, any approval granted, and any subsequent management plan should stipulate the quantum of credits from the offset property that will be retired as an offset for the current development, and therefore the quantum of credits remaining that can be made available as an offset for a future development.
- c) Consequently, new goat exclusion fencing may be more likely to be able to be contained to existing fence lines on the current lease boundary. We remain of the view that any clearing required to establish new fence lines would increase the quantum of the offset required for the current development.

Management and Security

We note that the TSR issue is no longer applicable with the proposal of the 'Chelsea' offset instead of 'The Peak'. Nevertheless, we are still of the view that Western Lands Leases are subject to some additional management restrictions in comparison to freehold land. It is the additional management actions/restrictions and security beyond that already applying to the land, and the associated condition improvement, that will constitute the offset. We are seeking further advice on how best to address this issue in relation to Western Lands Leases. Whilst it is important that this issue is clarified we remain confident that 'Chelsea' will still be able to provide

a suitable offset given the significant number of excess credits currently estimated for the property.

Please note however that issues also remain regarding the method of securing the offset. As previously advised, the Interim Offset Policy contains five criteria for determining the suitability of an offset site in relation to security including:

- a) The unambiguous principal objective of ongoing site management is biodiversity conservation;
- b) Management is undertaken in accordance with a Plan of Management;
- c) There is reasonable likelihood that sufficient resourcing will be available to implement the Plan of Management over time;
- d) The arrangements are in-perpetuity, and conservation obligations are transparently transferred and disclosed to any new owners of the land through appropriate administrative procedures; and
- e) There are appropriate accountability mechanisms to secure the outcomes and these mechanisms cannot be altered without alternative and comparable offsetting arrangements being put in place.

These criteria must be met in order for the proposed offset to be consistent with the Interim Offset Policy. Therefore the proponent will not be considered to even meet Tier 3 of the Interim Offset Policy unless all of these criteria have been adequately addressed.

The proposed change to the Western Lands Lease purpose as a method of securing the offset has not yet been demonstrated to meet the above criteria and we would prefer an on-title in-perpetuity conservation mechanism to be applied. It is our understanding that appropriate on-title in-perpetuity mechanisms can be applied to the Western Lands Lease. As stated in the Interim Offset Policy, in all cases the EPA order of preference for conservation mechanism options for offsets is:

- Biobanking Agreement;
- Transfer to OEH Estate;
- Conservation Agreements under the *National Parks and Wildlife Act 1974*;
- Trust Agreements under the *Nature Conservation Trust Act 2001*;
- A conservation Property Vegetation Plan registered on title under the *Native Vegetation Act (2003)* (only where the above options are not possible); and
- A Planning Agreement under s93F of the *Environmental Planning and Assessment Act 1979*.

In the absence of sufficient justification against the five criteria above, we do not support the paragraph in the draft 'Response to Submissions' which states *'The proponent has been advised by Department of Primary Industries – Catchment and Lands and the Environment Protect (sic) Authority (pers com, xx insert dates) that the proposed Biodiversity Offset Strategy may most appropriately be secured in perpetuity through a change to the conditions to WLL3881 to include 'Conservation'.*

Furthermore, in the event that this method of securing the offset is pursued, we do not support the proposal by the Catchment and Lands Division of the Department of Primary Industries (DPI) (email from Reuben Butler dated 3 February 2012) that *'any non compliance with those*

conditions is to be handled by the Environment Protection Authority'. Enforcement would rely on the consent authority and the body with which any covenant is made, not the EPA.

We continue to recommend that the proponent explore all of the above mentioned on-title in-perpetuity conservation arrangements for the final offset in consultation with the EPA and the Catchment and Lands Division of DPI.

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Appendix 6

Extract from Tailings Storage Facility Design Report

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**Construction of Tailings Storage Facility
Preliminary Scope of Works**

GR Engineering Pty Ltd

Hera Project

MWP00768AA TSF SOW DFS RevB

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DOCUMENT INFORMATION

Author(s): Louise McDonald Project Engineer

Date: June 2011

Project Number: MWP00768AA TSF SOW DFS RevB

Version / Status: Rev B / Draft

Path & File Name: F:\MINE\Projects\GR Engineering Services Pty Ltd\MINE\WPER00768AA_GR Engineering_TSF DFS Study\Report Preparation\Appendices\sow\MWP00768AA TSF SOW DFS RevA.docx

Print Date: Friday, 17 February 2012

Copies: GR Engineering Pty Ltd (2)
Coffey Mining – Perth (1)

Document Change Control

Revision	Issued For	Issued by	Date
A	Issued for client review	LM	October 2010
B	Plant through-put increased	CH	June 2011

Document Review and Sign Off

Reviewed By
Chris Hogg (Principal)

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MWP00768AA TSF SOW DFS RevB
Construction of Tailings Storage Facility Preliminary Scope of Works – June 2011

Coffey Mining Pty Ltd

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Construction of Tailings Storage Facility Preliminary Scope of Works – June 2011



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1 INTRODUCTION

This Scope of Work covers the construction of the Hera Project Tailings Storage Facility (TSF) embankments, decant structure, seepage recovery system and associated infrastructure and is to be read in conjunction with the drawings.

