

ASSESSMENT REPORT

Northparkes Mines

MP 06_0026 – Mod 1

1 BACKGROUND

North Mining Limited (North), a joint venture between Rio Tinto and the Sumitomo Group, owns and operates the Northparkes Mines, a gold and copper ore mining and processing operation 27 kilometres northwest of Parkes in Central NSW (see Figure 1).

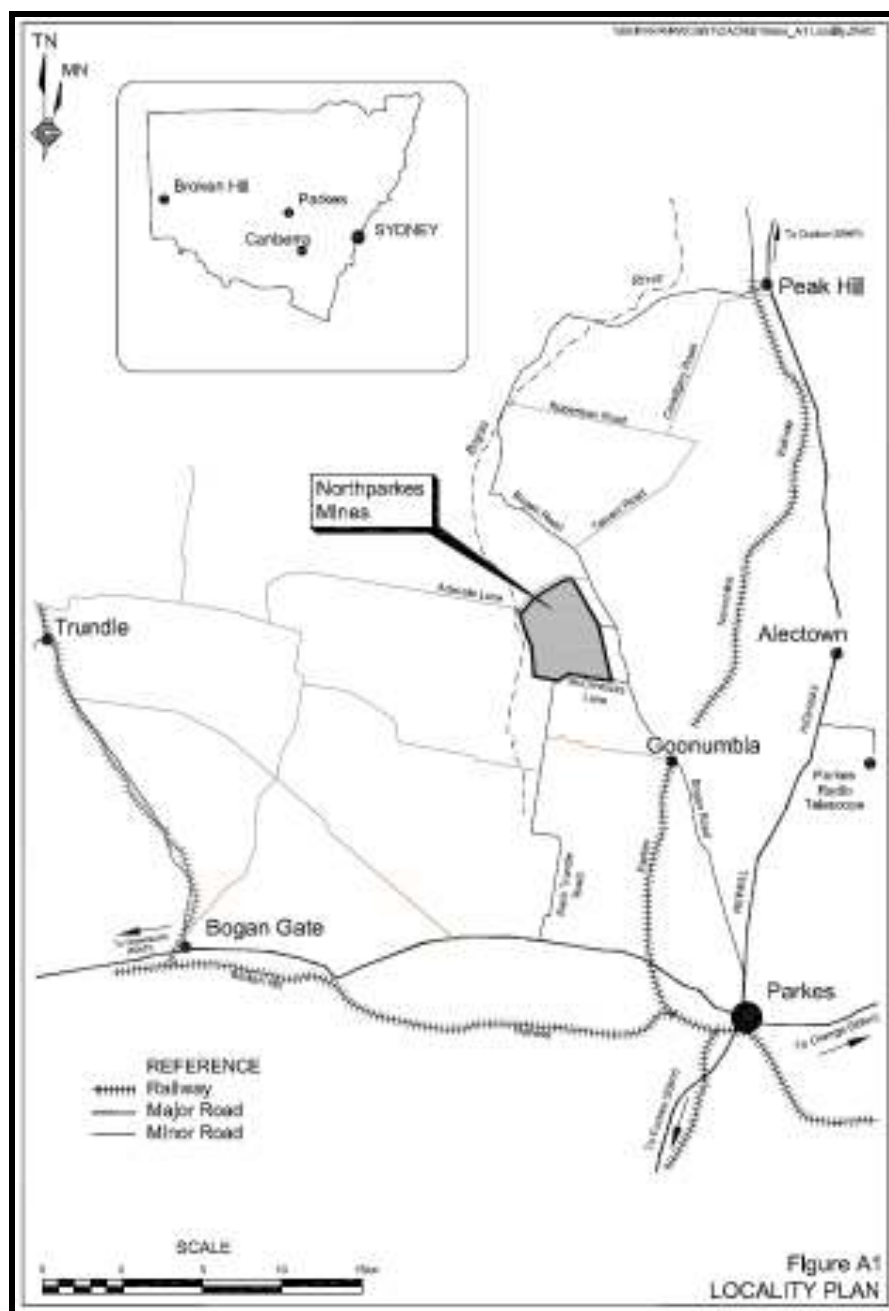


Figure 1: Northparkes Mines local and regional context

Mining operations commenced in 1993, and the mine has a workforce of approximately 530 people. The mine's operations are regulated by a project approval granted by the Minister in 2007, which replaced the mine's previous development consents. The Minister's approval allows North to:

