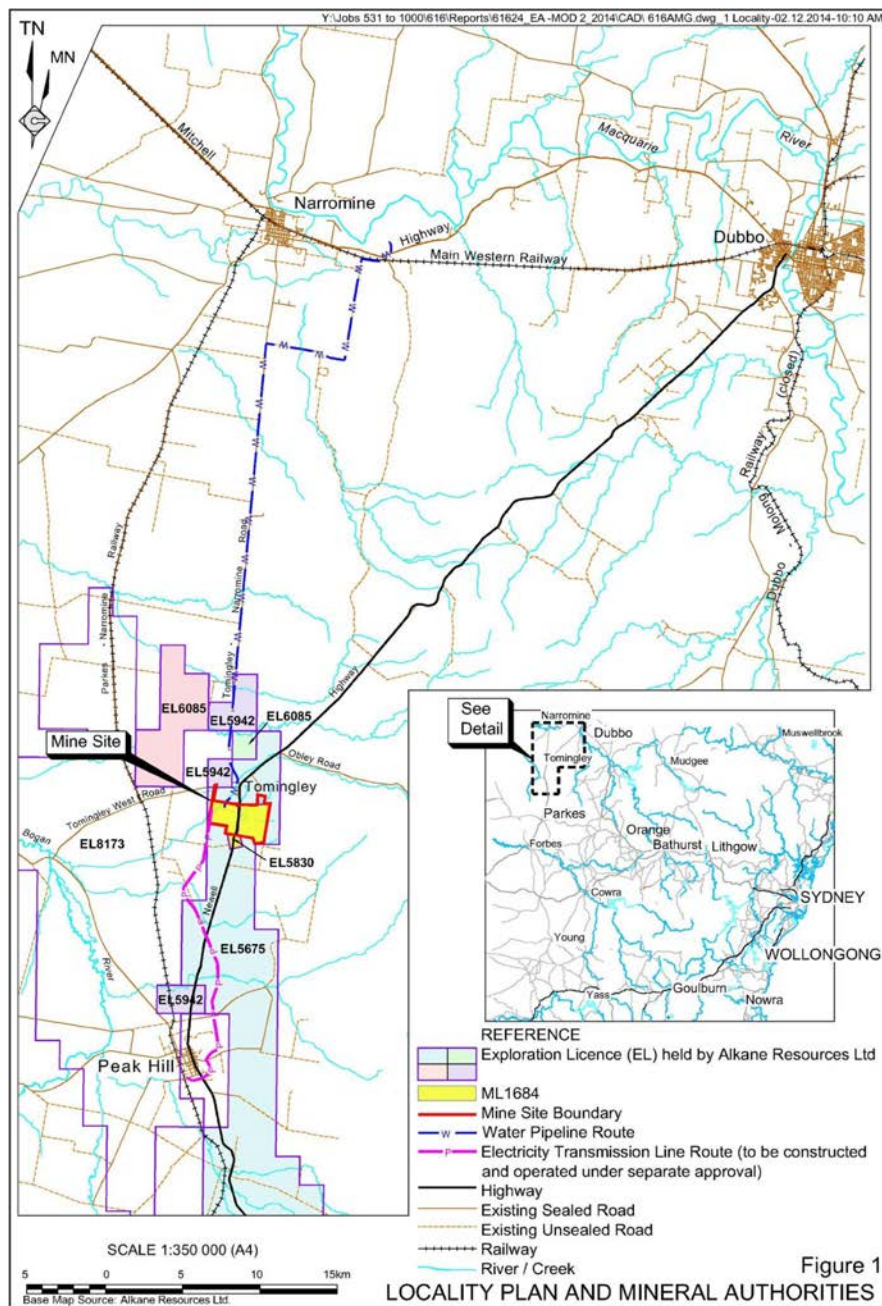


## ASSESSMENT REPORT

### TOMINGLEY GOLD MINE Section 75W Modification MP 09\_0155 – Modification 2

#### 1 BACKGROUND

Alkane Resources Ltd (Alkane) operates the Tomingley Gold Mine, which is located immediately to the south of Tomingley village, approximately 50 kilometres southwest of Dubbo in the Narromine local government area (see Figure 1).



The mine was approved in July 2012 by the then Deputy Director-General, Development Assessment Systems and Performance, as delegate for the Minister for Planning and Infrastructure. The current project approval allows Alkane to:

- extract and process (using cyanide) up to 1.5 million tonnes of ore at the site per year to produce gold;
- transport processed ore from the site via road; and
- operate the mine until 31 December 2022.

Construction began at the mine in February 2013, with mining commencing in November 2013 and gold production commencing in February 2014. The approved operations include development of 3 open cut pits (Wyoming One, Wyoming Three and Caloma), an underground mine and associated infrastructure (see Figure 2).

