

Table 8
Predicted Scenario 1b Noise Levels¹

Residence ²	Spectrum (2010)		Spectrum (2013)		Differential	
	Neutral	Inversion	Neutral	Inversion	Neutral	Inversion
Criterion	35	-	35	-		
R15	32	-	32	-	0	-
R27	34	-	34	-	0	-
R29	26	-	26	-	0	-
R30	30	-	30	-	0	-
R31	35	-	35	-	0	-
R32	33	-	33	-	0	-
R33	32	-	32	-	0	-
R107	32	-	32	-	0	-
R108	33	-	33	-	0	-
Note 1: Units = dB(A), _{Leq(15min)}						
Note 2: For residence location, see Figure 10						
Source: Spectrum (2013) – After Table 2						

4.2.5.3 Operations - Scenario 2

Table 9 and **Figure 10** present the results of the noise assessment for Scenario 1b during the night-time under temperature inversion condition. Spectrum (2013) assessed this scenario under night-time temperature inversions conditions as a worst case scenario. In summary, the proposed modification is likely to result in a minor change to the noise levels at surrounding residences, with some residences receiving up to a 2dB(A) increase in noise levels, while others are expected to receive a reduction in noise levels of up to 3dB(A). The document *Environmental Criteria for Road Traffic Noise* published by the Environmental Protection Authority in 1999 states:

The minimum detectable change in a constant noise level is approximately 1 dB under ideal conditions, or 2 dB under field conditions. Given the fact that a change of this magnitude is likely not to be noticed by residents experiencing it, it can be assumed that ... significant [noise impacts] would not apply to changes in noise exposure of 2 dB or less.

As a result, the Proponent contends that a predicted increase in noise levels of up to 2dB(A) to 33dB(A) at Residence R108 would not be significant.

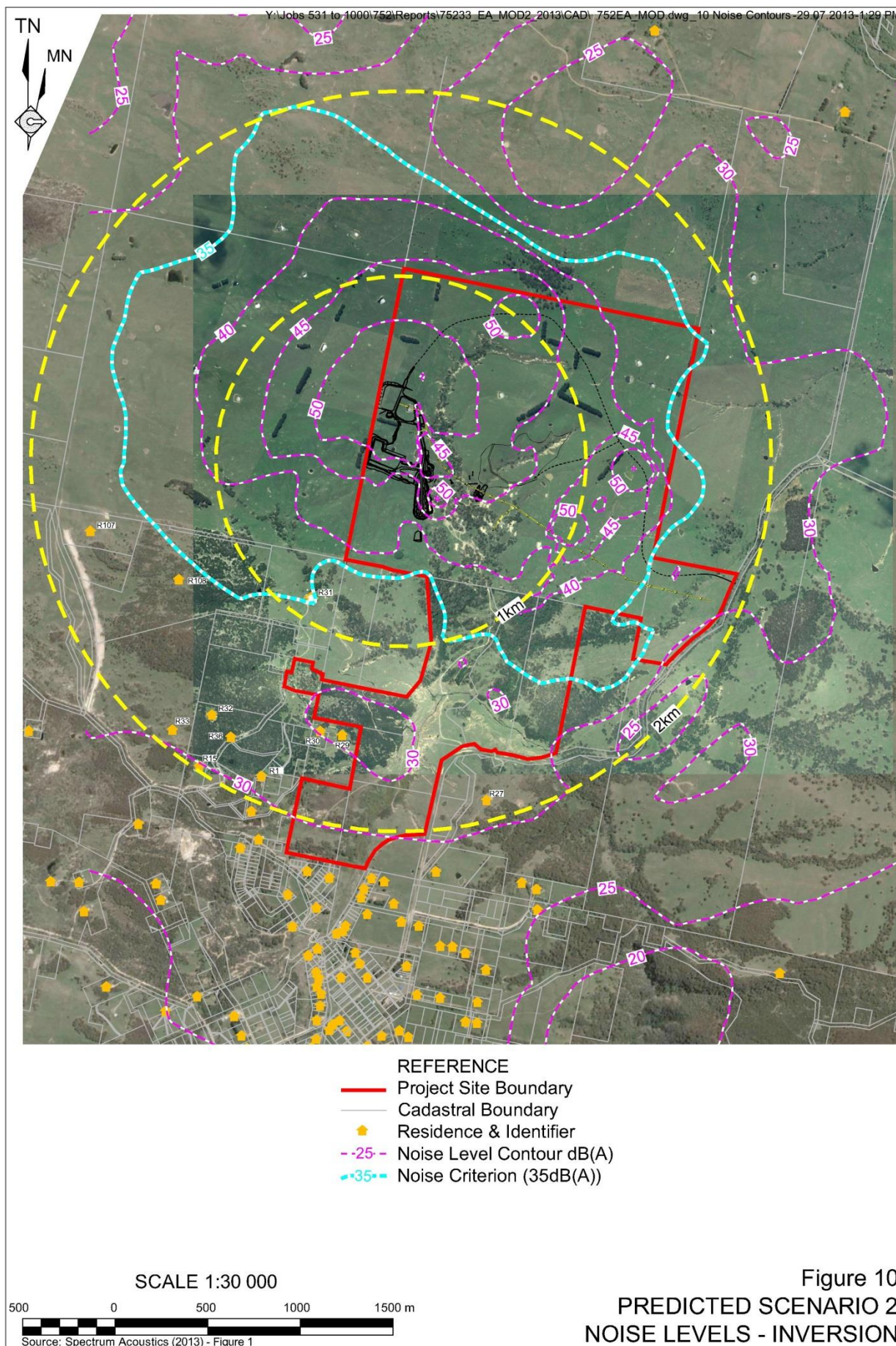


Table 9
Predicted Operational Noise Levels¹

Residence ²	Spectrum (2010)		Spectrum (2013)		Differential	
	Neutral	Inversion	Neutral	Inversion	Neutral	Inversion
Criterion	-	35	-	35		
R15	-	33	-	32	-	-1
R27	-	31	-	31	-	0
R29	-	23	-	25	-	+2
R30	-	25	-	26	-	+1
R31	-	31	-	31	-	0
R32	-	31	-	28	-	-3
R33	-	30	-	29	-	-1
R107	-	33	-	30	-	-3
R108	-	31	-	33	-	+2
Note 1: Units = dB(A), L _{eq} (15min)						
Note 2: For residence location, see Figure 10						
Source: Spectrum (2013) – After Table 3						

4.2.6 Monitoring

As the predicted noise impacts associated with the Project are broadly in line with those associated with the approved Project, no changes to the existing monitoring program outlined in the *Noise Management Plan* are proposed.

4.3 ECOLOGY

Figure 11 presents an overview of the proposed layout overlaid on the vegetation communities identified in RWC (2010a). In addition, **Table 10** presents the areas of disturbance for each community for both the approved and proposed layouts. In summary, with the exception of the following, the proposed modification would not result in any additional disturbance to vegetation communities.

- Community 7 – Native-dominated Pasture.
- Community 8 - Exotic-dominated Pasture.

The Proponent acknowledges the feedback received from the Office of Environment and Heritage in relation to the proposed relocated, buried 11kV power line for the return air rise. In order to ensure that there would be no adverse impact on trees in the vicinity of the power line, the Proponent would ensure that the power line is installed in accordance with *AS4970-2009 - Protection of Trees on Development Sites*. In particular, the Proponent would ensure that the power line is installed outside the Tree Protection Zone for trees in the vicinity of the power line route. This commitment has been embodied in revised Commitment 5.13 presented in Section 2.1.3.

As a result, the Proponent contends that the proposed modification would not result in changes to the approved ecology-related impacts.