The works mainly involve bulk earthworks to construct and subsequently raising of the perimeter embankments.

The Scope of Work shall comprise the provision of all material, construction plant, equipment, labour, supervision, tools, services, warehousing if required, testing equipment, and each and every item of expense necessary for the construction, acceptance testing and preparing of 'as built' drawings and documents for work shown in the drawings schedules and Specifications forming part of the Contract for the Construction of TSF at the Hera Project.

All works shall be constructed complete and operational except as specifically excluded and shall include all necessary auxiliary works, accessories and the incorporation of all miscellaneous material, minor parts and other such items, whether or not the items are specified, where it is clearly the intent of the Contract that they should be supplied or where they are obviously required and necessary to complete and commission the work.

1.1 Contract Drawings

The following drawings complete the Scope of Work:

Title	Drawing No.	Rev
Stage 1 General Arrangement	MWP00768AA-01	Rev E
Stage 2 General Arrangement	MWP00768AA-02	Rev E
Stage 3 General Arrangement	MWP00768AA-03	Rev E
TSF Sections	MWP00768AA-04	Rev B

1.2 Code of Practice

Unless otherwise specified, or shown on the drawings, the Contractor is to provide all materials and carry out all the work in accordance with the latest revisions of the relevant Australian Standard Codes.

All work under this Contract shall be performed strictly in accordance with the following Specifications, Drawings and other documents, which by this reference forms part of this Contract, unless expressly noted otherwise.

AS 1289 Methods of testing soils for engineering purposes.

AS 1726 Geotechnical site investigations.



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AS 3798 Guidelines on earthworks for commercial and residential developments.

The Works shall be carried out to comply with the latest revision of the Drawings, Codes and Standards specified, or where no standards are specified, to Australian Standards, or to the appropriate British or other recognised Standards.

Before making any change in any work under the Contract to comply with any revisions to the relevant codes and standards, the Contractor shall give to the Principal written notice specifying the reason therefore and requesting his direction thereon. The Principal shall decide whether a change is necessary and issue an order accordingly under the provisions of the General Conditions of Contract.

1.3 Site Inspection

The Contractor shall inspect the site and must allow for the following factors in their price:

- (i) The nature and requirements of the work to be done.
- (ii) All conditions on and adjacent to the site.
- (iii) Access to the site.
- (iv) The types of soil and vegetation present on the site.
- (v) The expected or known water table.
- (vi) The nearest sources of suitable fill material which complies with this Specification.
- (vii) The source of water for construction purposes.
- (viii) No go areas

1.4 Safety

The Contractor shall:

- (i) Carry out the works in a safe manner.
- (ii) Conform to all relevant Acts or Statutes of Parliament, Regulations, By-Laws or Orders relating to the safety of persons and property on or about the site.

1.5 Site Location and Description

The proposed location of the TSF is south of the proposed process plant and mining offices. The topography of the site is relatively flat with a very gentle slope to the west from approximately RL 331 m to RL 320 m over 650 m. The surface condition of the proposed site comprises red sandy soil with sparse pasture grasses.

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2 DESCRIPTION OF WORK - SPECIFIC

The Scope of Work shall include, but is not necessarily limited to the following:

2.1 General

The Contractor shall:

- Attend a Site Induction before the commencement of works if they have not already attended one in the last six (6) months at this site.
- Carry out all works indicated or implied in the Drawings or in the Specification.
- Supply all labour, plant and materials (except those indicated as being supplied by the Principal) necessary for completion of the works.
- Maintain all works as required by the Contract documents and for the period stated therein.

All construction shall be to the minimum lines and grades shown on the drawings or as required by the Owners Representative as work progresses.

During the progress of the works, the Owners Representative may find it necessary to revise the lines, levels and grades of any part of the works because of the conditions revealed by the works.

The Contractor shall accept reasonable delays due to inspection and checking of any part of the works to determine grades and levels.