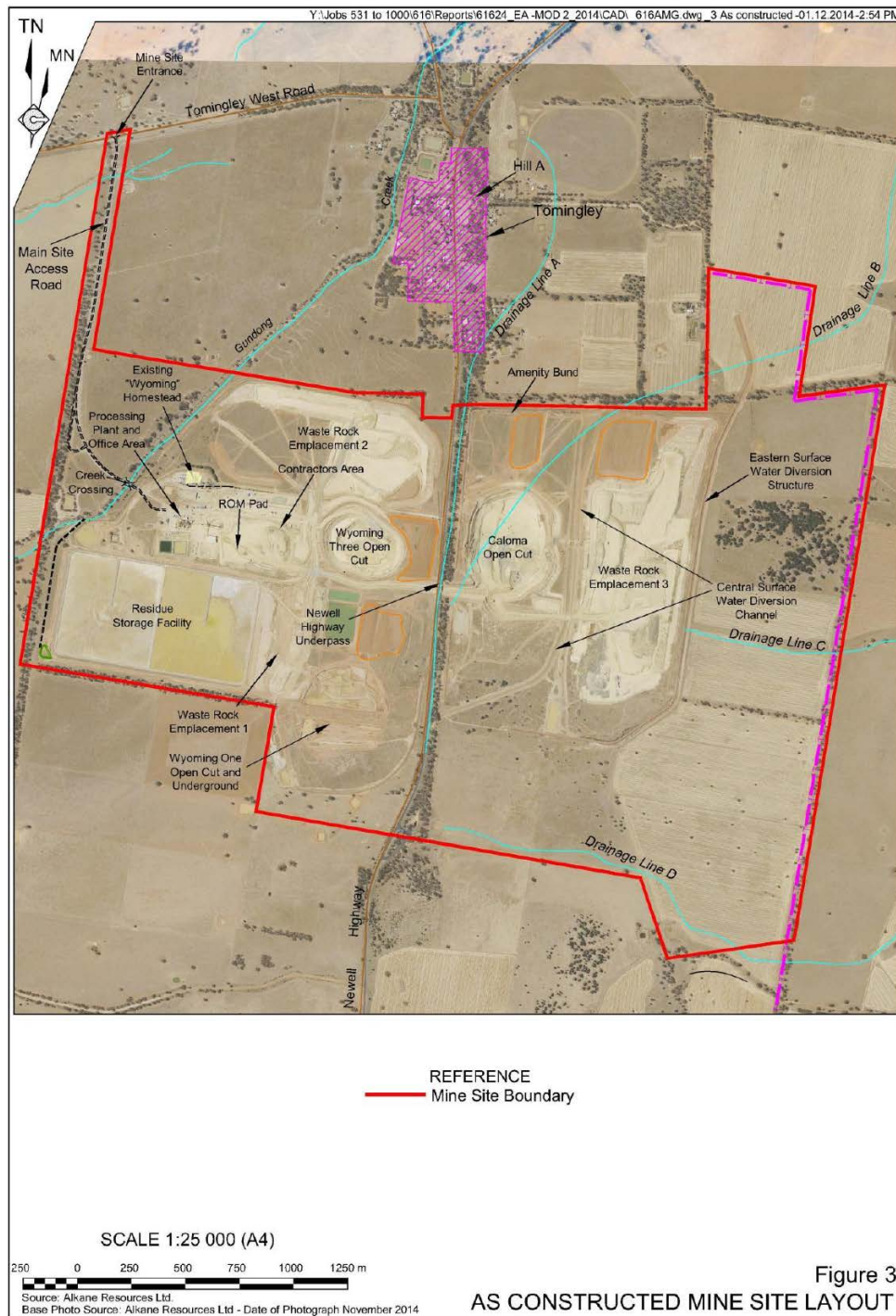


Figure 2: Current Operations



The mine is located to the northwest of Herveys Range, in the Bogan River catchment on the western slopes of the Great Dividing Range, an area characterised by generally flat plains with an elevation between 220 metres (m) AHD and 400 m AHD. The mine site is bisected by the Newell Highway, which connects Parkes and Dubbo.

The area comprises mainly rural and rural-residential properties, with a cluster of residences located in Tomingley village. The closest privately-owned residence (R3) is located at the southern edge of the village and is situated approximately 275 m north of the mine's project boundary (see Figure 3).