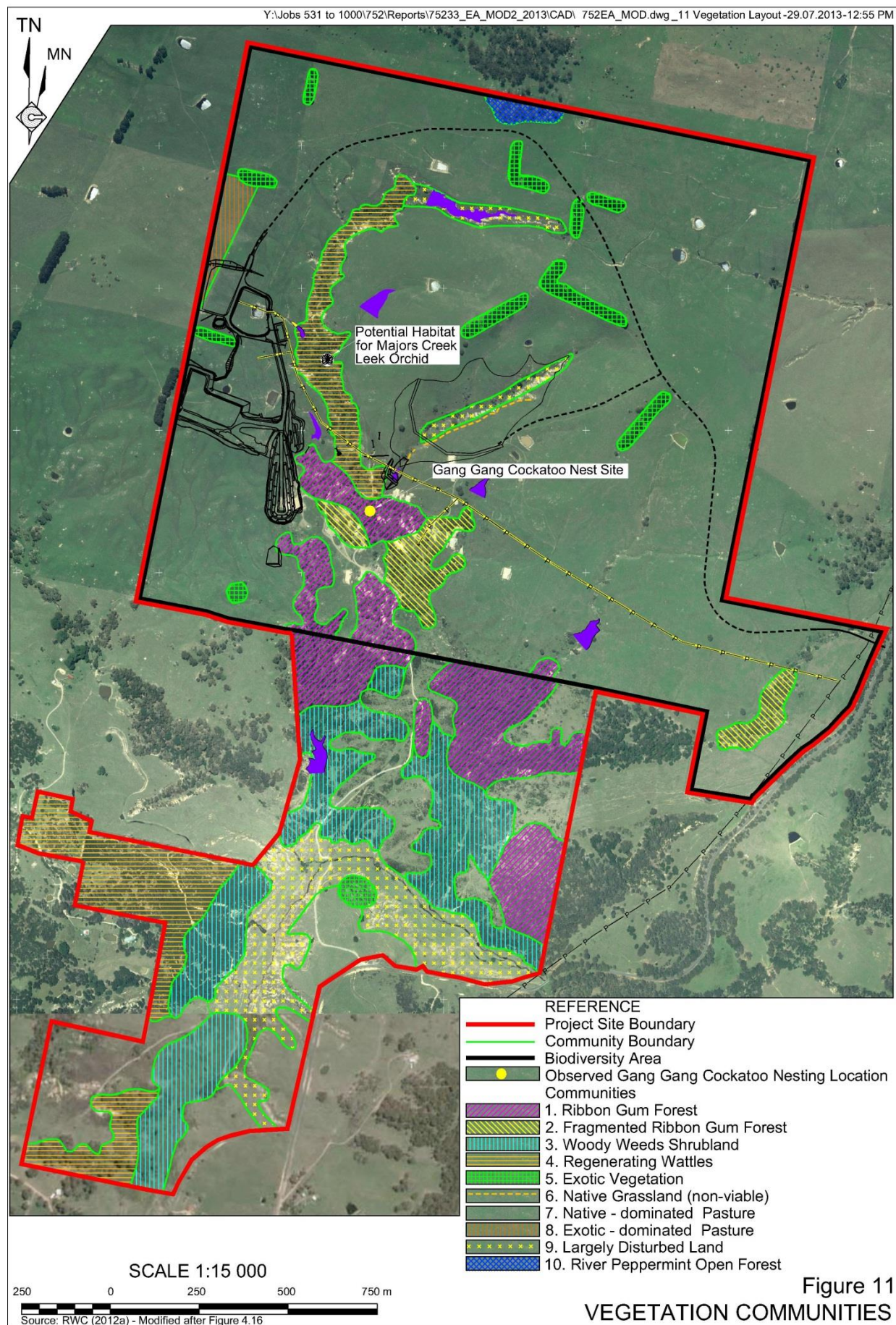


Figure 11
VEGETATION COMMUNITIES

Table 10
Vegetation Communities - Approved and Proposed Areas of Disturbance

Vegetation Community	Area to be disturbed (ha)		Area within Project Site (ha)
	Approved Layout ¹	Proposed Layout	
1 - Ribbon Gum - Snow Gum Grassy Open Forest	0.1	0.1	28.2
2 - Fragmented Ribbon Gum - Snow Gum Grassy Open Forest	0.1	0.1	7.1
3 - Woody Weeds Shrubland	0.1	0.1	30.1
4 - Regenerating Wattles	-	-	18.5
5 - Exotic Vegetation	0.2	0.2	5.6
6 – Native Grassland	0.2	0.2	0.2
7 – Native-dominated Pasture	23.6	25.3	280.1
8 Exotic-dominated Pasture	-	0.3	2.5
9 – Largely Disturbed Land	2.2	2.2	23.1
10 – River Peppermint Open Forest	-	-	1.3
Total	26.5	28.6	396.6
Note 1: Areas of disturbance are consistent with Figure 4.17 of RWC (2010a). This does not include minor areas between individual infrastructure items			
Note 2: Includes areas between individual infrastructure items.			
Source: RWC (2010a) – After Figure 4.17			

4.4 GROUNDWATER

The proposed modification would not result in any changes to the mining schedule or depth of the approved mining operations. As a result, no changes to the approved groundwater impacts are anticipated.

4.5 SURFACE WATER

The proposed modification would not result in changes to the approved:

- site water balance;
- sources and flows of operational water within the Project Site;
- drainage paths;
- rate of groundwater recharge;
- management of pollutants (see, however, discussion below); and
- management of waste water within the Project Site.

In addition, the proposed modification would not result in additional impacts on Spring Creek nor changes to the proposed Harvestable Rights Dams and surface water harvesting program.

The Proponent notes, however, that the Project's *Sediment and Erosion Control Plan* was updated on 2 April 2013 to take into account the as-constructed site layout presented in **Figure 4**. In addition, the Proponent has agreed with the EPA through an agreed Pollution Reduction Program to further refine the *Sediment and Erosion Control Plan* to take into account a range of additional factors, including a review of meteorological records to verify the assumptions used in preparation of the Plan. The revised plan will be prepared in consultation with the EPA and will be incorporated into a revised *Water Management Plan* for the approval of the Director-General of the Department of Planning and Infrastructure in accordance with Condition 5(4) of MP10_0054.

Finally, contrary to correspondence received from the EPA (see **Table 5**), the Proponent contends that it was never intended to incorporate the revised *Sediment and Erosion Control Plan*, which was still in preparation at the time of finalisation of this document, into this document.

4.6 ABORIGINAL HERITAGE

Table 1 of the *Aboriginal Heritage Assessment* prepared to support the original application for Project Approval (ASR, 2010) provides an overview of the effective survey coverage for the relevant landforms within the Project Site and indicates a survey area of 403ha. The area of the Project Site is 403ha. As a result, the Proponent contends that the entire Project Site, including the areas of proposed additional disturbance, has been the subject of an archaeological survey.

Figure 6 presents the location of sites of Aboriginal heritage significance identified by ASR (2010), as well as an additional site identified by the Proponent and confirmed by Artefact Heritage Services (GT OS6) during routine mineral exploration operations in 2011. The proposed modification would not result in disturbance of any known site of Aboriginal heritage significance. The Proponent notes, however, that potential exists for previously unidentified sites to be identified during construction of the Project, as exemplified by the Proponent's discovery of GT OS6. The Proponent would ensure that the measures identified in Section 4.6.6 of RWC (2010a) and the *Aboriginal Heritage Management Plan* (Artefact, 2012) continue to be implemented throughout the life of the Project. These would include, but not be limited to:

- Relocation of sites GT OS1 and GT OS2 in the field and erection of a suitable fence at a distance of at least 20m from the site (complete).
- Training of the Project workforce in the identification of previously unidentified Aboriginal objects, and the immediate actions to be implemented, including ceasing work in the vicinity of the object and reporting the find to the Project Environment and Community Manager.

In light of the above, the Proponent contends that impacts associated with the proposed modification would be no greater than those associated with the approved Project and that there is no requirement for further investigation or test excavation.

4.7 NON-ABORIGINAL HERITAGE

The proposed modification would not result in additional impacts to sites of Aboriginal or non-Aboriginal heritage significance.

4.8 BUSHFIRE

The proposed modification would not result in additional infrastructure being constructed in vegetated areas, nor an increase in the risk of bushfire within the Project Site. As a result, no additional bushfire-related impacts are anticipated.

4.9 TRAFFIC AND TRANSPORTATION

The proposed modification would not result in changes to the frequency, volume, type or times of vehicle movements outside the Project Site. As a result, no additional traffic and transportation-related impacts are anticipated.

4.10 AIR QUALITY AND ENERGY

The proposed modification would not result in changes to emissions of particulate matter or gaseous emissions, including greenhouse gasses. Further, the proposed modification would not result in a change to the energy usage of the Project. As a result, no additional air quality and energy related impacts are anticipated.

4.11 VISUAL AMENITY

The proposed modification would result in the following changes to the Project that could potentially change visual character of the Project.

- ROM Pad/amenity bund has moved north, been extended to the west and lowered by approximately 5m. This has the potential to reduce the direct visual impact of the ROM pad/amenity bund. However, conversely, this also has the potential to reduce screening provided by the ROM Pad/amenity bund for the processing plant.
- The box cut has moved north and is slightly wider. As the box cut is a depression, this change is unlikely to change the visual character of the Project.
- The Site Access Road and Tailings Storage Facility Access Road have been relocated. Relocation of the Site Access Road is unlikely to change the visual character of the Project, however, relocation of the Tailings Storage Facility Access Road to the north of an existing ridgeline would shield vehicles moving on that road from observers to the south.

As a result, the only significant change to the visual character of the Project is likely to be the changes to the ROM pad/amenity bund. **Figure 12** presents a range of sections from vantage points surrounding the Project Site. In summary, the only component of the processing that is likely to be visible from outside the Project Site is the upper few metres of the cement silo. This structure would have non-reflective surface and would be a dull colour that would blend with the background.

As a result, the Applicant contends that the Project would not result in adverse visual amenity impacts surrounding the Project Site.

4.12 SOIL AND LAND CAPABILITY

The proposed modification would not result in changes to soil management practices of the soil units disturbed by the Project. As a result, no additional land capability-related impacts are anticipated.

4.13 SOCIO-ECONOMIC CLIMATE

The Proponent notes that the proposed modification would result in no change to:

- the number of persons employed by the Project, either during construction or operation;
- the training and support of employees or others in the vicinity of the Project Site; or
- the demand for services or infrastructure in the vicinity of the Project Site.

As a result, the Proponent contends that the proposed modification would not result in a net change to the socio-economic benefit when compared with the approved Project.