- extract copper/gold ore and process it on-site, to a limit of 6.5 million tonnes per annum (Mtpa) until 2018;
- transport ore concentrate by road to the Goonumbla Rail Siding and then by rail to Port Kembla for export; and
- rehabilitate the site.

Northparkes Mines comprises both surface and underground mining operations. These include (see Figure 2):

- **the E22 and E27 open-cut pits**, which commenced in 1993 and initially ceased in 1998. Both pits were subsequently re-opened, with E27 closing in 2005 and E22 expected to close in 2010;
- **the E26 underground mine**, which commenced in 1995 and is forecast to continue operating until 2020; and
- **the E48 underground mine**, which is currently being developed.

2 PROPOSED MODIFICATION

On 12 August 2008, North asked the Minister to modify the terms of its approval under section 75W of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

North has made the request as it has discovered that the mineral concentration of the ore in the E48 mine is not as high as in the E22 and E26 mines and it would therefore need to extract greater amounts of ore from E48 to recover metals at similar rates to that which are currently recovered. North accordingly proposes to increase its ore production and processing rate from 6.5 Mtpa to 8.5 Mtpa (a 30% increase). North has also revised its ore reserve estimate, and its mine planning has identified a more efficient way to extract ore from E48, enabling the life of the project to be potentially extended by a further 7 years. North requested that the project's life be accordingly extended to 2025.

The proposed increase in the ore production and processing rate to 8.5 Mtpa would also require new infrastructure to be installed and current infrastructure to be upgraded. This would include:

- installing new secondary and tertiary ore crushers north of the underground operations area;
- upgrading and modifying the module 1 and 2 grinding and flotation circuits, the module 3 flotation circuit, concentrate handling facilities and tailings handling facilities; and
- augmenting the mine's internal road network.

Whilst the proposed modification involves increasing ore production at E48, this would not lead to increased subsidence related impacts. The approved subsidence area for E48 included a buffer area around the extent of maximum predicted subsidence (see Figure 3), and any increase in subsidence from the increased ore extracted would remain well within the maximum predicted limits previously assessed. Groundwater impacts at E48 would also not increase over that already assessed and approved, due to the limited interaction that would occur between the mine and local groundwater resources.

The proposed ore production increase and extended mine life would also result in a minor increase in the amount of ore concentrate produced and transported to the Goonumbla Rail Siding. This increase would not however change the number of trains needed to transport ore concentrate to Port Kembla.