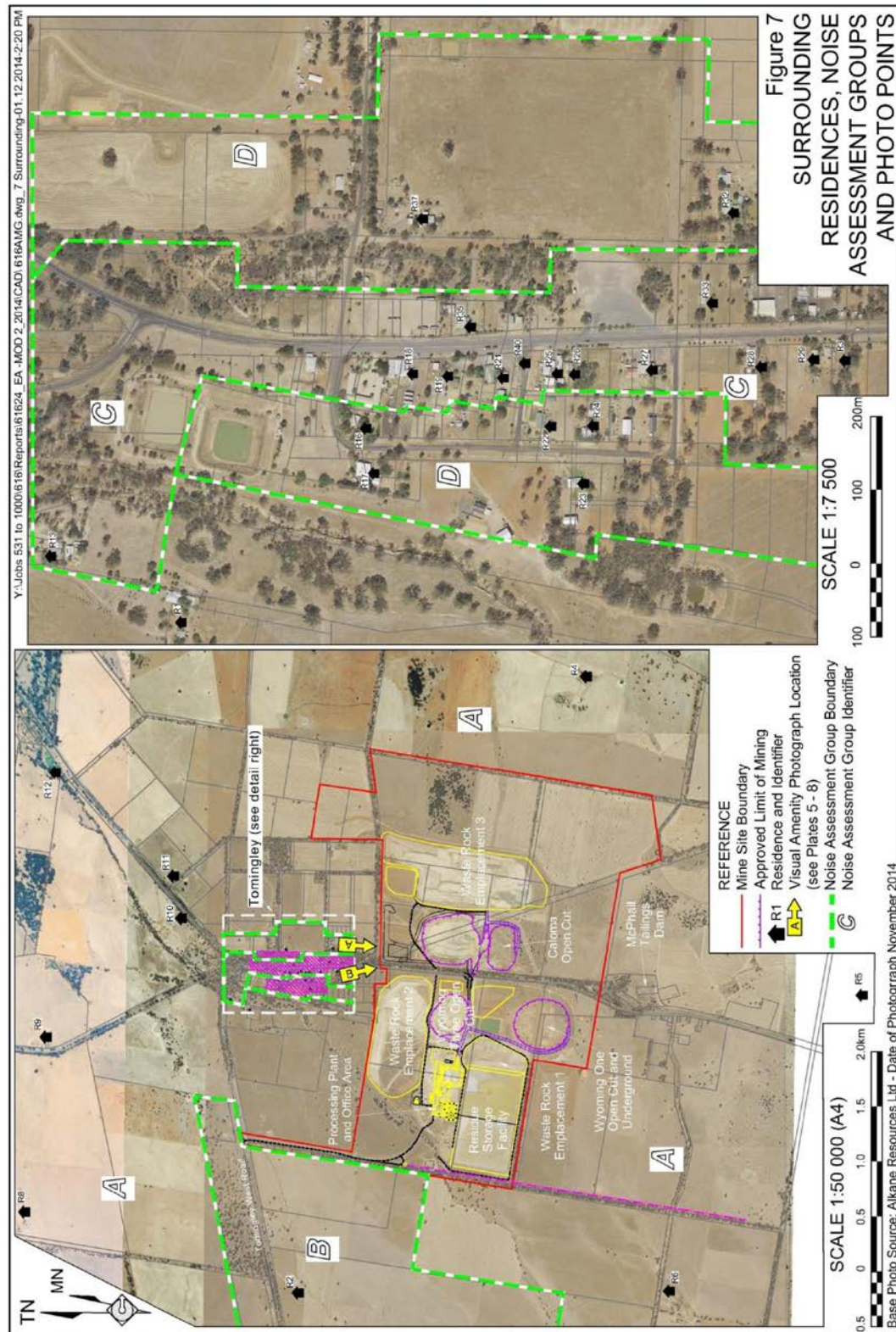


Figure 3: Surrounding Receivers

## 2 PROPOSED MODIFICATION

On 5 December 2014, Alkane submitted an application seeking to modify the project approval for the mine under Section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The proposed modification involves (see Figure 4):

- a cut-back of the upper sections of the eastern and western walls of the Caloma open cut pit to ensure ongoing stability; and
- enhancement of the existing amenity bund to the north of the Caloma open cut pit to provide further noise attenuation for the residents of Tomingley village.

The proposed modification also involves construction of a haul road between the Caloma open cut pit and the modified amenity bund. Alkane anticipates the proposed cut-back and construction of the modified amenity bund would take between 1 and 4 months to complete.

The need for the pit cut-back was identified following a number of geotechnical failures during initial mining operations in the Caloma open cut pit. Subsequent geotechnical investigations recommended that the upper sections of the eastern and western walls of the Caloma open cut pit should be cut-back to maintain stability and safety for mine workers.

The results of an attended noise survey in September 2014 indicated mine-related exceedances of the evening and night-time noise criteria at the closest residence R3. The Department is also aware that a number of noise complaints were received from local residents in 2014. In response, Alkane is proposing to increase the height of the amenity (noise) bund to the north of the Caloma open cut pit to provide further noise attenuation for residents in Tomingley village. Two height options for the modified bund were assessed and are discussed further in Section 5.1.

Full details of the proposed modification are included in Alkane's supporting Environmental Assessment (EA) (see Appendix C).

## 3 STATUTORY CONTEXT

### **Section 75W**

The Tomingley Gold Mine was originally approved under Part 3A of the EP&A Act. Although Part 3A was repealed on 1 October 2011, the projects remain 'transitional Part 3A projects' under Schedule 6A of the EP&A Act and hence any modifications to the project approval are to be made under the former Section 75W of the EP&A Act.

The Department is satisfied that the proposal should be characterised as a modification to the approved project rather than a new project in its own right, as:

- it would not change the essential function of the mine for which the approval was originally granted; and
- it would not change the mining, processing and transport methods, maximum rate of extraction, production limits or life of the approved project.

Consequently, the Department is satisfied that it can be characterised as a modification to the project approval and can therefore be assessed and determined under Section 75W of the EP&A Act.

### **Approval Authority**

Under Section 75W of the EP&A Act, the Minister for Planning is the approval authority for this modification application. However, under the Minister's delegation of 16 February 2015, the Executive Director, Resource Assessments and Business Systems, can determine the application as:

- Narromine Shire Council did not object to the proposed modification;
- there were no public submissions in the nature of objections; and
- Alkane has not made any reportable political donations.