5. EVALUATION AND JUSTIFICATION OF THE PROPOSED MODIFICATION

5.1 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

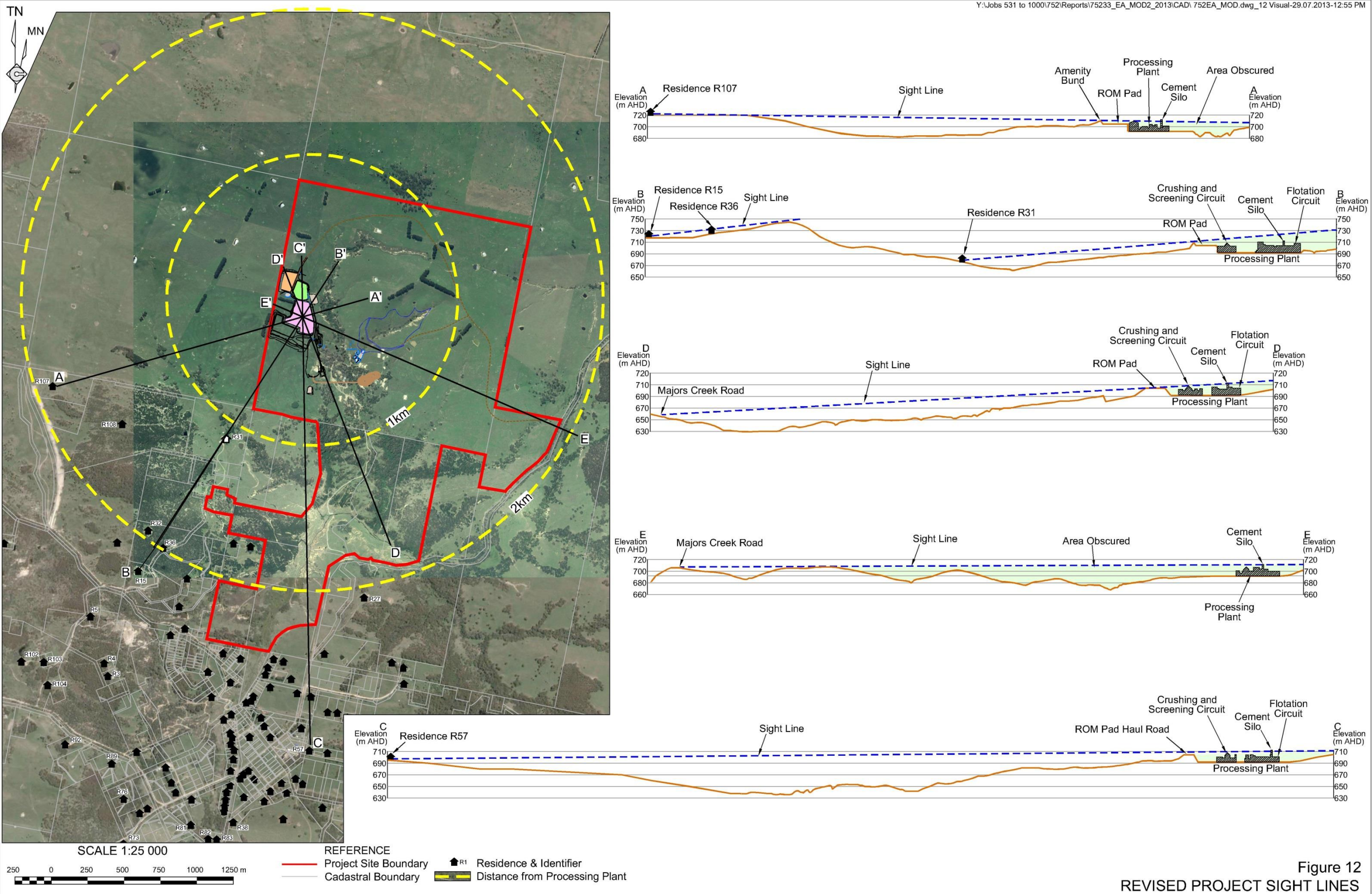
5.1.1 Introduction

Throughout the design of the proposed modification, the Proponent has endeavoured to address each of the sustainable development principles. The following subsections draw together the features of the proposed modification that reflect the four principles of sustainable development, namely:

- the precautionary principle;
- the principle of social equity;
- the principle of the conservation of biodiversity and ecological integrity; and
- the principle for the improved valuation and pricing of environmental resources.

5.1.2 The Precautionary Principle

In order to satisfy this principle, emphasis must be placed on anticipation and prevention of environmental damage, rather than reacting to it. Since receipt of Project Approval, the Proponent engaged specialist in their fields to undertake detailed design for the Project. These specialists were provided with a series of operational and design criteria, including that the detailed design must be generally in accordance with the approved layout and that the environmental and other impacts associated with the detailed design must be in line with those associated with the approved Project.



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Examples of matters relating to the precautionary principle that were considered during the various stages of the design and assessment of the proposed modification include the following.

- The surface of the ROM pad has been lowered by 6m, resulting in reduced visual amenity impacts.
- The noise assessment was re-run using the same modelling methodology as that used to determine the noise impacts associated with the approved Project. The revised assessment concluded that there would be negligible changes in noise levels during site establishment and that during mining operations, noise levels would change by between +2d(B(A) and -3dB(A).
- The *Sediment and Erosion Control Plan* has been updated by a certified professional in sediment and erosion control and would continue to be updated as construction operations continue.

In light of the above, the Proponent contends that the Precautionary Principle has been considered during all stages of the design and assessment of the proposed modification and that the assessment provides a high degree of certainty that the proposed modification would not result in any impacts that differ significantly from those associated with the approved Project.

5.1.3 Social Equity

Social equity embraces value concepts of justice and fairness so that the basic needs of all sectors of society are met and there is a fair distribution of costs and benefits to the community. Social equity includes both inter-generational (between generations) and intra-generational (within generations) equity considerations.

As the proposed modification relates to relatively minor adjustments to the site layout there would be no significant change to amenity-related impacts. In addition, the Proponent has consulted its neighbours, the surrounding community and relevant government agencies during preparation of this document. As a result, the Proponent contends that the proposed modification is consistent with the principle of social equity.

5.1.4 Conservation of Biological Diversity and Ecological Integrity

The protection of biodiversity and maintenance of ecological processes and systems are central goals of sustainability. It is important that developments do not threaten the integrity of the ecological system as a whole or the conservation of threatened species in the short- or long-term. The proposed modification is consistent with this principle for the following reasons..

- The proposed modification would result in no additional disturbance of sensitive vegetation communities.
- The Proponent's continued commitment to ensuring that the *Sediment and Erosion Control Plan* is updated and fully implemented would ensure that there is no adverse impact to downstream ecological systems.

5.1.5 Improved Valuation and Pricing of Environmental Resources

The issues that form the basis of this principle relate to the acceptance that:

- the polluter pays;
- when all resources are appropriately valued, cost-effective environmental stewardship is adopted; and
- the adoption of user-pays principle based upon the full life cycle of the costs.

The proposed modification would result in a more efficient operation of the Project than the approved layout while ensuring that the levels of disturbance remain largely unchanged.

5.1.6 Conclusion

The approach taken in planning the proposed modification has been multi-disciplinary, involved consultation with the Dargues Reef Community Consultative Committee and various government agencies and emphasis on the application of safeguards to minimise potential environmental, social and economic impacts. The design of the Project has addressed each of the sustainable development principles, and on balance, it is concluded that the proposed modification achieves a sustainable outcome for the local and wider environment.

5.2 JUSTIFICATION OF THE PROJECT

5.2.1 Introduction

In assessing whether the development and operation of the proposed modification is justified, consideration has been given both to the predicted residual impacts on the local and wider environment and the potential benefits the proposed modification would have for the Proponent and the surrounding community. This subsection provides a justification of the proposed modification in terms of its biophysical and socio-economic considerations, as well as an assessment of the relevant planning considerations and consequences of not proceeding with the proposed modification.

5.2.2 Biophysical Considerations

Section 4 of this document identifies the potential residual biophysical impacts of the proposed modification. In summary, the proposed modification would result in no or negligible additional impact on the following.

- Groundwater.
- Surface water.
- Aboriginal and non- Aboriginal heritage.
- Bushfire.
- Traffic and Transportation.
- Air quality and greenhouse gas.
- Soil and land capability.

Noise

The proposed modification would result in negligible changes to noise levels associated with the approved Project during the site establishment phase of the Project. During the operational phase of the Project, surrounding residences would experience changes in noise levels varying from a reduction of 3dB(A) to an increase of 2dB(A). The maximum noise levels at surrounding residences during the site establishment and operational phase of the Project would remain 35dB(A) at Residence R31.

Ecology

The proposed modification would not result in any additional disturbance to vegetation communities other than pasture communities. As a result, the Proponent contends that the proposed modification would not result changes to the approved ecology-related impacts.

Visual Amenity

The only significant change to the visual character of the Project is likely to be the changes to the ROM pad/amenity bund.

The proposed modification would result in the following changes to the Project that could potentially change visual character of the Project. In summary, the ROM Pad/amenity bund has moved north, been extended to the west and lowered by approximately 5m. This has the potential to reduce the visual impact of the ROM pad/amenity bund. However, conversely, this also has the potential to reduce screening for the processing plant.

The only component of the processing plant that is likely to be visible from outside the Project Site is the upper section of the cement silo. This structure would be approximately 21m high, have non-reflective surface and would be a dull colour that would blend with the background.

As a result, the Applicant contends that the Project would not result in adverse visual amenity impacts surrounding the Project Site.

5.2.3 Socio-economic Considerations

The proposed modification would result is no change to the number of persons employed within the Project Site, the training that would be provided, or the demand for services within the communities surrounding the Project Site.