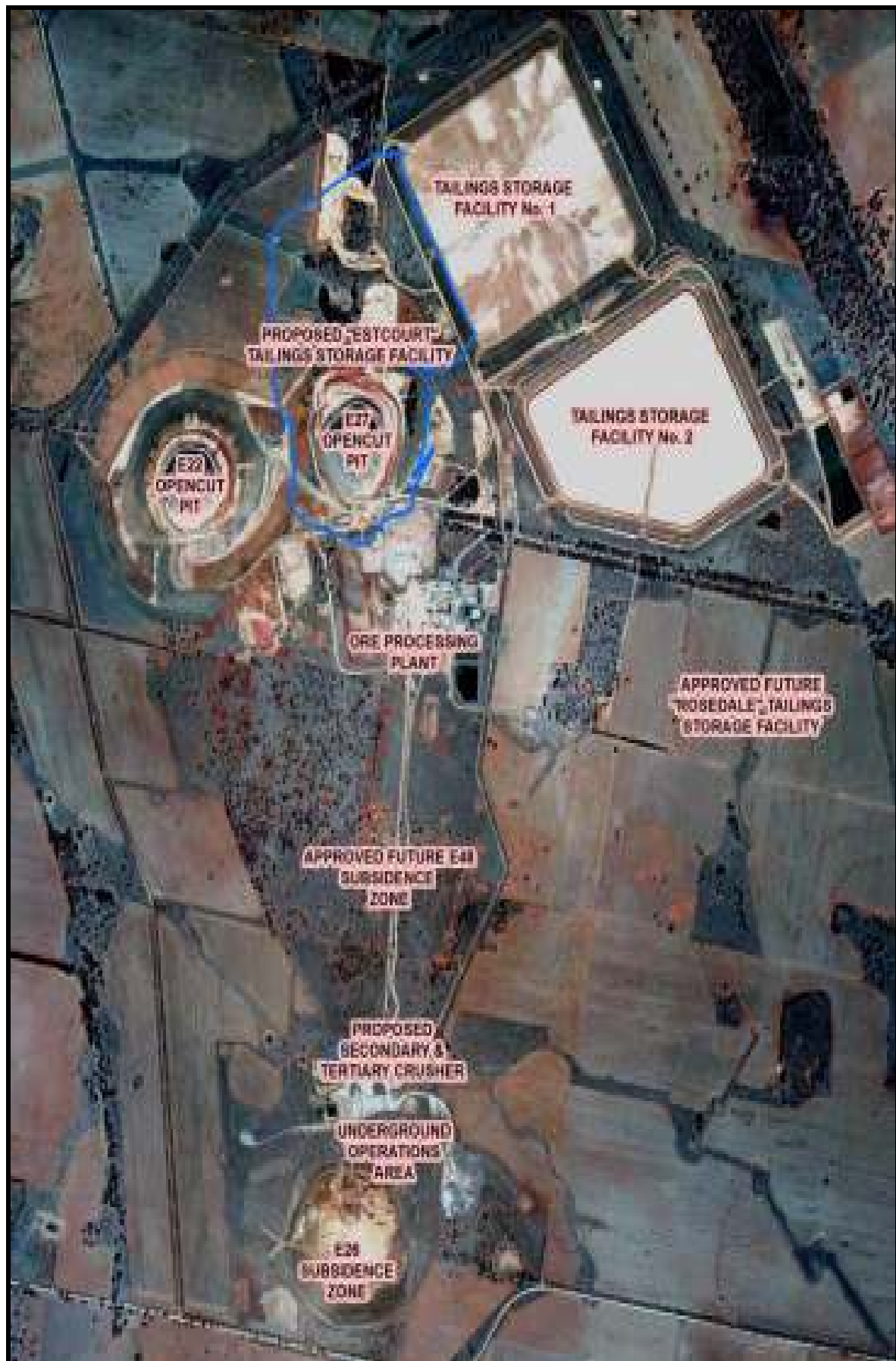


Figure 2: General site layout including the proposed modification



Figure 3: E48 subsidence zone

The proposed modified project would produce a total of 87.9 Mt of tailings over its life (an additional 42 Mt above the current predicted total tailings production). North's current tailings storage capacity is approximately 63.7 Mt. North therefore proposes to construct a new tailings storage facility (Estcourt TSF - see Figure 4) using the E27 void and the area to its north, to provide the additional required storage capacity. Table 1 shows the capacity of current, approved and proposed tailings storage facilities (TSFs).

Table 1: Capacities of current, approved and proposed tailings storage facilities

Tailings Storage Facility	Capacity (Mt)
TSF 1 (current)	6.1
TSF 2 (current)	7.7
Rosedale TSF (approved)	31.8
E27 void (approved)	18.1
Estcourt TSF (proposed)	24.2
Total storage capacity	87.9

The Estcourt TSF would be constructed using extracted waste rock from the underground mines and clay from their respective subsidence zones. Its design would follow similar standards to those applied at TSF 1 and TSF 2, including adequate design to prevent overflows during storm events and drainage systems to divert clean run-off and maximise water recovery from tailings. When complete, its walls would be similar in height to TSF 1 and TSF 2.