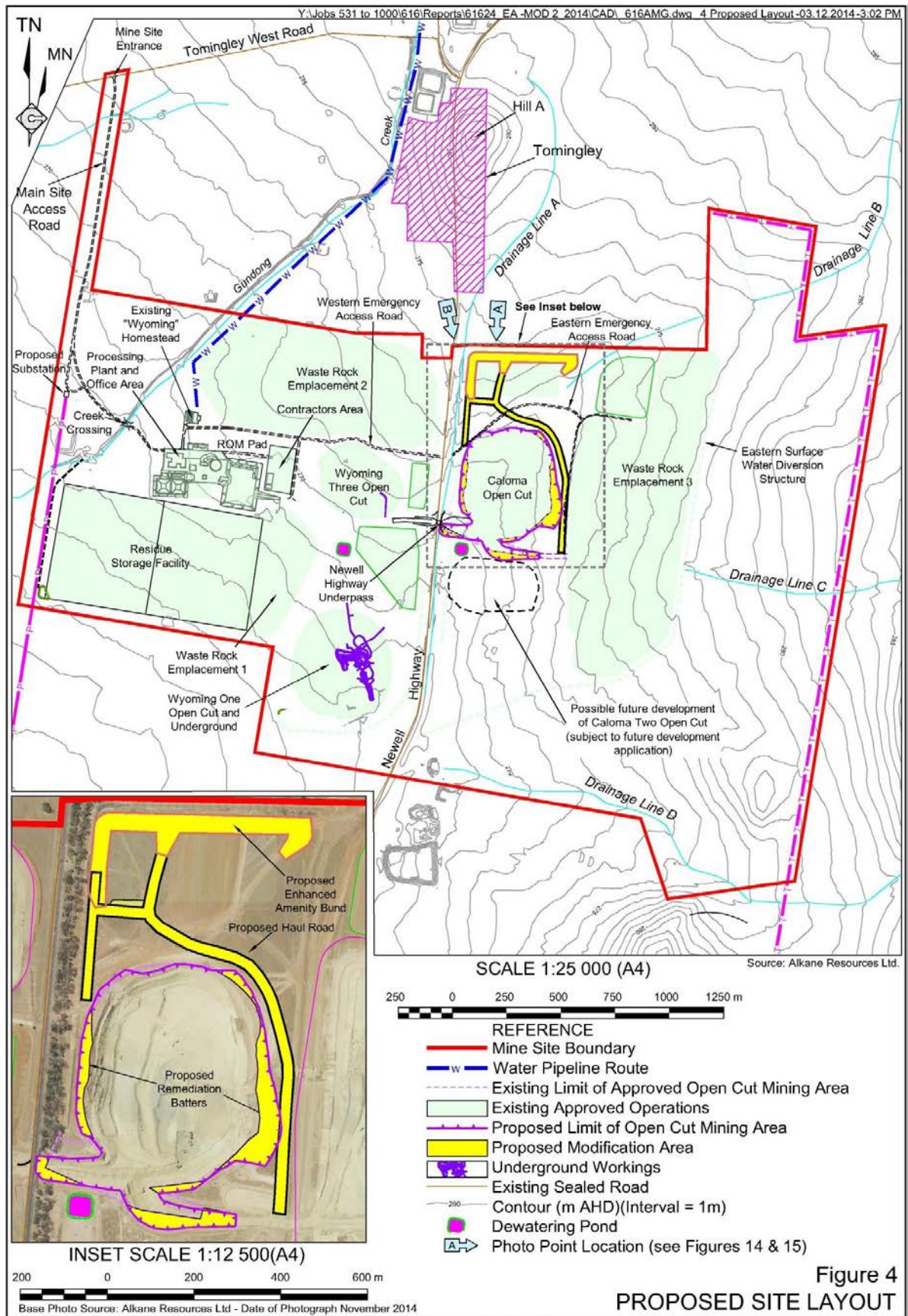


Figure 4: Proposed Modification

## 4 CONSULTATION

After accepting Alkane's application and associated EA for the proposed modification, the Department exhibited the documents between Wednesday 10 December 2014 and Monday 2 February 2015:

- on the Department's website ([www.planning.nsw.gov.au](http://www.planning.nsw.gov.au));
- at the Department's Information Centre; and
- at the offices of Narromine Shire Council and the Nature Conservation Council.

The exhibition was advertised in the Dubbo Daily Liberal and Narromine News and relevant State government authorities were notified of the exhibition by email.

In response to the public exhibition, the Department received a total of 4 submissions from public authorities. Narromine Shire Council was consulted but did not provide a submission. There were no submissions from the general public. Copies of the submissions are provided in Appendix D. Alkane's response to these submissions is provided in Appendix E.

None of the public authorities object to the proposed modification. The NSW Environment Protection Authority (EPA) and NSW Office of Water (NOW) recommended that Alkane should be required to revise the Water Management Plan for the mine to reflect the modification (discussed in Section 5.4). The EPA also recommended conditions relating to construction noise, including limiting construction hours (discussed in Section 5.1), and stormwater/sediment control (discussed in Section 5.4). The Division of Resources and Energy within the Department of Trade and Investment (DRE) provided recommendations relevant to rehabilitation and mine closure planning (discussed in Section 5.5).

## 5 ASSESSMENT

In assessing the merits of the proposed modification, the Department has considered the:

- EA (see Appendix C) and submissions (see Appendix D) for the proposed modification;
- relevant content of previous EAs for the development and current environmental management plans;
- current project approval conditions;
- provisions of relevant environmental planning instruments, policies and guidelines; and
- relevant provisions of the EP&A Act, including the requirements of the Act.

The Department considers the key assessment issues relating to the proposed modification are potential noise, air quality, visual and surface water impacts. Below is a summary of the Department's assessment findings.

### 5.1 Noise

To further mitigate noise emissions from the mine at nearby sensitive receivers, Alkane propose to construct a modified amenity (noise) bund to the north of the Caloma open cut pit.

The EA includes an assessment by Noise and Sound Services of the potential construction noise impacts and predicted attenuation effects of the modified amenity bund.

The existing bund to the north of the Caloma open cut pit is approximately 3 m high and 2 m wide. Noise and Sound Services assessed the relative noise reduction predictions provided by various options of a modified amenity bund at the closest receiver R3. The Department notes that R3 is one of a number of residences within Tomingley village in which ambient noise is highly elevated due to the Newell Highway and that Alkane is already required to offer additional noise mitigation upon request to the owners of residences R3 and R29 under the requirements of the existing project approval.

The options assessed included a moderate bund (i.e. 6 m high and 24 m wide) and a more substantial bund (i.e. 10 m high and 24 m wide). Noise and Sound Services concluded there would be only a marginable difference in noise attenuation (~ 1 dBA) provided by a 10 m high bund compared with a 6 m high bund.

Given the marginal difference in the predicted noise mitigating performance between the two designs and the potentially more significant visual amenity impacts associated with a 10 m bund (discussed further in Section 5.3), the Department has recommended that the height of the modified amenity bund should be limited to 8 m.