As a result of the above, and the fact that the additional biophysical impacts of the proposed modification are negligible or positive, the Proponent contends that the proposed modification would result in a small net socio-economic benefit.

5.2.4 Consequences of not Proceeding with the Proposed Modification

The consequences of not proceeding with the proposed modification include the following.

- Identified efficiencies in the operation of the Project would not be achieved.
- Additional costs would be incurred reinstating areas of existing disturbance for no significant environmental benefit.

It is considered that the benefits of proceeding with the proposed modification therefore far outweigh the minor impacts that would result.

5.3 CONCLUSION

The proposed modification has been designed, as far as practicable, to address the issues of concern to the community and all levels of government. The proposed modification provides for the most efficient recovery of valuable gold resources which contribute significantly to the economies of NSW and Australia.

This document has identified that the proposed modification should proceed because it would:

- satisfy sustainable development principles;
- operate with risks to the local environment minimised to the greatest extent practicable;
- have a negligible or minimal additional adverse impact on the biophysical environment; and
- further contribute to the continued economic activity of the Palerang LGA.

6. REFERENCES

Artefact, 2012 - *Aboriginal Heritage Management Plan*.

ASR, 2010 - *Aboriginal Heritage Assessment*.

Infrastructure SEPP - *State Environmental Planning Policy (Infrastructure) 2007*.

Landcom, 2004 and **DECC 2008a** and **2008b** - *Managing Urban Stormwater - Volumes 1, 2c and 2e*.

Mining SEPP - *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*.

RWC, 2010a - *Environmental Assessment* dated September 2010.

RWC, 2010b - *Response to Submissions* dated December 2010.

RWC, 2012a - *Environmental Assessment – Modification 1* dated April 2012.

RWC, 2012b - *Response to Submissions* dated June 2012.

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Appendices

(Total No. of pages including blank pages = 32)

- Appendix 1 Figures for Inclusion in Modified Project Approval
- Appendix 2 Government Agency Consultation
- Appendix 3 Noise Assessment Report

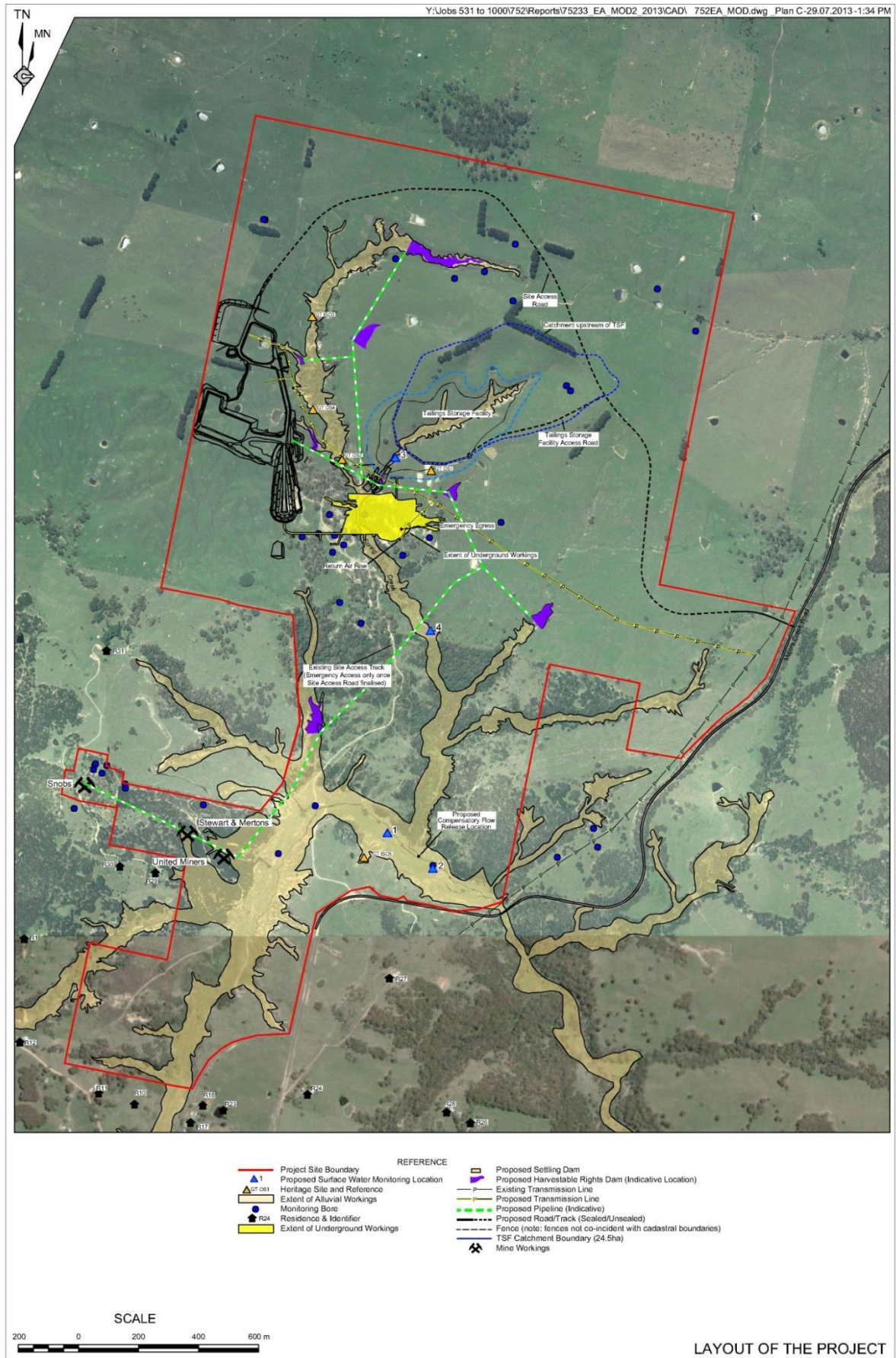
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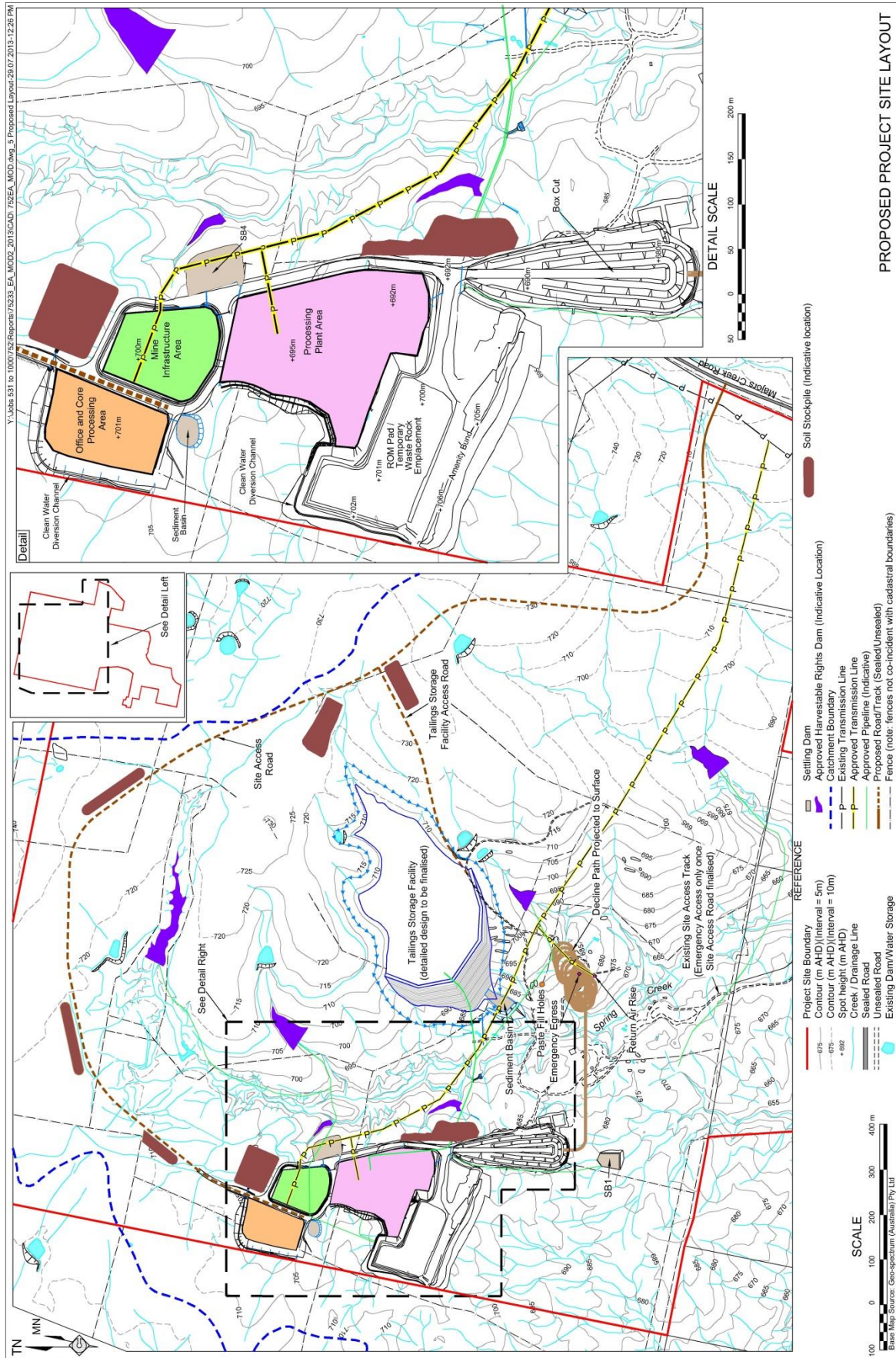
Appendix 1