Figure 4: Proposed Estcourt TSF (blue line)

3 STATUTORY CONTEXT

Approval Authority

The Minister was the approval authority for the original project application, and is consequently the approval authority for this modification application. However, as the proposed modification involves development with a capital investment of less than \$50 million, the Deputy Director-General, Development Assessment and Systems Performance, may determine the modification application under the Minister's delegation of 4 March 2009.

Modification

The proposed modification involves increasing ore production, ore processing rates and upgrading surface infrastructure. The Department is satisfied that the proposed modification

would not “radically transform” the approved project and that it can be determined under section 75W of the EP&A Act. The Department notes that:

- the proposed modification would represent a continuation of mining operations and would occur wholly within the approved project area;
- only a marginal increase to the amount of ore concentrate produced would result; and
- proposed additional disturbance necessary for new infrastructure and upgrades to current infrastructure would be minor.

Consultation

Under section 75W, the Department is not required to undertake consultation or exhibit the modification application. However, after accepting the Environmental Assessment (EA) for the proposed modification, the Department:

- made the EA publicly available from 8 April 2009 until 24 April 2009:
 - on the Department’s website; and
 - at the Department’s Information Centre, Parkes Shire Council and the Nature Conservation Council;
- notified relevant State government agencies, local government authorities and neighbouring landowners by letter; and
- advertised the public exhibition in the Sydney Morning Herald on 15 April 2009 and the Parkes Champion Post on 6 April 2009.

Submissions were received from 5 public authorities and one local resident. These submissions provided the following comments:

Department of Environment, Climate Change and Water (DECCW) did not object to the proposed modification, but requested that North:

- identify land for a biodiversity offset with greater area and habitat value than the land proposed for clearing;
- apply the approved operational noise impact assessment criterion to all components of the proposed modification, including the construction of the Estcourt TSF; and
- clarify TSF design and performance in relation to the potential for tailings to interact with groundwater resources.

Department of Industry and Investment (DII) raised no objection to the proposed modification, however it requested that North submit a revised Mining Operations Plan in accordance with its Mining, Rehabilitation and Environmental Management Process.

The Office of Water (OOW) within DECCW, did not object to the proposal, but highlighted the need for North to ensure it has access to sufficient water supplies for the modified project and requested that North update its Site Water Management Plan.

RTA offered no objection to the proposed modification.

Council did not object to the proposal, but raised concern that the condition of public roads used by mine traffic would be inadequate to accommodate the proposed increase in traffic. Council requested that North’s annual road maintenance contribution be extended to apply for the life of the modified project.

The single public submission requested that North resurface a section of road north from the mine to Peak Hill.

4 ASSESSMENT

4.1 Water Management

North’s EA included an assessment of the impacts of the proposed modification on water resources, which predicted water demand for the proposed modification, supply constraints, impacts to groundwater and surface water, and flooding impacts.

Water Balance

The proposed increase in ore production and processing would increase the mine’s annual water supply requirements. The EA contained a table showing annual water use since 2006,

and predictions for the modified project (see Table 2). While the EA indicated that this table included total water used for ore processing, the Department has since confirmed that these figures reflect total water use on-site, including ore processing.

Table 2: Annual NPM water requirements

Source	2006	2007	2008	Modified Project
Sourced externally	3136 ML	2562 ML	2575 ML	4416 ML
Recycled from TSFs	1424 ML	1304 ML	1290 ML	2091 ML
Harvested on-site	123 ML	418 ML	372 ML	400 ML
Pit inflows	63 ML	63 ML	63 ML	62 ML
Total	4,747 ML	4,347 ML	4,300 ML	6,970 ML

As Table 2 shows, 4,416 megalitres (ML) of water would need to be externally sourced for the modified project. North has secure access to 4,550 ML from external sources, comprising 1,900 ML under agreement with Council from its town water supply, and 2650 ML from bores that North owns. All water from these sources is delivered using Council's supply infrastructure and this would continue for the modified project. North has committed to upgrade this infrastructure to supply the increased water required for the modified project.