2.2 Survey

The Contractor shall:

- Perform all ground surveys using conventional and agreed surveying techniques.
- Survey and setting out of the works based on the datum points provided by the Owners Representative.
- Be responsible for the protection of all permanent and temporary beacons or bench marks.
- Be wholly responsible for the setting out of his works in accordance with the terms of the specification. Although the Owners Representative will cause such setting out to be checked from time to time, such checking will not relieve the Contractor of full responsibility for the accuracy of such setting out.
- Carry out surveys prior to the commencement of the item of work and at the completion of the item of work.

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- Carry out a post construction survey by competent surveyor of the works to verify that the works were constructed within the specified tolerances and submit to the Owners Representative.
- Submit their survey data and calculations to the Owners Representative.
- Ensure initial and/or final surveys are undertaken and approved by the Owners Representative prior to the removal or placement of any material, especially where such action will destroy or cover the surface just surveyed. All survey checks or quantity measurements must be supplied to the Owners Representative, suitable time must be given to the Owners Representative to allow such calculations to be checked and approved prior to the works being covered or removed.

The Owners Representative may undertake their own survey of any item, either in conjunction with the Contractor, or separately. The Contractor and Owners Representative shall agree on the results of measurement surveys that are carried out prior to any works being covered up or within seven (7) days of a survey being undertaken. Should agreement not be reached, the difference shall be documented such that the matter can be later decided without disruption to the Contractor's programme.

The maximum permissible horizontal deviation from the finished lines or zone boundaries shall be -0 m to +0.5 m.

Vertical deviation shall be -0 m to +0.2 m, provided no abrupt changes in slope or level are present on any finished surface.

Measurement for payment of all embankment fill material shall be made for the compacted material, measured in place and only to the lines and grades required.

2.3 Clearing and Establishment Works

The Contractor shall, as appropriate:

- Remove all vegetable matter and scrub from the area of the proposed tailings storage. The area to be cleared shall extend approximately 15 m past the Stage 1 downstream toe of the embankment to the downstream toe drains. All stripped vegetation should be pushed into heaps in locations as indicated by the Owners Representative.
- Remove all solid obstructions, tree stumps, roots and logs from beneath the footprint of the perimeter embankments and within all borrow areas.
- Seal all investigation boreholes, groundwater and sterilisation holes drilled in the area of the proposed tailings storage facility using drill chips with the top 1.5 m 'sealed' with bentonite and keep an accurate record of all holes filled.
- Prepare a quality assurance and quality control programme to cover all aspects of work included within this Construction Specification for the Principals approval.

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- Provide all things necessary to implement the approved QA/QC programme.

2.4 Foundation Preparation

The Contractor shall, as appropriate:

- Strip topsoil from within the tailings storage area and from the embankment footprint to a nominal depth below the natural ground surface of 100 mm. Stockpiling of topsoil shall be in areas nominated by the Owners Representative. Stockpiles shall have a maximum height of 2.0 m and side slopes of 1 (vertical) to 1.5 (horizontal).
- Excavate the natural gravelly sandy clays from within the TSF footprint (0.5m nominal depth), and stockpile for construction of embankment. The foundation of the TSF footprint should comprise sandy clay. Stockpiling of borrow material shall be in areas nominated by the Owners Representative.
- Tyne, water and compact any areas of loose material on the prepared surface of the embankment footprint identified by the Owners Representative. The prepared surface should be rolled with a minimum of 4 passes of a 12 t vibratory roller.
- Prepare the foundation for the cutoff trench under the embankment by excavating to a nominal depth of 0.8 to 1.5 m (to weathered sandstone) or as directed by the Owners Representative. Side batters shall have a minimum slope of 1:1 (V:H).
- Ripping may be necessary to construct the cutoff excavation and to excavate the borrow materials. Blasting in the tailings storage area is not anticipated. No blasting or excavation into or through any competent rock shall be undertaken unless approval has been received from the Owners Representative.
- All areas to receive fill shall be left in a clean and suitable condition to allow an uninterrupted placement of fill. No fill shall be placed in the cutoff until the base of all excavations has been inspected and approved by the Owners Representative.
- Allow for keeping water from excavations by pumping, dewatering, or other suitable means, and adequately dispose of it clear of the works.

2.5 Earthworks

2.5.1 General

Earthworks shall comprise placement of compacted earthfill that conforms to the requirements specified below.

The Contractor shall:

- Prepare a method statement for the construction of the embankments. The method statement shall include details regarding the proposed method of construction of the embankments as well as safety measures to be adopted to ensure the Works are carried out with minimal risk to personnel and equipment.