### Construction Noise

The construction of the modified amenity bund is predicted to generate worst-case noise levels of up to 55 dB(A) (or an 11 dB(A) increase above the predicted operational noise levels of 44 dB(A)) at the nearest affected receiver (R3) without mitigation. The assessment predicts this maximum level would be reached at the commencement of construction until completion of the outer (north-facing) slope of the bund, which is likely to take less than 2 weeks. The Department also notes the predicted maximum noise levels would not exceed the maximum amenity criteria of 55 dB(A) (as defined in the *NSW Industrial Noise Policy*) at R3.

Alkane proposes to manage the potential construction noise impacts by:

- prioritising the construction and rehabilitation of the outer (north-facing) batter of the amenity bund; and
- limiting construction works on the amenity bund to the mine's daytime shift (i.e. 6:30 am to 6:30 pm).

Alkane argues that the relative impacts of this construction noise would be short-term and would not represent a significant impact when compared to the existing background noise levels (which include traffic noise impacts from the Newell Highway) that currently impact residences in Tomingley village. Alkane argues that any temporary increase in noise would be outweighed by the positive noise attenuation benefits of the bund over the remaining life of the mine.

The Department acknowledges the temporary and relatively short duration of the predicted construction noise impacts and recognises there are limited additional measures that could be implemented to significantly reduce noise impacts during construction of the amenity bund.

The Department notes the EPA has recommended that the construction hours be limited to between 7 am and 6 pm Monday to Sunday. However, given the historical concerns raised by the local community in regards to noise impacts from the mine and the predicted increase in noise levels at R3 during construction of the bund, the Department considers that construction hours should be further restricted to between 7 am and 6 pm Monday to Friday and 8 am and 1 pm Saturday. The Department has therefore recommended that construction of the modified amenity bund should be limited to these hours.

The Department agrees with the EPA's recommendation that Alkane should be required to notify all potentially affected residents of the timing and proposed duration of construction works prior to these works commencing. The Department has recommended that this notification procedure be detailed in the Noise Management Plan for the mine to be updated for the proposed modification.

With these measures in place, the Department is satisfied the construction noise impacts for the proposed modification can be appropriately managed and are justified, particularly given the modified amenity bund is to be constructed to ultimately reduce the noise levels experienced by residents in Tomingley village for the remaining life of the mine.

### Operational Noise

The noise assessment found that once constructed, the modified amenity bund would provide for a reduction in noise levels at receivers in Tomingley village under calm or non-noise enhancing conditions. Conservatively assuming a minimum 6 m high bund, the noise assessment predicts an increase in attenuation (i.e. when compared to the attenuation effects of the existing bund) of approximately 1dB(A) at the closest receiver R3, increasing to 3dB(A) as the noise sources move deeper into the open pit.

The Department accepts there are geotechnical constraints that preclude construction of the amenity bund closer to the Caloma open cut pit, which would otherwise provide more immediate noise mitigation benefits. For example, a substantial bund immediately adjacent to the pit could exacerbate the observed instability of the open cut wall caused by elevated pore pressure in the alluvium, saprolite and the highly weathered rock in the material being mined.

However, the Department notes that over the life of the mine, the effectiveness of the amenity bund is influenced more by the depth of the pit rather than the physical proximity of the bund to the pit. The Department is satisfied the modified bund would provide a net acoustic benefit over the life of the mine as the pit continues to be developed.

The Department notes the effectiveness of the modified amenity bund may be less significant under noise enhancing conditions (i.e. southerly/southeasterly winds or inversion conditions). As such, Alkane would

be required to continue to implement a range of proactive operational controls to ensure noise levels remain compliant, including the use of real-time monitoring and predictive meteorological forecasting to monitor and adjust operations.

In this regard, Alkane also proposes to prepare and implement a site specific procedure for noise management at the mine. The Department notes this procedure would be in addition to the ongoing management requirements that would be required to be implemented by Alkane in accordance with the approved Noise Management Plan for the mine.

The Department notes that under the existing conditions of approval, Alkane would be required to update the approved Noise Management Plan for the proposed modification.

Given the above, the Department is satisfied that no further conditions are required to manage potential noise impacts for the proposed modification.

## **5.2 Air Quality**

Additional surface disturbance and earthworks associated with construction of the modified amenity bund and cut-back of the Caloma open cut pit have the potential to generate increased levels of dust in proximity to Tomingley village.

Alkane currently monitors the mine's air quality impacts through a series of dust deposition gauges, a Tapered Element Oscillating Microbalance (which measures PM<sub>10</sub> continuously) and a High Volume Air Sampler. The results of air quality monitoring have confirmed the air quality assessment predictions for the project, which predicted compliance with the annual air quality criteria and occasional exceedances of the short-term compliance criteria for PM<sub>10</sub> at nearby receivers.

The Department is aware that several local residents raised concerns about dust emissions during the initial mine construction phase. In response to these concerns, Alkane has developed a site specific procedure for dust control at the mine. The procedure includes pre-emptive, area specific and reactive control measures to prevent or minimise dust emissions. These control measures include:

- consideration of meteorological forecasting during mine planning to avoid and/or restrict certain dust generating activities during unfavourable weather conditions;
- increased use of water carts for dust suppression;
- increased staff awareness training; and
- visual dust monitoring and management.

Given the proposed modification would not be introducing any new sources of dust emissions and that the proposed activities have been accounted for in the dispersion modelling for the original project, the EA concluded that ongoing compliance with the relevant air quality criteria would be achieved for the proposed modification, subject to the implementation of effective dust emission controls.