North also owns Lachlan River general security surface water licences totalling 2,976 ML. However, regional drought conditions have prevented these allocations being granted for a number of years. North's groundwater extraction entitlements may also face restrictions when Macro Water Sharing Plans are introduced for the region. OOW suggested that North should develop a contingency water supply, should these restrictions eventuate. North stated this aim could be achieved through it continuing the conversion of general security licences to high security licences whilst also seeking to improve its on-site water efficiency.

Other uses of water at the mine, including for dust suppression, construction, and domestic water use, would not increase over that already assessed for the E48 project and would therefore not impact upon the mine's overall water balance. Water for dust suppression and construction would continue to be supplied through on-site water capture and recycling, and domestic water would continue to be supplied from Council. The Department considers that available sources of water for these other uses would continue to be sufficient throughout the modified project.

The Department accepts that North currently has access to sufficient water for the modified project, and that, like any other significant water user in the State, maintaining access to adequate water supplies over time is a commercial risk for North. If North is unable to secure enough water to meet its needs, its operations may need to be reduced, or it may need to investigate additional efficiency measures. This is consistent with the water sharing principles introduced under the *Water Management Act 2000*.

The Department notes that the existing approval already requires North to maintain a detailed water balance for the project, including details of sources and reliability for the water supply and measures to minimise and manage water use on-site. The Department is satisfied that the existing approval conditions would adequately manage water supply and use associated with the proposed modification. The Department has recommended that North update its Water Management Plan to reflect the proposed modification.

Groundwater

North's EA included permeability testing of clay in the proposed Estcourt TSF area to ascertain whether tailings leachate would impact on groundwater resources. The results were consistent with the approved project's groundwater assessment, showing that the depth and low permeability of the clay would severely restrict the potential for tailings leachate to seep to groundwater. A drainage system would be constructed beneath the Estcourt TSF to capture water from tailings for recycling, which would further restrict infiltration of polluted water to the underlying clay and rock layers. North previously assessed the potential for tailings to leach from the E27 pit floor as part of the E48 project, with results showing the low permeability of the clay and underlying rock layers is evident across a much wider area which includes the E27 and E22 pits, TSF 1 and TSF2.

The permeability assessment concluded that no additional preparatory works would be required for the Estcourt TSF floor. North's current groundwater monitoring program would be expanded to reflect the modified project accordingly. The Department is satisfied that groundwater impacts would be unlikely to increase and has recommended that North be required to update its groundwater monitoring program to include the proposed modification.

Surface Water and Flooding

North's assessment of potential surface water impacts from the operation of the Estcourt TSF and proposed new processing infrastructure found that impacts would not be significant, as the design of the Estcourt TSF would include adequate drainage works to manage clean run-off and avoid water discharge to the surrounding environment. The new secondary and tertiary crushers (see Figure 2) would be located in the Goonumbla Creek catchment, and any impacts to the creek's flood regime would be avoided and/or mitigated by constructing the crushers on a platform to prevent erosion during flood events and locating the infrastructure above the 1:100 ARI event flood level. The Department is satisfied that surface water impacts would not be significant and are able to be adequately mitigated. The Department has recommended that North be required to update its surface water monitoring program to reflect the proposed modification.

4.2 Flora and Fauna

Approximately 14.3 hectares (ha) of native vegetation would be required to be cleared to construct the Estcourt TSF, comprising:

- 1.13 ha of Yellow Box Woodland;
- 8.5 ha of Inland Grey Box Woodland and native grassland; and
- 4.71 ha of Bimble Box Woodland.

These vegetation communities are all listed as Endangered Ecological Communities (EECs) under the *Threatened Species Conservation Act 1995* (TSC Act) and are also known to provide habitat for the Grey-crowned Babbler, a listed threatened species under the TSC Act. The area proposed to be cleared is relatively isolated from other vegetated areas, due to the extensive disturbance which has already occurred during the operation of the E27 mine (see Figure 5). Therefore this remnant vegetation does not contribute significantly to local or regional biodiversity corridors.

To offset the flora and fauna impacts from the modified project, North has developed a biodiversity offset strategy in consultation with DECCW. The offset strategy focuses on the conservation and management of 65 ha of land to the north of TSF 1 (see Figure 5). The offset area contains similar vegetation to that proposed to be cleared and is also known to provide habitat for the Grey-crowned Babbler. The offset area comprises:

- 3.3 ha of Yellow Box Woodland;
- 38.8 ha of Inland Grey Box Woodland; and
- 23 ha of derived grassland.