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- Ensure all materials are stockpiled, transported and placed in such a manner as to minimise segregation.
- Construct access roads and/or ramps as appropriate to the designated borrow to enable fill materials to be recovered. The Contractor shall submit details of the proposed ramps to the Owner's Representative prior to the commencement of construction.
- Construct the containment bund and the downstream trench along the north, west and south embankments to the lines, grades and level as shown on the drawings. The suitable erosion resistant sandy silty/clayey gravels should be used for the construction of perimeter bunds.
- The crest of the completed embankments shall be graded to the inner (upstream) side, i.e. towards the storage area, at a 2% crossfall. A windrow of not less than 0.5 m height (or ½ the wheel height of the 'largest' construction plant) shall be left on the outside crest of the embankments.
- Allow for the prevention of water ponding in the works area during construction by shaping the embankment surface with a crossfall.
- Allow for the prevention of water ponding in the borrow works area during construction by shaping the borrow surface with a fall to one end to allow recovery.
- Allow for keeping borrow areas free of water accumulation.
- A water truck must be allocated permanently to the earthworks and be on site during the duration of the Contract for moisture curing and dust suppression purposes.

2.5.2 Clayey Fill Placement

The Contractor shall:

- Construct the perimeter embankments using clayey borrow material sourced from within the impoundment area or external areas nominated by the Principal.
- The material when blended shall conform to the following requirements:
 - It shall be free of all organic and deleterious material.
 - Contain a minimum of 20% by weight of soil fractions finer than 0.075 mm and not more than 20% greater than 37.5 mm (maximum particle size of 150 mm).
 - Have a plasticity index of 10% to 25%.
- Adjust the moisture content of clayey fill material approved for use in embankment construction. Moisture condition the material to within -2% to +2% of the optimum moisture content as determined from laboratory test AS 1289.5.1.1 (2003). The borrow material shall be cured to ensure the moisture is even through the materials proposed for use in construction.

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- Place all clayey fill material forming the embankment in homogeneous horizontal layers not exceeding 300 mm loose lift thickness. Each lift shall be compacted using a 12 t Vibratory Pad Foot Roller or an approved equivalent. Placement should be continuous. If a break in fill placement allows the exposed surface to dry, it should be lightly tined, watered and compacted prior to fill placement recommencing.
- Each layer shall be compacted to achieve a density ratio greater than 95% of standard maximum dry density, as determined from laboratory test AS 1289.5.1.1. The actual number of passes of the vibratory roller to achieve a density greater than 95% standard compaction (AS 1289.5.1.1) shall be determined on site using roller trials. Under no circumstances will the number of passes be less than six.
- The decant accessway shall also be constructed using roller compacted mine waste/gravel materials in 0.3 m layers as described above.

2.6 Decant Structure

The Contractor shall construct the decant structure using clean competent rockfill materials sourced from nominated areas (screening may be required).

Only clean approved competent rock with a low fines content shall be placed around the decant structure. All rock shall be carefully placed to ensure the concrete pipes are not dislodged or damaged. Any damaged pipes shall be reported to the Principal and repaired and replaced by the contractor at their cost.

The Contractor shall:

- Transport all materials to construct the decant structure.
- Transport select decant filter rock from the designated source and place around the decant structure. Selected rock shall comprise clean mine waste material (75 – 300 mm nominal size), free of fines (<3% passing 75 micron), sourced from a location nominated by the Owner's Representative (screening may be required).

2.7 Completion

The Contractor shall:

- Clean up all rubbish, remove all plant and supply materials, trim all banks neatly, spread all excavated material not specified to be removed from the site and leave the site in a clean and tidy condition.

2.8 Construction Sequence

The Contractor shall liaise with the Principal to agree a sequence for the works. The Contractor shall endeavour to complete the external embankments in the sequence agreed.

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2.9 Limits of the Contract

The limits of the Contract are as shown on the Drawings.

3 EXCLUSIONS

The following works are excluded:

- Provision of construction water.
- Compaction compliance testing.
- Supply and installation of tailings slurry system.
- Supply and installation of return water pipes and pumps.

It is possible that other works will be carried out within the TSF footprint (by others) during embankment construction and, as such, the Contractor shall:

- Fully cooperate with the pipe handling and operating crew and shall work in with their activities at all times.
- Avoid damaging any tailings distribution pipework which may be either installed or stockpiled by others. Any pipework damaged by the Contractor through carelessness shall be replaced at no additional cost to the Principal.