The Department notes Alkane would be required to revise the existing Air Quality and Greenhouse Gas Management Plan for the proposed modification in consultation with the EPA and Narromine Shire Council.

With the implementation of Alkane's proposed mitigation and best practice management measures and the mine's existing obligations in regards to monitoring, management and reporting of environmental performance, the Department is satisfied the proposed modification would not have significant air quality impacts.

## **5.3 Visual**

The proposed modified amenity bund has the potential to result in increased visual impacts to residents in the south of Tomingley village that currently have views of the mine. Similarly, limited views of the modified bund would also be available along sections of the Newell Highway where not screened by intervening vegetation.

The EA included an assessment of the potential visual impacts to residents in Tomingley village and users of the Newell Highway assuming a modified amenity bund height of between 6 m and 10 m (refer Figures 5 and 6, respectively).



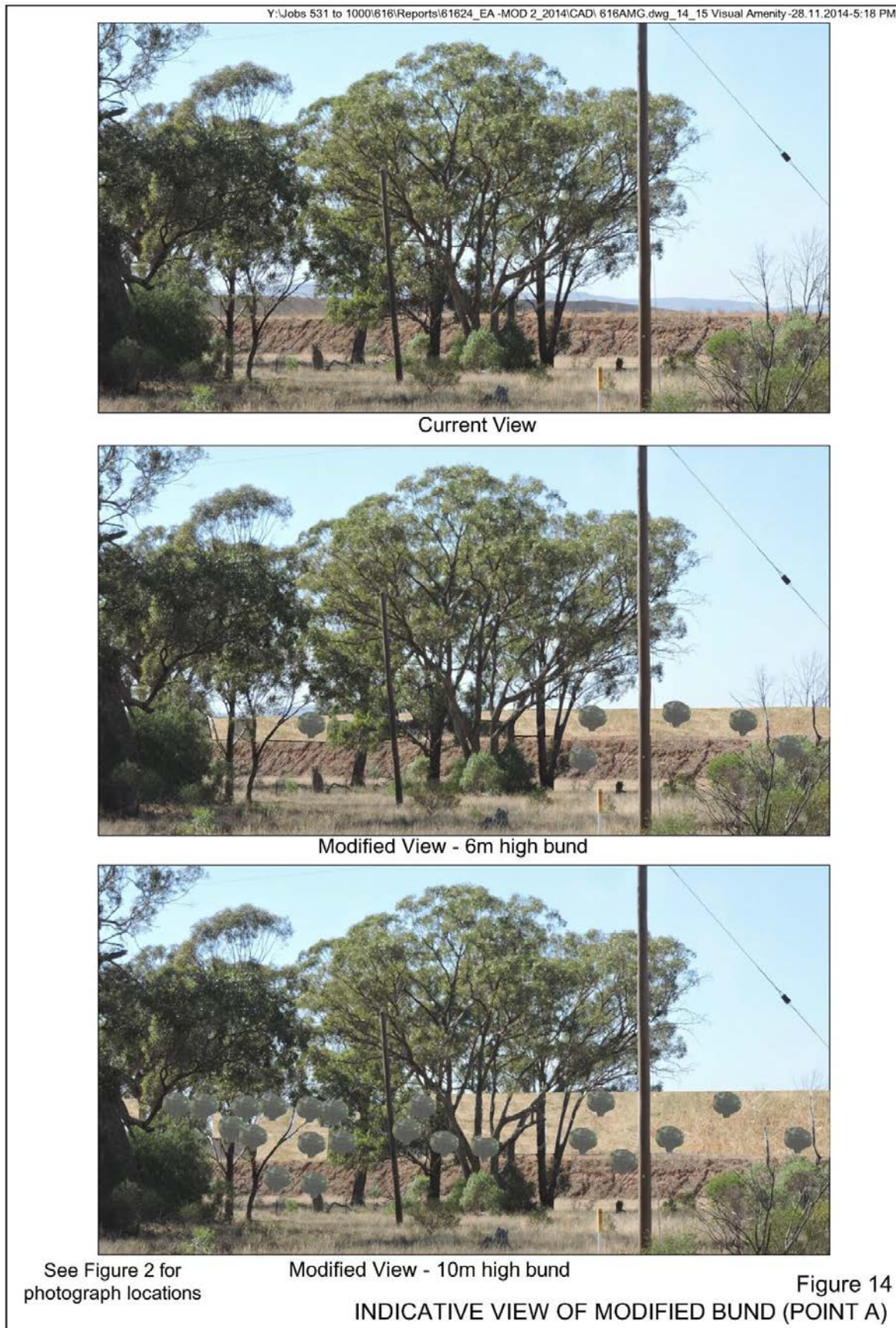


Figure 5: Photomontage of Existing and Modified Views from Tomingley Village (southern)