Both the Department and DECCW consider that this offset (with a ratio of 4.5:1) would sufficiently compensate for the proposed clearing. The offset area would be secured through North entering into a Voluntary Conservation Agreement with DECCW. The area would then be managed under a Vegetation Management Plan, which North has committed to include in its Landscape Management Plan (LMP). North would also undertake habitat restoration works in the offset area, including fencing, stock exclusion and planting of appropriate tree and shrub species. Pre-clearing surveys would also be undertaken to provide protection measures for any potential Grey-crowned Babbler populations within the proposed clearing area. The Department and DECCW are satisfied that North's offset strategy would be sufficient to offset any impacts caused by vegetation clearing for the proposed modification, such that regional flora and fauna values would be maintained or improved over the medium to long term. The Department has recommended modified conditions of approval requiring North to revise and update its LMP, in order to formalise the offset strategy, to provide for the long term conservation of the offset area.



Figure 5: Proposed vegetation clearing area (red line) and biodiversity offset area (bold black line)

4.3 Noise

North modelled the noise impacts for the modified project with reference to the *NSW Industrial Noise Policy*. Noise levels were predicted for the closest residences to the mine under a range of meteorological conditions (see Figure 6 for residence locations). Table 3 shows the current noise levels at the mine, as well as the maximum predicted levels for the operation of the modified project under worst case conditions.

Table 3: Operational noise levels at the closest residences

Residence	Noise limit dB(A) $L_{Aeq}(15 \text{ minute})$	Existing Project dB(A) $L_{Aeq}(15 \text{ minute})$			Modified Project dB(A) $L_{Aeq}(15 \text{ minute})$		
	Day/Evening/Night	Day	Evening	Night	Day	Evening	Night
"Hubberstone"	35	27	29	30	28	30	31
"Avondale"	35	29	31	32	30	32	33
"Milpose"	35	27	29	31	29	31	33
"Lone Pine"	35	26	28	29	30	32	33

Note: Modelled noise levels are based on a 3m/s wind in the direction of each residence.

As table 3 shows, operational noise levels for the modified project would continue to comply with the approved criterion under all meteorological conditions. However, during construction of the Estcourt TSF, the approved noise limit may potentially be exceeded by up to 3 dB(A) at night at “Lone Pine”. To mitigate the potential for this exceedance occurring, North would undertake the following noise management practices:

- reviewing its construction activities during adverse wind conditions,
- consulting residential neighbours during the construction period;
- ensuring appropriate machinery is used for each task and adopting efficient work practices to minimise the construction schedule;
- avoiding unnecessary noise due to machinery idling; and
- ensuring all machinery on site is maintained in good condition and modifying reversing alarms.

The Department believes these measures are reasonable and feasible to implement, and notes that the likelihood of any exceedance occurring would be restricted to the construction period, and therefore is of a short term nature (34 weeks).