4 PRINCIPAL SUPPLIED ITEMS

4.1 Survey

The Principal will provide coordinates and levels of survey marks within the vicinity of the storage. The Contractor shall set out all lines and levels using the survey marks provided.

4.2 Materials

The Principal will supply clayey material for the construction of the perimeter embankments from within the TSF footprint.

4.3 Water

Water will be made available to the Contractor at no charge. Access to the standpipe (*GR Engineering to confirm*) will not be exclusive to the Contractor. The Contractor shall determine the type and suitability of the water supplies for use in this Contract.

The Contractor shall make his own arrangements for loading and hauling.

NOTE: Potable water supplies are limited and the Principal may, from time to time, direct the Contractor to use alternative sources (*GR Engineering to confirm*).

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5 QUALITY CONTROL AND QUALITY ASSURANCE

The required quality standards for implementation of this Scope of Work are the AS/NZS ISO 9001:2000 Standard Series and the Contractor shall comply with the requirements of these standards.

The Contractor shall provide not later than seven (7) days after Award of Contract fully documented details of the Quality systems and procedures to be utilised together with reference details for implementation of the stated system and procedures on previous similar projects.

6 INSPECTION AND TESTING

6.1 Inspection Requirements

The Owners Representative will be entitled, at all times to inspect, examine and test the materials and workmanship be provided under the Contract. Such inspection, examination or testing, if made, shall not release the Contractor from any obligation under the Contract.

The Contractor shall co-operate with and provide full opportunity to the Owners Representative to monitor regularly the progress of the Works of the Contractor and his subcontractors to the detailed extent necessary to satisfy progress relative to the Construction Program.

All pertinent information to enable the Owners Representative to determine the adequacy of the advance planning for material procurement, machine and manpower resources to meet the Construction Program shall be made freely available to the Owners Representative.

These requirements shall be incorporated in orders placed with Subcontractors.

6.2 Testing Plans

The Testing Programme shall include details of Procedures, Standards and acceptance levels and conform to the requirements of Specifications forming part of the Contract documentation.

Compliance tests shall be carried out by a qualified technician from a NATA registered laboratory employed by the Contractor.

Compliance tests shall be carried out to such a degree as to satisfy the Owners Representative that the criteria on moisture content and compaction are met. Testing frequency should be in accordance with the following table:

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Table 1 Required Testing Frequency	
Test Description	Minimum Testing Frequency
Moisture Content	1 per layer per 2500m ²
Atterberg Limits	Min 1 per 5000 m ³
Particle Size Distribution	Min 1 per 5000 m ³
Density Moisture Relation (Standard or Modified compaction)	1 per 3 FDs ^a
Field Dry Density (FD)	1 per layer per 2500m ²

Notes: a. or as directed by the Owner's representative.

The Contractor shall, at their own expense, rework or replace materials which do not meet the compaction requirements, according to the Table 2.

Table 2 Possible Remedial Action for Compacted Fill			
Category	Density Ratio Result	Moisture Result	Remedial Action
A	Pass (greater than 95%)	Pass (within specified limits of -2% to 2%)	Pass no action required
B*	Fail (95% to 93% compaction range)	Pass, (within specified limits of -2% to +2%)	Re roll and re-test or Remove fill, replace and re test
C	Pass (greater than 95%)	Fail more than -2% dry of OMC	Tyne, add water, re roll and re test, or Remove fill, replace and re test
D*	Fail (95% to 93% compaction range)	Fail, more than -2% dry of OMC	Tyne, add water, re roll and re test, or Remove fill, replace and re test
E*	Pass (greater than 95% compaction)	Fail more than +2% wet of OMC	Tyne, allow to dry, re roll and re test, or Remove fill, replace and re test
F	Fail (95% to 93% compaction range)	Fail more than +2% wet of OMC	Tyne allow to dry reroll and retest or remove fill, replace and re test
G	Fail compaction 93% or lower (2% below 95%)	Fail OMC not considered	Remove fill and replace

* For categories B, D and E if only 1 test result fails in a job lot of 5 or more tests then the single failed result can be accepted based on the discretion of the Principal provided the result is from a job lot for the same layer tested at the same time along the same wall. Minimum compaction requirement is 95% SMDD and moisture content range is +2% to -2% of OMC, refer to Section 2.5.

7 PERMITS, LICENCES AND APPROVALS

Further to the General Conditions of Contract, the Principal will obtain all Government Approvals relevant to the works.

All other necessary permits, licenses and approvals shall be obtained by the Contractor.