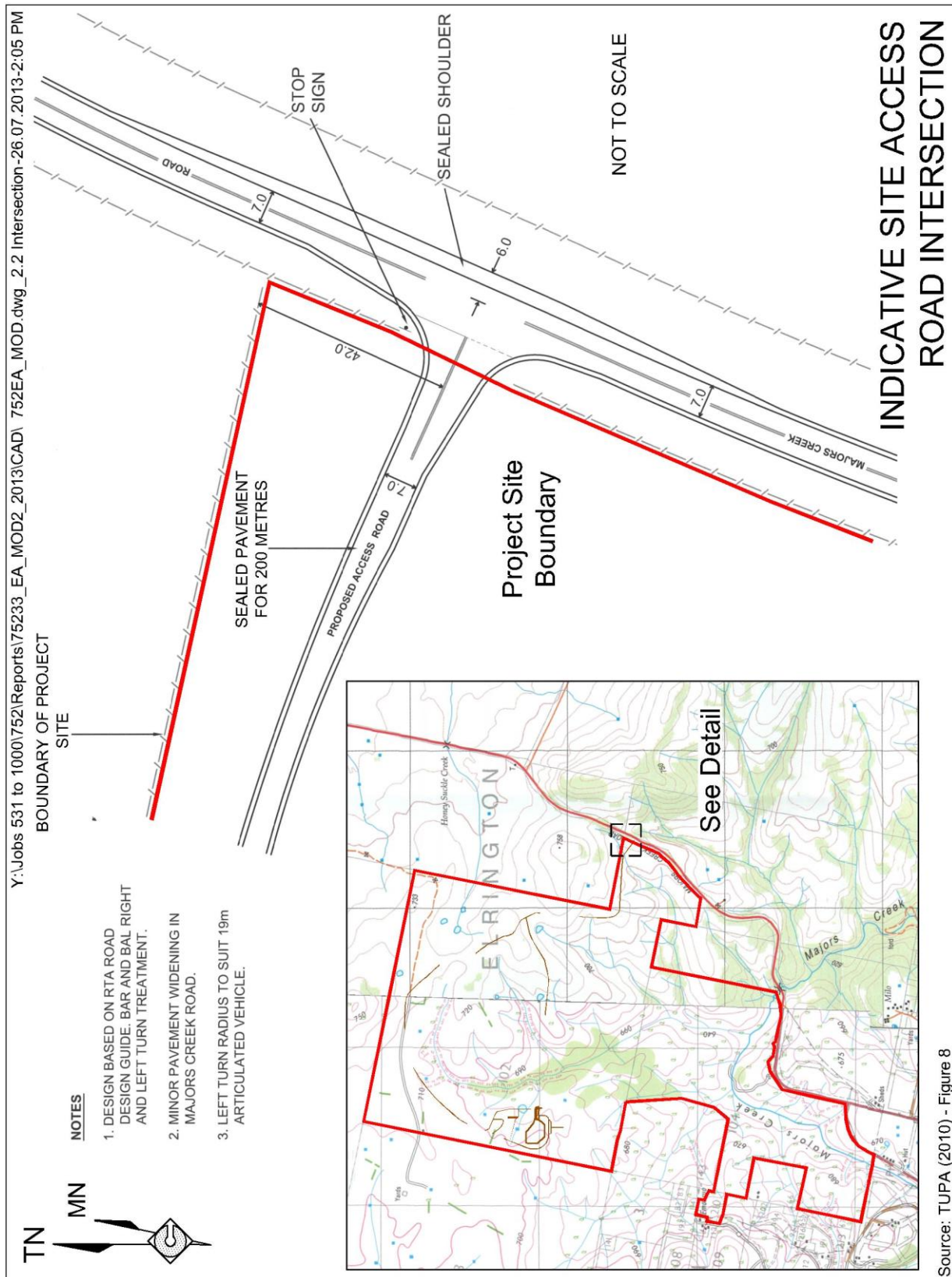
Figures for Inclusion in Modified Project Approval