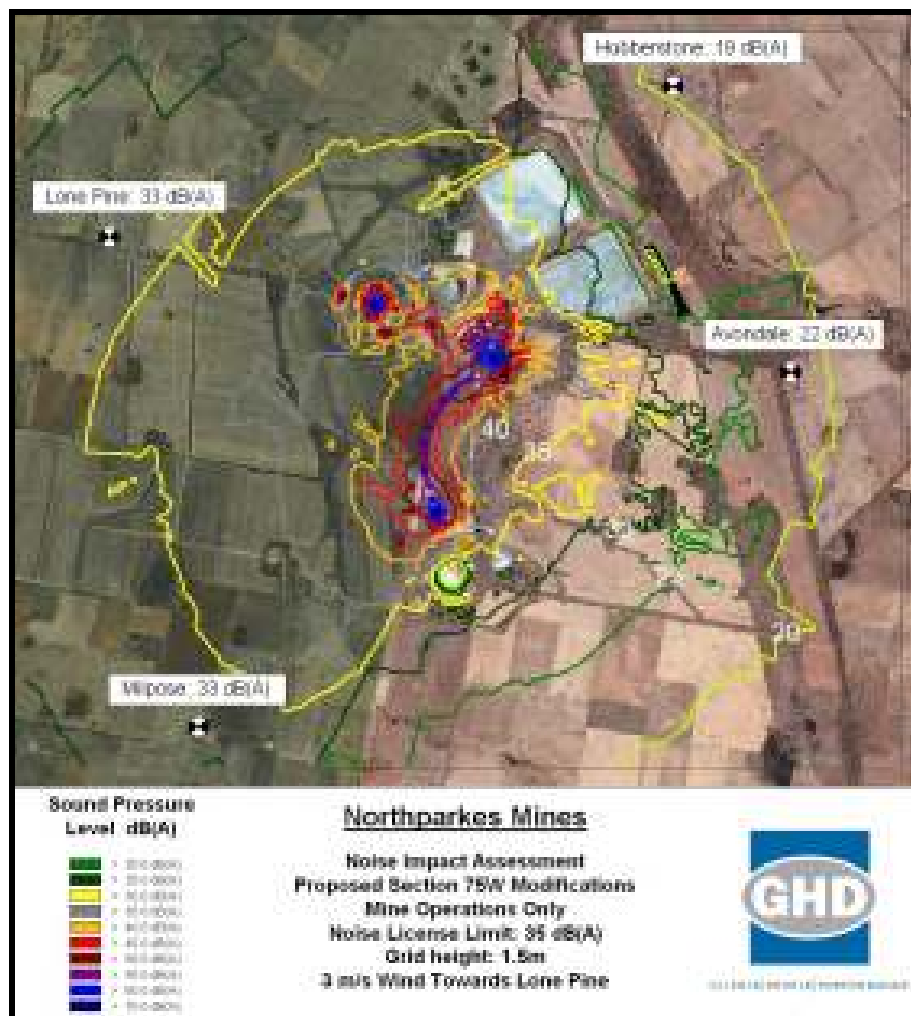


Figure 6: Predicted operational noise levels during a southeast wind

Due to the minor increase in traffic that would result during the modified project (ie an increase of up to 20 truck movements per week), no discernible increase in traffic noise is predicted to occur and levels would remain well within recommended criteria.

The Department is satisfied overall that North’s proposed noise management measures, both during construction of the Estcourt TSF and throughout the modified project, would assist it in managing its noise emissions to within approved limits. The Department has recommended North prepare a construction noise management plan, in consultation with DECCW, to manage any potential construction noise exceedances. The Department has also recommended that North updates its noise monitoring program to reflect the proposed modification.

4.4 Traffic

North's EA assessed the impacts of the predicted traffic increase due to the proposed modification. North uses the Council-owned Bogan Road to transport ore concentrate to the Goonumbla Rail Siding, at an average rate of 60 truck loads (58 tonne capacity) per week (ie 120 truck movements). Deliveries to the mine add a further 38 truck movements per week.

The construction of the Estcourt TSF would add 14 truck movements and 150 light vehicle movements per week. Following construction, traffic levels would return to current levels, with the increase in ore production leading to a minor increase in truck movements to the rail siding (up to 20 additional truck movements per week).

Council commented that local road performance would be compromised by the increase in heavy vehicle movements from the modified project and requested that the approved annual road maintenance contribution it receives from North be extended for the life of the modified project.

The Department notes that the performance of Bogan Road was assessed previously for the E48 project, which concluded that road conditions would be adequate to accommodate traffic levels well in excess of those predicted for the proposed modification.

The Department is therefore satisfied that roads carrying mine traffic would have adequate performance, in terms of both condition and capacity, to accommodate the proposed modification. The Department recognises Council's responsibility for the maintenance of Bogan Road and that North is the road's major user. The Department has accordingly recommended that North's yearly road maintenance contribution to Council be extended for the life of the modified project.