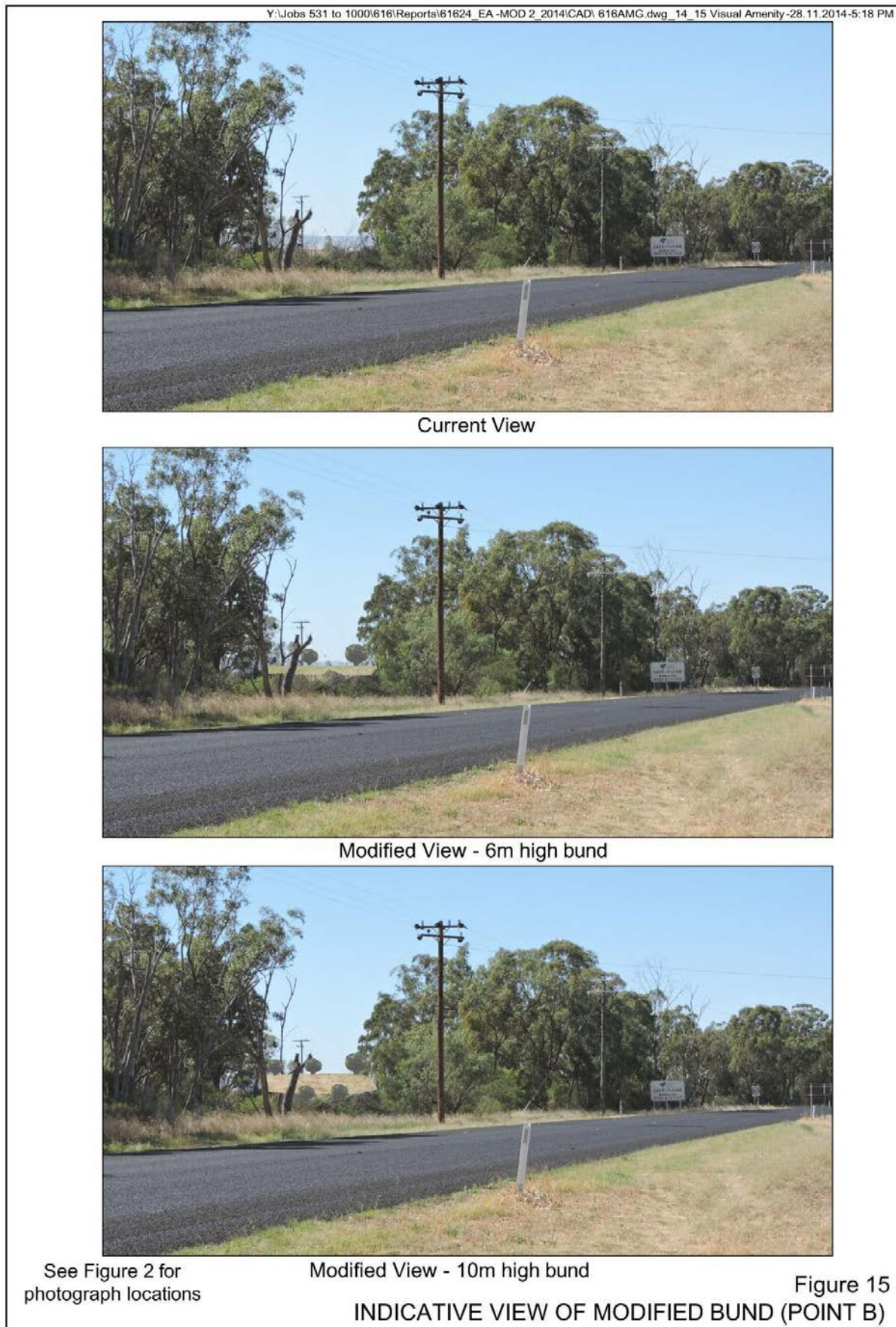


Figure 6: Photomontage of Existing and Modified Views from Newell Highway (travelling south)

To help minimise visual impacts, Alkane has committed to prioritising the construction and rehabilitation of the outer (north-facing) batter of the amenity bund to provide early visual screening. The modified amenity bund would also be progressively constructed, shaped and rehabilitated (with grass cover) as soon as practicable, prior to being vegetated with woodland species. Construction activities would also be limited to daytime only, thereby avoiding potential lighting impacts.

Whilst acknowledging that a modified bund height of up to 10 m would still remain well below the approved height of the waste rock emplacement 3 (i.e. 40 m), the Department considers that given the close proximity of the bund to residents in Tomingley village, the height of the bund should be restricted to a height of no more than 8 m. Alkane has agreed to this height restriction.

The Department notes that although construction of the bund would amount to a temporary increase in visual impacts, once the bund is vegetated, its visibility is not considered likely to result in significant visual impacts to residents in Tomingley village or users of the Newell Highway. In this regard, the Department notes that Alkane would be required to monitor the success of the rehabilitation of constructed landforms at the mine (including the amenity bund) and respond as soon as possible to any areas which are not achieving the stated objectives.

No additional landowners are likely to experience significant visual impacts as a result of the modified amenity bund. Furthermore, once the bund is shaped and revegetated, it would improve the existing visual amenity in the area while the mine continues to operate, by further shielding the mine operations from residences in the south of Tomingley village with existing views of the mine. Alkane would also be required to provide reasonable screening or other additional visual impact mitigation at any receiver with significant views towards the mine, if requested.

Given the above and the expected temporary nature of the construction works, the Department is satisfied the visual impacts of the proposed modification are acceptable.

#### **5.4 Surface Water**

As the modified amenity bund would not extend further east than the existing bund, there would be no change to the catchments or drainage external to the mine site and therefore, no change to the predicted off-site flooding impacts.

The proposed modification would result in relatively minor changes to the internal catchments and would require some modifications to the existing erosion and sediment control system. The main components of the erosion and sediment control system that would require modification include:

- the Central Surface Water Diversion Channel;
- diversion drains/bunds around the perimeter of the Caloma open cut pit;
- dirty water diversion drains around the soil stockpile area to the north of the Caloma open cut pit;
- Sediment Basin 5 and associated inlets and spillways; and
- ancillary erosion and sediment control features, e.g. sediment fencing, grass buffer strips and rock check dams, surrounding the modified disturbance areas.

Alkane would be required to incorporate the proposed amendments in a revised Water Management Plan for the mine prepared in consultation with the EPA and NOW. Alkane has committed to completing the revised erosion and sediment control system designs prior to commencing any surface disturbance works associated with the proposed modification.