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8 SUBSTITUTIONS

The Contractor shall:

- Not substitute any alternative to the equipment and materials included in the Works without the prior written consent of the Principal.
- Make diligent efforts to utilise the specified Materials to be incorporated into the Works but where the Contractor considers there are commercial or other advantages to be derived by the Principal, the Contractor may submit a proposal for a substitute material for approval by the Principal prior to commencement of the work. Such proposal for substitution shall be in writing and state reasons for and (if applicable) advantages of the substitute material. The Principal shall determine whether the substitute material will be permitted and such determination shall be binding and conclusive upon the Contractor. Approval of a substitution will be given as a variation under of the General Conditions of Contract incorporating any adjustment to the Contract Sum.

9 SHIPMENT (GENERAL)

The Contractor shall be responsible for transporting the Plant and Equipment to the site and shall maintain full responsibility for loading, unloading, handling, site storage and insurance of the Plant and Equipment during transportation.

Notice of dispatch shall be sent by the Contractor to the Principal at the time of dispatch of all consignments of Plant. Such notice shall contain the method and date of dispatch and date of arrival on site.

10 TEMPORARY SERVICES AND FACILITIES

10.1 Furnished by Principal

This section provides a list of Principal furnished Services other than those items listed in Sections 1.2 and 4.0.

Any services or materials not specifically identified as being provided by the Principal shall be provided by the Contractor.

10.1.1 Materials

Problems

Where the Principal agrees to supply Materials to the Contractor in the performance of the Contract then the following conditions will apply:

- (i) The items shall be included in the Contractor's materials procurement schedules. The Contractor shall, upon arrival at Site to commence work, check and ensure that Principal

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Supplied Materials are available and will not cause any delay to the Contractor's work progress.

- (ii) Items stored by the Principal, shall be removed from the Principal's store or storage area by the Contractor when required by him or when directed by the Superintendent (whichever is the sooner). However, no items shall be removed from the Principal's store or storage area by the Contractor without first obtaining authority from the Owners Representative and the Contractor shall sign receipts or other documentation required acknowledging receipt of the Free Issue Materials.
- (iii) From the time the Principal Supplied Materials are removed from the Principal's store or storage area or are delivered to the site the Contractor shall be responsible for and shall keep safely and in good order all those Principal Supplied Materials including any returnable packing or containers.
- (iv) The Contractor shall account for all Principal Supplied Materials used and shall return to the Principal in good order and condition any Principal Supplied Materials remaining unused on completion of the work. Subject to any insurance cover the Contractor shall be responsible for the cost of replacement or repair of any Principal Supplied Materials lost or damaged while he is responsible therefore.
- (v) The Contractor shall immediately notify the Owners Representative of any damaged to or loss of any of those Principal Supplied Materials at any time and shall as soon as possible specify the extent and circumstances of the damage or loss.
- (vi) Principal Supplied Materials used by the Contractor are used at the sole risk of the Contractor. Any failure to perform the Contract by the Contractor shall not be excused by any matter or thing arising from or incidental to the use of Principal Supplied Materials.

11 DATA REQUIREMENTS

The Contractor shall submit the following data in addition to the data requirements detailed elsewhere in this Specification to the Principal as part of the Work.

The Contractor shall show the reference Contract Number and identifying item numbers, if applicable, on all data submitted.

11.1 As-built Drawings

Further to the General Conditions of Contract, the Contractor shall supply as built drawings within 14 days of the issue of a Certificate of Practical Completion.

12 CONSTRUCTION PROGRAMME

The Contractor shall provide a construction programme and indicate the following milestone dates.

- Contract Award

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- Notice to Proceed with the Fieldwork
- Principal Completion Date
- Final Completion Date

13 ESTIMATE OF QUANTITIES

A preliminary estimate of quantities has been provided to allow material requirements to be gauged for Staged Construction. The figures have not been calculated by a Quantity Surveyor and are provided for convenience only.



Appendix A

Estimate of Quantities
Stage 1 – 3 Construction
(3 pages)