4.5 Air Quality

North's air quality assessment found that impacts during construction of the Estcourt TSF and the operation of the modified project would not significantly increase over that already assessed and approved for the E48 project. Table 4 provides a summary of the maximum predicted air quality impacts of the modified project at the closest properties to the mine. DECCW's air quality criteria would be met easily, with the exception of the 24 hour average PM₁₀ criteria, where a negligible (0.4 µg/m³) exceedance is predicted for cumulative impacts. However, air quality monitoring has found high background PM₁₀ levels at the "Hubberstone" and "Milpose" properties, which relates to the agricultural activities at those properties (see Table 4). The Department is therefore satisfied that any contribution from the mine to air quality impacts would remain well within all approved criteria throughout the modified project.

Table 4: Air quality impacts

<i>Air quality parameter</i>	<i>Background</i>	<i>Increment attributable to the modified project</i>	<i>Background + increment</i>	<i>DECCW criteria</i>
Deposited Dust (g/m ² /month)	2.7	0.9	3.6	4.0
PM ₁₀ Max 24-hour average (µg/m ³)	45.9	4.5	50.4	50
PM ₁₀ Annual average (µg/m ³)	17.6	2.0	19.6	30

North would continue to undertake on-site management and mitigation practices, such as watering internal roads and product stockpiles, to assist it in complying with all relevant air quality goals. The Department is satisfied that these management and mitigation practices would continue to limit the potential for adverse impacts occurring, and has recommended a condition requiring North to update its air quality monitoring program to reflect the proposed modification.

4.6 Other Issues

The project is also likely to generate visual and Aboriginal heritage impacts. These impacts are not expected to be significant and the Department is satisfied that they can be appropriately controlled, mitigated or managed. These issues are addressed in Table 5.

Table 5: Other issues

Issue	Potential Impacts	Mitigating Factors
<i>Visual</i>	▪ The Estcourt TSF and upgraded processing infrastructure would be visible from nearby residences and by travellers on local roads.	▪ A vegetated buffer zone would block views to the Estcourt TSF from roads and residences near the mine. ▪ Infrastructure upgrades would occur within the footprint of existing infrastructure.
<i>Aboriginal Heritage</i>	▪ The modified project could impact on Aboriginal Heritage sites.	▪ The proposed Estcourt TSF site has been highly disturbed through agricultural activities. ▪ One Aboriginal site with one known artefact was found during the survey of the proposed Estcourt TSF area. This site would be recorded in accordance with relevant regulation and standards. ▪ The Department has recommended a condition requiring North to update its Aboriginal Cultural Heritage Management Plan.

4.7 Statement of Commitments

North has also revised its existing Statement of Commitments to reflect the proposed modification, which notably included commitments to:

- revise each of its impact management plans and monitoring programs;
- prepare a construction noise management plan for the Estcourt TSF; and
- ensure the operation of the Estcourt TSF does not impact on surface and groundwater resources.

The Department has recommended a condition which replaces the currently approved Statement of Commitments with the revised version.

5 CONCLUSION

The Department has assessed the modification application in accordance with the relevant requirements of the EP&A Act. Based on this assessment, the Department is satisfied that the proposed modification would:

- allow the continued efficient extraction and processing of gold/copper ore, to a limit of 8.5 Mtpa;
- effectively manage tailings on-site and minimise the potential for off-site discharges;
- offset vegetation clearing by conserving a greater area of land containing similar vegetation communities; and
- not significantly increase the approved project's environmental impacts.

The Department is satisfied that the proposed modification represents a logical and reasonable extension of the Northparkes Mines and that it would deliver a range of socio-economic benefits to the region, including continued employment for approximately 530 people until 2025. The Department therefore believes that the proposed modification is in the public interest and should be approved, subject to conditions.

6 RECOMMENDATION

It is RECOMMENDED that the Deputy Director-General:

- **consider** the findings and recommendations of this report;
- **approve** the proposed modification under section 75W of the EP&A Act; and
- **sign** the attached Notice of Modification (Tag A).

dkitto 1/10/09

Director

[Signature] 6/10/09

Deputy Director-General

[Signature] 5.10.09
Executive Director