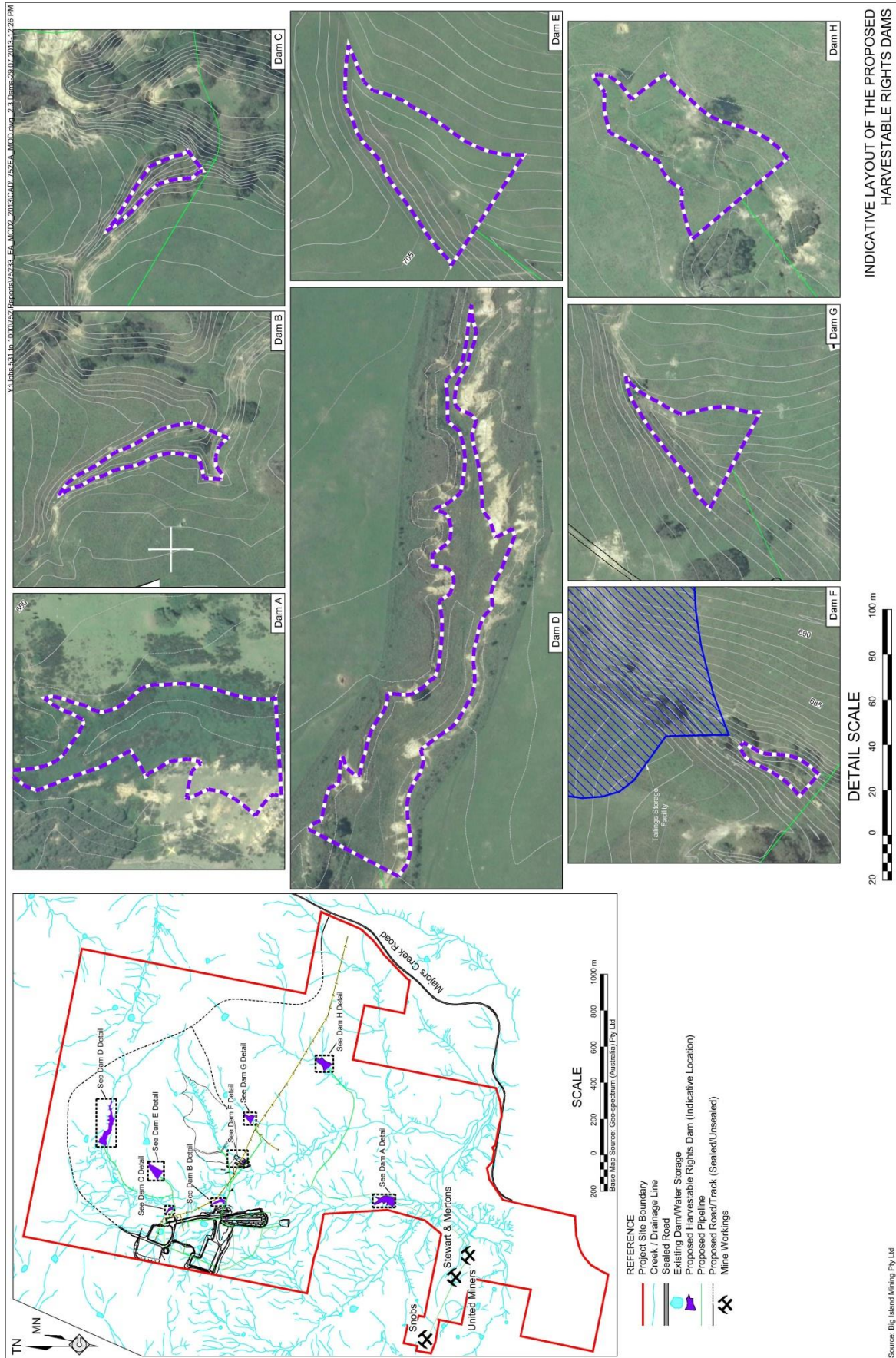
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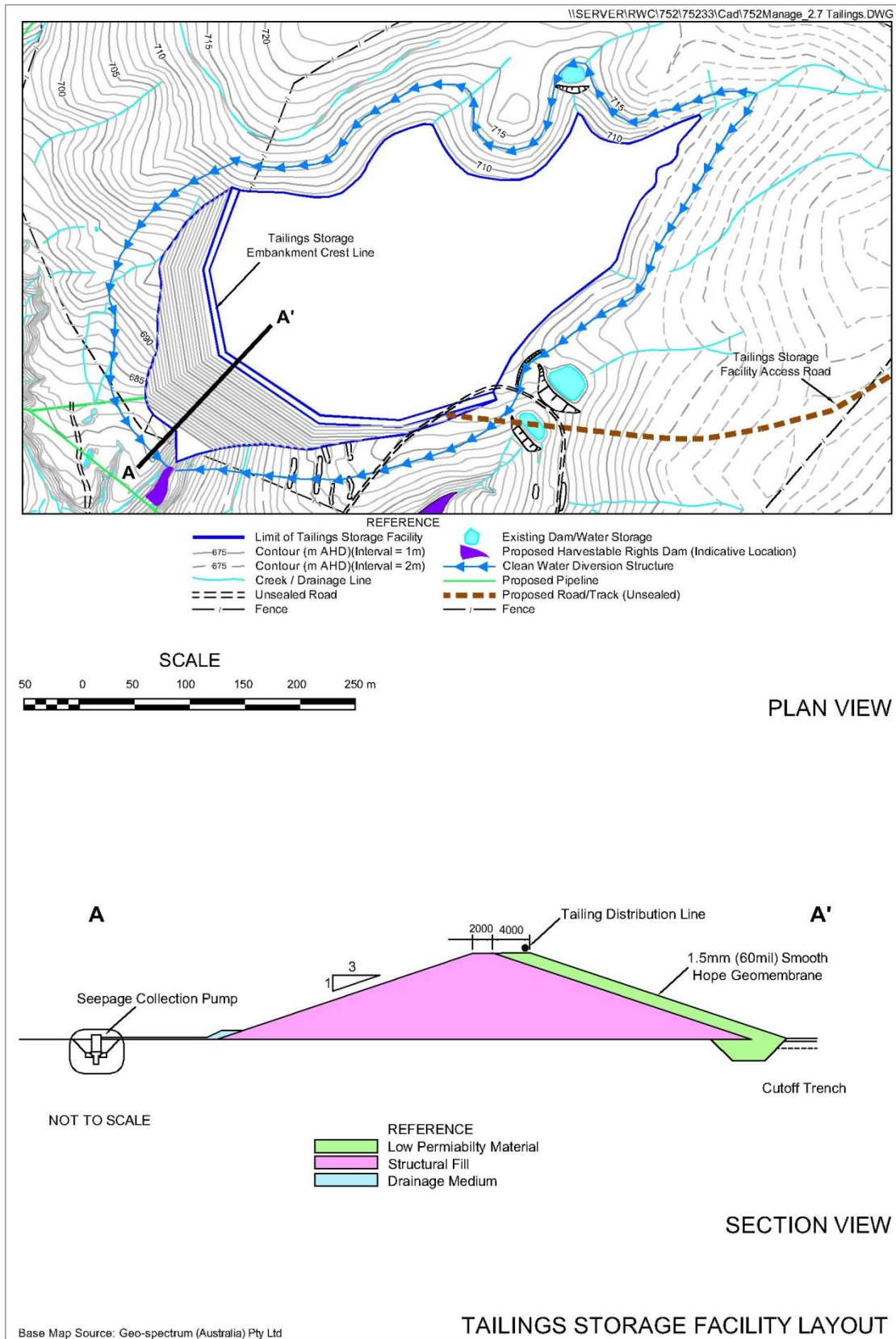
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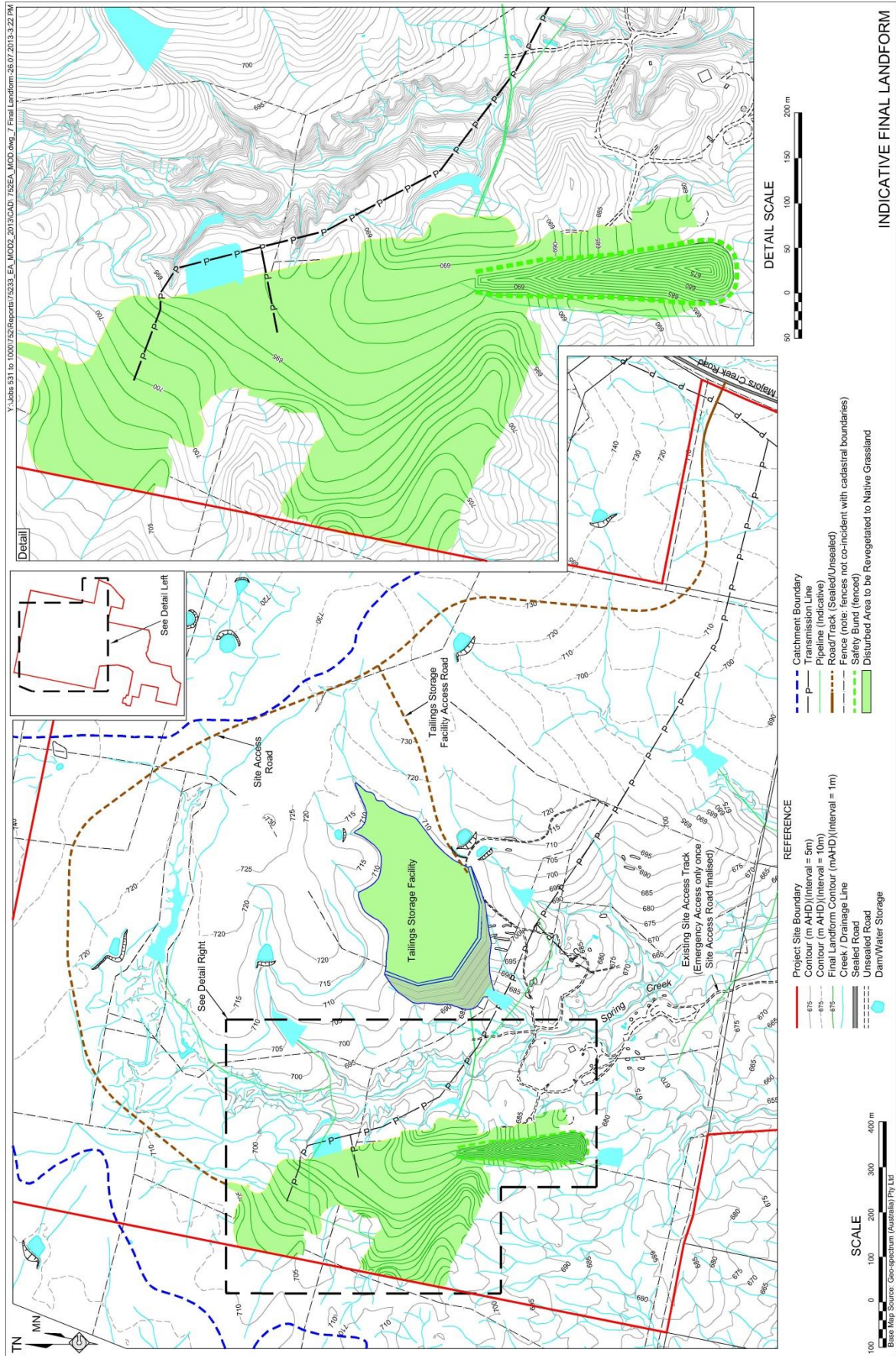


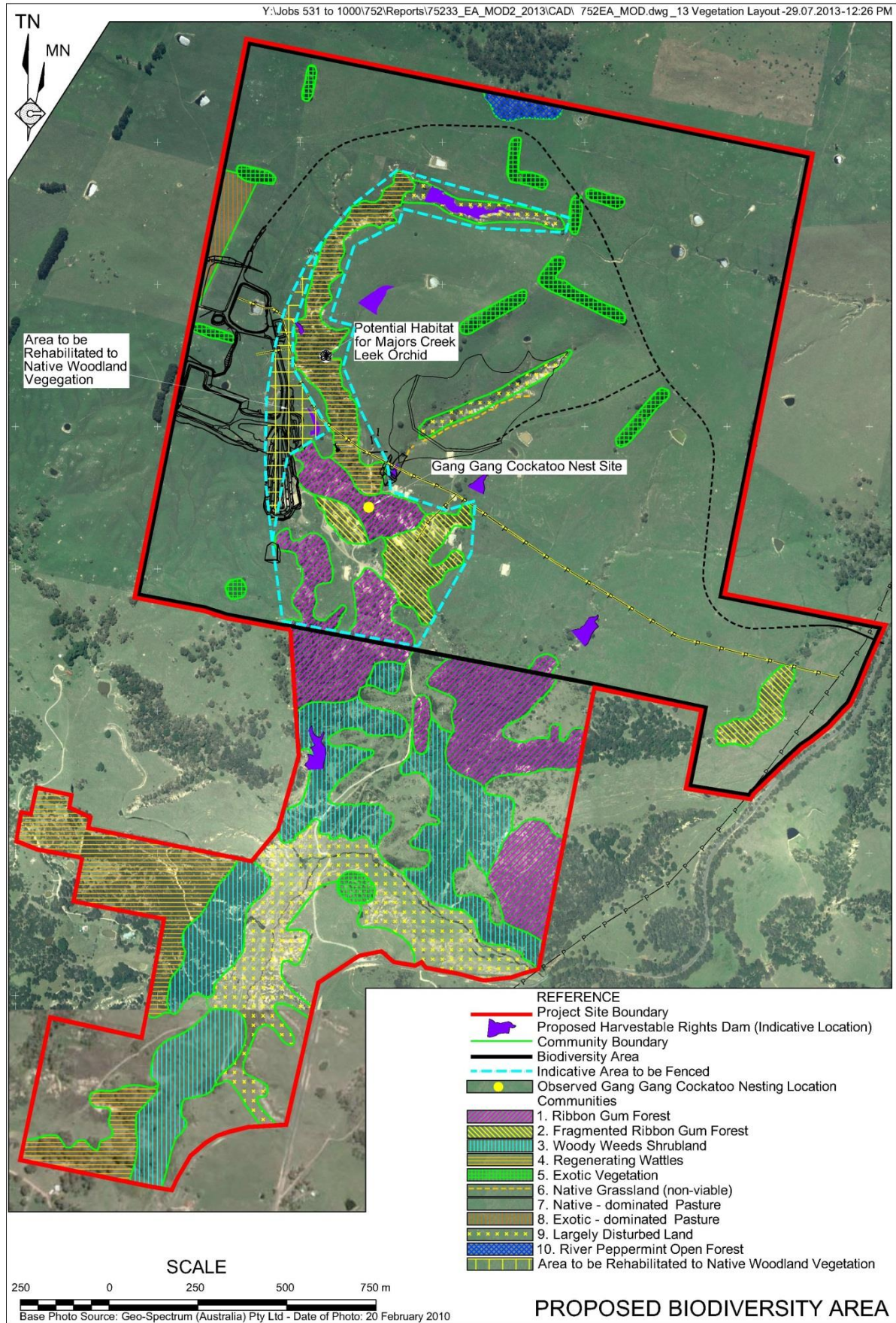












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Appendix 2

Government Agency Consultation

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Our reference: LIC12/98-03, DOC13/33504
Contact: Sandie Jones (02) 62297002