PROJECT : THICKENED TAILINGS STORAGE FACILITY				Date	24-Jun-11
CLIENT : YTC RESOURCES LTD				Job No	MWP00768AA
LOCATION : HERA, NSW				File	MWP00768AA-TSF cost
SUBJECT : SCHEDULE OF QUANTITIES				Subject	Quantities
				Revision	B
Item	Description	Unit	Quantity	Rate	Amount
1.00	STAGE 1 - TSF CONSTRUCTION				
	<u>Preliminaries & Site Preparation</u>				
1.01	Site establishment, including all preliminaries, insurances etc, mobilisation, demobilisation, borrow management, maintenance of existing tracks	Item	1		\$ 248,000
1.02	Site clearing including grubbing and stockpiling of vegetation from the embankment footprint area and within the TSF basin area (extend approx 10m past the final downstream toe of embankments)	ha	29.4	\$ 2,900.00	\$ 85,260
	<u>Earthworks</u>				
1.03	Strip topsoil (min 0.1m thick) from the perimeter embankment footprint area and within the TSF basin area and stockpile separately from vegetation	m ²	294,000	\$ 6.50	\$ 1,911,000
1.04	Prepare perimeter embankment foundation area	m ²	40,000	\$ 1.50	\$ 60,000
1.05	Excavate cutoff trench beneath embankment (nom 1m deep)	m ³	6,300	\$ 3.50	\$ 22,050
1.06	Backfill cutoff trench beneath embankment (nom 1m deep) with compacted clayey borrow	m ³	-		In 1.07
1.07	Borrow, transport, place and roller compact borrow material to perimeter embankment	m ³	107,000	\$ 11.00	\$ 1,177,000
1.08	Stockpiling of clayey fill for later stages	m ³	53,000	\$ 6.50	\$ 344,500
1.09	Borrow, transport, place and traffic compact mine waste to decant accessway	m ³	750	\$ 11.00	\$ 8,250
1.10	Construct containment bund and pipeline trench (pipeline corridor)	m	2,100	\$ 17.50	\$ 36,750
	<u>Decant structure</u>				
1.11	Construct decant tower footing (including excavation, foundation compaction, supply and installation of concrete and reinforcing, etc)	m ²	2.0	\$ 1,500.00	\$ 3,000
1.12	Supply and place 1.8m DIA slotted concrete well liners to decant towers (internal flush joints)	No.	5	\$ 6,000.00	\$ 30,000
1.13	Infill concrete plug to base of decant tower	m ³	0.5	\$ 1,500.00	\$ 750
1.14	Load, haul, place and spread clean filter rock around decant tower	m ³	900	\$ 46.00	\$ 41,400
	SUB-TOTAL				\$ 3,967,960
	<u>Ancillary Items</u>				
1.15	Airfares for Contractors / Superintendent personnel	No.			\$ -
1.16	Accommodation and meals for Contractors	Person days			\$ -
1.17	Fuel supplied by Principal	L			In rates
1.18	Construction monitoring costs (Superintendent and vehicle incl misc)	Days	75	\$1,850.00	\$ 138,750
1.19	QA/QC Geotechnical Testing	Days	75	\$2,300.00	\$ 172,500
1.20	Construction report and office support	Allow	1	\$11,500.00	\$ 11,500
	SUB-TOTAL				\$ 322,750
	Contingency 10%				\$ 429,071
	TOTAL BUDGET COST-STAGE 1				\$ 4,719,781

Notes:

1. The above quantities have not been calculated by a Quantity Surveyor.
2. The above quantities do not include pumping, piping and electrical of the decant and the central risers.



PROJECT : THICKENED TAILINGS STORAGE FACILITY				Date	24-Jun-11
CLIENT : YTC RESOURCES LTD				Job No	MWP00768AA
LOCATION : HERA, NSW				File	MWP00768AA-TSF cost
SUBJECT : SCHEDULE OF QUANTITIES				Subject	Quantities
				Revision	B
Item	Description	Unit	Quantity	Rate	Amount
2.00	STAGE 2 - TSF RAISING				
	<u>Preliminaries & Site Preparation</u>				
2.01	Site establishment, including all preliminaries, insurances etc, mobilisation, demobilisation, borrow management, maintenance of existing tracks	Item	1		\$ 144,000
2.02	Site clearing including grubbing and stockpiling of vegetation from the embankment footprint area and within the TSF basin area (extend approx 10m past the final downstream toe of embankments)	ha	10.5	\$ 2,900.00	\$ 30,450
	<u>Earthworks (Embankment Raising)</u>				
2.03	Strip topsoil (min 0.1m thick) from the perimeter embankment footprint area and within the TSF basin area and stockpile separately from vegetation	m ³	105,000	\$ 6.50	\$ 682,500
2.04	Prepare perimeter embankment foundation area	m ²	26,000	\$ 1.50	\$ 39,000
2.05	Excavate cutoff trench beneath embankment (nom 1m deep)	m ³	1,400	\$ 3.50	\$ 4,900
2.06	Backfill cutoff trench beneath embankment (nom 1m deep) with compacted clayey borrow	m ³			In 2.06
2.07	Borrow, transport, place and roller compact borrow material to perimeter embankment	m ³	80,000	\$ 11.00	\$ 880,000
2.08	Borrow, transport, place and traffic compact mine waste to decant accessway	m ³	250	\$ 11.00	\$ 2,750
	<u>Decant Structure Raising</u>				
2.09	Raise the existing decant structures (including concrete well liners, etc)	No.	1	\$ 6,000.00	\$ 6,000
2.10	Load, haul, place and spread clean filter rock around decant tower	m ³	500	\$ 46.00	\$ 23,000
	SUB-TOTAL				\$ 1,812,600
	<u>Ancillary Items</u>				
2.11	Airfares for Contractors / Superintendent personnel	No.			\$ -
2.12	Accommodation and meals for Contractors	Person days			\$ -
2.13	Fuel supplied by Principal	L			In rates
2.14	Construction monitoring costs (Superintendent and vehicle incl misc)	Days	60	\$1,850.00	\$ 111,000
2.15	QA/QC Geotechnical Testing	Days	60	\$2,300.00	\$ 138,000
2.16	Construction report and office support	Allow	1	\$11,500.00	\$ 11,500
	SUB-TOTAL				\$ 260,500
	Contingency 10%				\$ 207,310
	TOTAL BUDGET COST-STAGE 2				\$ 2,280,410