To ensure ongoing management and protection of water resources in the vicinity of the mine, the Department has also recommended that Alkane should comply with contemporary water management performance measures to be reflected in the revised Water Management Plan.

Alkane would also be required to ensure that any surface water discharges from the site continue to comply with its Environment Protection Licence (EPL No. 20169) and the *Protection of the Environment Operations Act 2007*.

The Department is satisfied that subject to the above, the proposed modification would not have a significant impact on surface water resources.



## 5.5 Other Issues

The Department is satisfied that the other potential impacts of the proposed modification would be acceptable or could be suitably controlled by the existing conditions of approval. The Department's assessment of these issues is set out in Table 1.

Table 1: Assessment of other issues

<b>Issue</b>	<b>Consideration</b>	<b>Conclusions/Recommended Conditions</b>
<i>Final Landform/Rehabilitation</i>	<ul style="list-style-type: none"> <li>The proposed changes to the Caloma open cut pit and amenity bund would result in a modified final landform.</li> <li>Specifically, the modified landform would comprise:               <ul style="list-style-type: none"> <li>a larger, rehabilitated amenity bund, with faces of 1:3 (V:H) or less; and</li> <li>a slightly larger final void for the Caloma open cut pit.</li> </ul> </li> <li>There would be no change to the approved rehabilitation objectives and methods or anticipated final land use.</li> <li>The Department notes Alkane would be required to update the mine's Rehabilitation Management Plan to reflect the proposed modification in consultation with the DRE.</li> </ul>	<ul style="list-style-type: none"> <li>No additional conditions or amendments necessary.</li> <li>The Department has updated the final landform plan in the project approval to reflect the proposed modification.</li> </ul>
<i>Ecology</i>	<ul style="list-style-type: none"> <li>The proposed modification would involve additional surface disturbance associated with the Caloma pit cut-back, modified amenity bund and associated haul roads.</li> <li>The proposed additional disturbance would be within previously cleared land, with no identifiable vegetation communities or significant fauna habitat present.</li> </ul>	<ul style="list-style-type: none"> <li>No additional conditions or amendments necessary.</li> </ul>
<i>Aboriginal Heritage</i>	<ul style="list-style-type: none"> <li>There are no known Aboriginal heritage sites within the proposed disturbance footprint.</li> <li>Alkane would continue to be required to implement a Heritage Management Plan, which includes procedures for managing the discovery of any previously unidentified Aboriginal objects on site.</li> </ul>	<ul style="list-style-type: none"> <li>No additional conditions or amendments necessary.</li> </ul>

## 6 RECOMMENDED CONDITIONS

The Department has drafted a Notice of Modification (see Appendix A) for the modification, as well as a consolidated version of the project approval as modified (see Appendix B). Alkane has reviewed and accepted the recommended conditions of approval.

## 7 CONCLUSION

The Department has assessed the merits of the modification application and its supporting EA, the submissions received and the response to submissions, in accordance with the requirements of the EP&A Act.

The Department has considered the modified bund design options proposed by Alkane and concluded that given the marginal difference in the predicted noise mitigating performance and the potentially more significant visual amenity impacts associated with a higher bund, the modified amenity bund should be increased by 5 m (i.e. up to 8 m).

The Department is satisfied the environmental impacts of the modified development would, with the exception of potential construction noise impacts, not be significantly different from the existing development. In this regard, the Department accepts that the potential construction noise impacts associated with construction of the modified amenity bund would be temporary and of limited duration and acknowledges Alkane's commitment to prioritising the construction and rehabilitation of the outer (north-facing) batter of the bund to help minimise construction noise and improve visual amenity.

Notwithstanding, to further protect the amenity of local residents, the Department has recommended that construction works on the modified amenity bund should be limited to between 7 am and 6 pm Monday to Friday and 8 am and 1 pm on Saturday.

The Department accepts that geotechnical constraints (specifically, the required setback distance needed to ensure that placement of material in the amenity bund does not affect the stability of the pit) mean the amenity bund cannot be moved closer to the Caloma open cut pit, which would otherwise provide more immediate noise mitigation benefits. However the Department is satisfied that the modified bund would provide a net acoustic benefit over the life of the mine, particularly as the pit continues to be developed.

Overall, the Department is satisfied that, with the implementation of the recommended conditions and Alkane's proposed mitigation measures, the impacts associated with the proposed modification can be appropriately managed and are justified, particularly given:

- the cutback is required to maintain stability of the Caloma open pit and safety for mine workers; and
- the modified amenity bund would contribute to a reduction in the noise levels experienced by residents in Tomingley village for the remaining life of the mine.

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

## 8 RECOMMENDATION

It is RECOMMENDED that the Executive Director, Resource Assessments and Business Systems, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **determines** that the proposed modification is within the scope of Section 75W of the EP&A Act;
- **approves** the application to modify the project approval, subject to conditions, under Section 75W of the EP&A Act; and
- **signs** the attached Notice of Modification (see Appendix A).

*DKitto* 16/4/15

David Kitto  
Executive Director  
Resource Assessments and Business Systems

## **APPENDIX A: NOTICE OF MODIFICATION**



## **APPENDIX B: CONSOLIDATED PROJECT APPROVAL**

## **APPENDIX C: ENVIRONMENTAL ASSESSMENT**

Refer to Department's website:

[http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=6861](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6861)

## **APPENDIX D: COPY OF SUBMISSIONS**

Refer to Department's website:

[http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=6861](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6861)



## **APPENDIX E: RESPONSE TO SUBMISSIONS**

Refer to Department's website:

[http://majorprojects.planning.nsw.gov.au/index.pl?action=view\\_job&job\\_id=6861](http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6861)