Principal Environmental Consultant
RW Corkery & Co Pty Limited
PO Box 239
BROOKLYN NSW 2083

Attention: Mitchell Bland

Dear Mr Bland

Dargues Gold Mine Proposed Modifications 2 Minor Adjustments to the site layout

Thank you for your email to the Environment Protection Authority (EPA) received on 10 July 2013 requesting requirements for the preparation of an Environmental Assessment to support the proposed modification to the Dargues Gold Mine consent.

The EPA has reviewed the proposed matters to be addressed and notes that a further noise assessment is being undertaken to account for changes in the layout of the site. The EPA supports this undertaking.

The EPA also understands that a revised sediment and erosion control plan has been prepared by SEEC and that this will be included in the Environmental Assessment. The EPA has concerns regarding the adequacy of previous stormwater assessments and therefore recommends that the assumptions of the current stormwater management practices and sediment and erosion control plan are tested against reasonable performance standards which could be expected at any discharge location to the environment. This recommendation is consistent with a recent Pollution Reduction Program (PRP) that was placed on Environment Protection Licence 20095 (EPL) requiring:

A review of the design capacity of existing erosion, sediment and stormwater management controls and their adequacy for capturing run-off generated on the site in consideration of:

- i. The Average Recurrence Interval (ARI) of rainfall at the premises;
- ii. Meteorological data relevant to the premises;
- iii. The physical properties and behavioural characteristics of soils present at the premises;
- iv. Appropriate basin design;
- v. Appropriate drain capacity and design;
- vi. An assessment of the capacity of sub-catchments within the premises to generate run-off;
- vii. The provision of dedicated stormwater detention ponds with adequate storage capacity.

The EPA therefore considers it appropriate that any planning modification for the site include the outcomes arising from the PRP as detailed above. This may require a further modification to the Water Management Plan and Sediment and Erosion Control plan for the site.

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Page 2

If you have any queries or wish to discuss this matter further, please contact Sandie Jones, on (02) 62297002 or queanbeyan@epa.nsw.gov.au

Yours sincerely

Sandie Jones 25/7/13

DR SANDIE JONES

Head of Operations, South East Region

Environment Protection Authority

Coralie Guy

From: Kylie Coe <Kylie.Coe@palerang.nsw.gov.au>
Sent: Tuesday, 9 July 2013 3:59 PM
To: Mitchell Bland
Subject: RE: 752_Dargues Gold Mine - Modification 2 - Minor Adjustments to the Site Layout

Follow Up Flag: Follow up
Flag Status: Completed

Hi Mitchell,

Thanks for that. The two major concerns Council has, would be the potential noise impact of the new site and also the visual impact considering looking at the contours on the maps provided, the proposed new site appears to be approx. 30m higher than the approved location.

Regards

Kylie Coe

Coordinator Development Services

Palerang Council

ph: 62388111

Email: records@palerang.nsw.gov.au

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From: Mitchell Bland [<mailto:mitchell@rwcorkery.com>]
Sent: Monday, 8 July 2013 5:16 PM
To: Kylie Coe
Subject: 752_Dargues Gold Mine - Modification 2 - Minor Adjustments to the Site Layout

Dear Kylie

Please find attached documentation in relation to the above.

Please do not hesitate to contact me re the attached if required.

Regards

Mitch

Mitchell Bland

Principal Environmental Consultant

RW Corkery & Co Pty Limited

Geological and Environmental Consultants



Brooklyn

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Coralie Guy

From: greg.kininmonth@industry.nsw.gov.au
Sent: Friday, 12 July 2013 5:32 PM
To: Mitchell Bland
Cc: Steve Cozens (Steve.Cozens@dwe.nsw.gov.au);
craig.campbell@industry.nsw.gov.au
Subject: Dargues Gold Mine - Modification 2 - Minor Adjustments to the Site Layout - DRE
Environmental Sustainability Unit comments

Follow Up Flag: Follow up
Flag Status: Completed

Hi Mitchell

The Dargues Gold Mine Environmental Assessment (EA) Modification 2 needs to identify all significant changes to the already approved Development Consent and associated EA. Basically, it is a matter of going through the current approval documents and providing appropriate details of the changes, including justification for the changes where appropriate.

Specific comments to be addressed are:

* Rehabilitation associated with the revised site layout, predominantly covered in Section 2.14 of the current EA, will need to be updated, including a revised final landform plan. The EA should identify all areas to be disturbed and rehabilitated in association with the project.

* The location of topsoil stockpiles need to be shown on a revised Site Plans.

* Considering the recent occurrence of offsite sediment discharge events at the Dargues Gold Mine, I would recommend a detailed review of sediment and erosion control measures and documentation of appropriate control measures (currently being implemented) to reduce the likelihood and/or severity of similar events in the future.

DRE's Environmental Sustainability Unit has no other specific comments regarding the preparation of the EA. I note you have forwarded your request for comment to Steve Cozens who may provide additional DRE comments.

Assuming the revised Environmental Assessment is approved by the Dept of Planning and Infrastructure, the current Mining Operations Plan for Dargues Gold Mine will need to be modified for consistency with the new approval. Also an updated Rehabilitation Cost Estimate will need to be prepared - this will be required as an attachment to the revised MOP.

If you require further information please give me a call.

Regards

Greg Kininmonth | Team Leader – Environment | South-East Region | Environmental Sustainability Unit | Mineral Resources
Division of Resources and Energy | Department of Trade & Investment, Regional Infrastructure & Services
Level 3, 84 Crown St | Wollongong NSW 2500 | PO Box 674 | Wollongong East NSW 2520
T: 02 4222 8304 | F: 02 4226 3851 | M: 0429 168 021 | E: greg.kininmonth@industry.nsw.gov.au
W: www.industry.nsw.gov.au

From: Mitchell Bland <mitchell@rwcorkery.com>
To: "greg.kininmonth@industry.nsw.gov.au" <greg.kininmonth@industry.nsw.gov.au>, "Steve Cozens (Steve.Cozens@dwe.nsw.gov.au)" <Steve.Cozens@dwe.nsw.gov.au>
Date: 08/07/2013 05:14 PM
Subject: 752_Dargues Gold Mine - Modification 2 - Minor Adjustments to the Site Layout

Dear Greg and Steve

Please find attached documentation in relation to the above.

Please do not hesitate to contact me re the attached if required.

Regards

Mitch

Mitchell Bland
Principal Environmental Consultant

RW Corkery & Co Pty Limited
Geological and Environmental Consultants



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Mitchell Bland
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Contact Tim Baker
Phone 02 6841 7403
Mobile 0428 162 097
Fax 02 6884 0096
Email Tim.Baker@water.nsw.gov.au
Our ref ER21897

Dear Mitchell

Dargues Reef Gold Mine – Modification 2 – DGR Input Request

I refer to your email dated 8th July 2013 seeking environmental assessment requirements for the proposed modification to project approval MP10_0054 under S75W of the *Environmental Planning and Assessment Act 1979*. Based on Table A and Figure B of your email the key aspects related to the NSW Office of Water is the requirement for changes to surface water management due to amendments to the location of key infrastructure. On this basis the following assessment requirements are provided:

- Detail of amendments to water management system within both clean and dirty/contaminated water catchments. This is to include details of water storages and water conveyance structures.
- An assessment of impact to surface water systems due to adjustments to the site layout. This is to include an assessment of impacts to watercourses and modifications to hydrological regimes and water storage. This is particularly relevant to the following:
 - proposed office and core processing area,
 - proposed mine water settlement dam and sediment basin,
 - previously approved workshop and laydown area, and
 - existing dam 9 and variations to dams considered under the Harvestable Right Dam Capacity for the site.
- An assessment of impact to groundwater and surface water systems due to the construction, operation and final landform of the waste rock expansion area.
- Mitigating and monitoring requirements to address surface water and groundwater impacts.

Should you have any further queries in relation to this submission please do not hesitate to contact Tim Baker on (02) 6841 7403.