Notes:

1. The above quantities have not been calculated by a Quantity Surveyor.
2. The above quantities do not include pumping, piping and electrical of the decant and the central risers.



PROJECT : THICKENED TAILINGS STORAGE FACILITY				Date	24-Jun-11
CLIENT : YTC RESOURCES LTD				Job No	MWP00768AA
LOCATION : HERA, NSW				File	MWP00768AA-TSF cost
SUBJECT : SCHEDULE OF QUANTITIES				Subject	Quantities
				Revision	B
Item	Description	Unit	Quantity	Rate	Amount
3.00	STAGE 3 - TSF RAISING				
	<u>Preliminaries & Site Preparation</u>				
3.01	Site establishment, including all preliminaries, insurances etc, mobilisation, demobilisation, borrow management, maintenance of existing tracks	Item	1		\$ 179,000
3.02	Site clearing including grubbing and stockpiling of vegetation from the embankment footprint area and within the TSF basin area (extend approx 10m past the final downstream toe of embankments)	ha	6.3	\$ 2,900.00	\$ 18,270
	<u>Earthworks (Embankment Raising)</u>				
3.02	Strip topsoil (min 0.1m thick) from the perimeter embankment footprint area and within the TSF basin area and stockpile separately from vegetation	m ²	63,000	\$ 6.50	\$ 409,500
3.03	Prepare perimeter embankment foundation area	m ²	31,000	\$ 1.50	\$ 46,500
3.04	Excavate cutoff trench beneath embankment (nom 1m deep)	m ²	4,000	\$ 3.50	\$ 14,000
3.05	Backfill cutoff trench beneath embankment (nom 1m deep) with compacted clayey borrow	m ³			In 3.06
3.06	Borrow, transport, place and roller compact borrow material to perimeter embankment	m ³	100,000	\$ 11.00	\$ 1,100,000
3.07	Borrow, transport, place and traffic compact mine waste to decant accessway	m ³	250	\$ 11.00	\$ 2,750
	<u>Decant Structure Raising</u>				
3.08	Raise the existing decant structures (including concrete well liners, etc)	No.	1	\$ 6,000.00	\$ 6,000
3.09	Load, haul, place and spread clean filter rock around decant tower	m ³	500	\$ 46.00	\$ 23,000
	SUB-TOTAL				\$ 1,799,020
	<u>Ancillary Items</u>				
3.10	Airfares for Contractors / Superintendent personnel	No.			\$ -
3.11	Accommodation and meals for Contractors	Person days			\$ -
3.12	Fuel supplied by Principal	L			In rates
3.13	Construction monitoring costs (Superintendent and vehicle incl misc)	Days	70	\$1,850.00	\$ 129,500
3.14	QA/QC Geotechnical Testing	Days	70	\$2,300.00	\$ 161,000
3.15	Construction report and office support	Allow	1	\$11,500.00	\$ 11,500
	SUB-TOTAL				\$ 302,000
	Contingency 10%				\$ 210,102
	TOTAL BUDGET COST-STAGE 3				\$ 2,311,122

Notes:

1. The above quantities have not been calculated by a Quantity Surveyor.
2. The above quantities do not include pumping, piping and electrical of the decant and the central risers.



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