Yours sincerely

Mitchell Isaacs
Manager Strategic Stakeholder Liaison
17 July 2013

www.water.nsw.gov.au | NSW Office of Water

209 Cobra St, Dubbo | PO Box 717 Dubbo NSW 2830 | t 02 6884 2560 | f 02 6884 0096



Office of
Environment
& Heritage

Your reference: 752-Dargues's Reef Gold Mine
Our reference: DOC13/35340
Contact: Dr Philip Boot
(02) 6229 7088

Mitchell Bland
Principal Environmental Consultant
RW Corkery & Co Pty Limited
62 Hill Street
Orange NSW 2800

Dear Mr Bland

Re: 752_Dargues's Reef Gold Mine – Modification 2 (MP 10_0054) – Minor adjustments to Site Layout

I refer to your emailed letter, dated 9 July 2013, and the updated map showing the Approved and Proposed Layout Comparison, also received via email on 16 July 2013, seeking requirements from the Office of Environment and Heritage (OEH) for an additional Environmental Assessment in relation to the proposed modification of Project Approval MP 10_0054 to modify the site layout of the mine. OEH has considered the documentation provided and has the following comments to make about the proposed modification:

Aboriginal Cultural Heritage matters

OEH have reviewed the locations of the Aboriginal objects recorded during the 2010 archaeological survey (Dargues Reef Gold Project: Aboriginal Heritage Assessment prepared by Archaeological Surveys and reports Pty Ltd, dated September 2010, Figure 5) against the revised project footprint provided (Figure 6 Approved and Proposed Layout Comparison, no date).

The revised project footprint, including a modified transmission line route, shows that two Aboriginal sites (GT OS2 and GT OS4) are on, or close to, the modified transmission line route. As such, Aboriginal objects within these sites, and at unrecorded locations along the modified route, may be harmed during transmission line construction.

Previously OEH (then Department of Environment, Climate Change and Water) has advised that it was not clear from the 2010 archaeological report which areas had been assessed during the survey. OEH therefore recommends the locations where the revised footprint has resulted in relocation of infrastructure should be subjected to archaeological survey, if they were not assessed during the 2010 survey, unless advice can be provided clearly showing these areas of the revised footprint have been subjected to survey and assessment.

As it appears the revised transmission line route will now pass through, or close to, the sites GT OS2 and GT OS4; OEH is concerned that the revised route may impact on any potential subsurface extent of these sites. Previous advice from OEH in relation to the 2010 archaeological report was that the extent of the recorded Aboriginal sites had not been adequately determined during the 2010 assessment. Therefore, OEH recommends that Test excavation should be considered for these sites and any other areas within the revised footprint where there may be potential for subsurface deposits to be impacted.

Once the extent of GT OS2 and GT OS4, and any new sites that may be subsequently recorded, are known, consideration can then be given to appropriate management measures. Wherever possible, OEH

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advocates for avoidance of harm to all Aboriginal objects and revision of the proposed transmission line route may be required.

In relation to the other previously recorded Aboriginal sites within the Project area; it appears that sites GT OS1 and GT ISO3 will not be harmed as a result of the proposed modifications, while the site GT ISO5 appears to be outside of the proposed revised footprint area. However, if there is any doubt all previously recorded Aboriginal sites should be re-located on the ground.

OEH notes that an additional Aboriginal site, GT-ISO6, is now recorded on the Aboriginal Heritage Information Management System (AHIMS) within the Project area. This site appears to have been recorded by Sandra Wallace, from Artefact Heritage Services, in June 2011. The site features recorded at this location include an artefact and potential archaeological deposit. While this site also appears to be outside of the proposed revised footprint area OEH recommend, if there is any doubt, then this site should also be re-located on the ground.

Should you decide from the advice provided above, that additional archaeological assessments be undertaken, OEH recommends that these be done in consultation with the Aboriginal community representatives. Given the length of time since the proponent originally called for registered Aboriginal stakeholders for this project; OEH suggests consideration be given to re-advertising the consultation process unless it can be shown that there has been a continuous consultation process with Aboriginal people from the 2010 investigation stage through to the current modification proposal. As a general rule, gaps in the consultation process of six months or more do not constitute a continuous consultation process.

Any additional Aboriginal heritage archaeological assessment and consultation should be completed to OEH requirements as provided in:

- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010)
- *Aboriginal cultural heritage consultation requirements for proponents*. (DECCW 2010)
- *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW*. (OEH 2011)

Copies of these documents can be downloaded from the OEH website at:

<http://www.environment.nsw.gov.au/licences/achregulation.htm>

If you would like to discuss Aboriginal Cultural Heritage matters, please contact Dr Philip Boot on (02) 6229 7088.

Biodiversity

The information provided via email on 18 July 2013, shows the location of a buried 11kV power line between the substation and return air rise. This 11kV power line must be located outside of the "Tree Protection Zone" as defined by 'AS4970-2009 Protection of trees on development sites' to avoid affecting the health of the trees. OEH has reviewed the remainder of the modified footprint and is of the view that there will be no additional impacts on biodiversity other than those addressed in the original approval.

To discuss biodiversity issues please contact Martin Henery (02) 6229 7062.

Yours sincerely,



18 July 2013

TOBI EDMONDS
A/ Senior Team Leader Planning – South East
Regional Operations Group
Office of Environment and Heritage

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Appendix 3

Noise Assessment Report

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11 July 2013

Ref: 09522/4832

Mr Mitchell Bland
R.W. Corkery & Co. Pty. Limited
62 Hill St
Orange NSW 2800

RE: DRILL NOISE TEST RESULTS – DARGUES GOLD MINE

This letter report presents the results of noise modelling conducted to determine the noise impact implications of minor differences between the site layout as modelled in the original project EA and the proposed revised layout. This letter has been prepared to accompany an application to modify Project Approval MP 10_0054. The proposed layout is fully described in the *Environmental Assessment* prepared to support that application.

NOISE MODELLING PROCEDURE

Noise scenario diagrams (included in the *Environmental Assessment* prepared to support the application) based on the existing site layout and proposed site establishment and operational noise sources were provided for computer modelling of noise emissions. Three scenarios were modelled:

Scenario1a – Site establishment - 24-hour operations only

Noise sources included lighting plants, cranes, light vehicle movements and general building fabrication in the processing plant area. Noise source files were the same as those used by Spectrum Acoustics in the initial modelling of the project in 2010 to maintain consistency. This scenario is identical to the originally modelled scenario in terms of source types and locations. The only potential difference would be due to the different footprint of the ROM pad and consequent change in barrier location. A 4°C/100m temperature inversion was modelled as the worst case. This is in keeping with the noise modelling in the original EA and the discussion therein.

Scenario1b – Site establishment - 24-hour plus daytime operations

Noise sources with higher noise output such as bulldozers, front end loaders and haul trucks involved predominantly with earthworks at the ROM pad, box cut, tailings storage facility and site access road were slightly rearranged compared with the original site establishment scenario (see noise modelling scenario in the *Environmental Assessment* for the location of noise emitting equipment). Neutral conditions were modelled as inversions are only applicable at night.





Dargues Gold Mine Noise Modelling

Scenario 2 – Operations

This scenario involved a slight rearrangement of the original noise sources and modification of the ground terrain file to reflect the ROM pad footprint (see noise modelling scenario in the *Environmental Assessment* for the location of noise emitting equipment). A 4°C/100m temperature inversion was modelled as the worst case.

NOISE MODELLING RESULTS

Noise levels at the nearest eight receivers to the site were calculated using RTA Software's *Environmental Noise Model* point calculation mode. Results for the original and revised scenario are summarised in **Table 1**.

Table 1
Predicted Night-time Site establishment Noise Levels dB(A), L_{eq}(15min)

Residence	Original (EA)		Remodelled		Criterion dB(A), L _{eq} (15min)
	Neutral	Inversion	Neutral	Inversion	
R15	20	29	20	29	35
R27	21	30	21	30	35
R29	<20	21	<20	21	35
R30	<20	27	<20	27	35
R31	23	35	23	35	35
R32	21	31	21	31	35
R33	20	30	20	30	35
R107	26	33	26	33	35
R108	20	34	20	34	35

Noise levels at the nearest eight receivers to the site were calculated using ENM's point calculation mode. Results for the original and revised scenario are summarised in **Table 2**.





Table 2
Predicted Daytime Site establishment Noise Levels

Residence	Predicted level dB(A), $L_{eq(15min)}$		Criterion dB(A), $L_{eq(15min)}$
	Original (EA)	Revised	
R15	32	32	35
R27	34	34	35
R29	26	26	35
R30	30	30	35
R31	35	35	35
R32	33	33	35
R33	32	32	35
R107	32	32	35
R108	33	33	35

The two sets of noise levels are virtually identical and are compliant with the noise criterion.

Noise contours for worst case inversion conditions only, are shown in **Figure 1**. Point calculation results for the original and revised scenario are summarised in **Table 3**.

Table 3
Predicted Operational Noise Levels

Residence	Predicted level dB(A), $L_{eq(15min)}$		Criterion dB(A), $L_{eq(15min)}$
	Original (EA)	Revised	
R15	33	32	35
R27	31	31	35
R29	23	25	35
R30	25	26	35
R31	31	31	35
R32	31	28	35
R33	30	29	35
R107	33	30	35
R108	31	33	35

The results in **Table 3** show compliant noise levels under the original and revised operational scenarios.





Dargues Gold Mine Noise Modelling

In summary, noise modelling of the revised site establishment and operational noise scenarios has found only minor changes in predicted noise levels compared with the original scenarios modelled in the EA and that noise levels under the revised scenarios remain below the noise criterion at all receivers.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276 or 0409 181888.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

A handwritten signature in black ink, appearing to read "Neil Pennington".

Neil Pennington

B.Sc., B.Math. (Hons), MAAS, MASA
Acoustical Consultant



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