

Statement of Reasons

AUSTRALIAN ILMENITE RESOURCES PTY LTD – CONSTRUCTION OF HIGHWAY DAM

PROPOSAL

Australian Ilmenite Resources Pty Ltd (the Proponent) submitted a Notice of Intent (NOI) for construction of Highway Dam (the Proposal) to the Northern Territory Environment Protection Authority (NT EPA) on 26 September 2018, for consideration under the *Environmental Assessment Act* (EA Act). Further clarification about the size of Highway Dam was provided to the Department of Environment and Natural Resources (DENR) on 9 November 2018.

The Proposal is a new component of the SILL80 Ilmenite mine that was assessed at the level of a Public Environmental Report. The assessment was completed in September 2012 with the finalisation of Assessment Report 71. The ilmenite mine and processing operation is located on Mineral Lease 31954, approximately 550 km south east of Darwin in the Roper River Region, approximately 130 km east of Mataranka. The ilmenite mine's existing processing plant has a theoretical throughput capacity of up to 300 000 tonnes per annum (tpa), but is yet to be fully realised due to water limitations.

The Proposal would provide new water storage infrastructure to support the existing SILL80 ilmenite mine operation, and includes:

- construction of Highway Dam, an off-stream, raw water storage dam with a capacity of 9 GL and footprint of up to 157 ha at the site of an existing stock-watering dam on Namul Namul Station (Figures 1 and 2)
- a 3 km pipeline (500 mm diameter) and service track in a 50 m wide (cleared) corridor (total 15 ha footprint) connecting the Highway Dam to the existing 14 km pipeline between the Roper River and the SILL80 mine (Figures 1 and 2)
- an unsealed, graded access track from the Roper Highway to the Highway Dam, a 4 km long and 15 m wide (cleared) corridor with a footprint of 6 ha (Figure 2).

The Highway Dam is proposed to be constructed with three separate earth fill embankments to Reduced Level (RL) 68m, and a compacted clay spillway (crest at RL 67 m) (Figures 3 and 4). An overview of the size and capacity of each embankment is provided below in Table 1.

Embankment / Dam Wall	Length (m)	Base level (RL m)	Wall height (m)(with crest at RL 68m)	Cumulative maximum Highway Dam surface area (ha) at each stage	Highway Dam cumulative volume at each stage (GL)
A	202	55.4	12.6	48	0.375
B	690	57.4	10.6	119	3.990
C	546	62.6	5.4	157	9.000
Spillway	60	65	2 (Spillway crest at RL 67 to protect embankments)		

Table 1 - Highway Dam embankment details (AIR pers. comm.)

Construction material for embankment walls would be sourced from two borrow material areas that would ultimately form part of the Highway Dam floor. The estimated construction time of the Highway Dam is six weeks total.

The raw water to be stored in the Highway Dam could be a combination of:

- water harvesting of 100 % of stream flows from Highway Dam catchment
- water extracted from the Roper River in times of high flow in accordance with existing authorisations.

The NOI states the Proposal would capture 100% of stream flows from the 350 ha Highway Dam catchment, a sub-catchment of the Roper River. The Proponent estimates capture of the stream flows is a maximum of 3.5 GL/year. The average annual runoff is 1.3 GL/year.

The Proposal would result in changes to existing water management for the mine by storing water extracted from the Roper River rather than pumping directly to the mine site. The additional water storage is expected to enable an increase in the rate of production. The current extraction of water from the Roper River was authorised under the *Mining Management Act* following assessment under the *Environmental Assessment Act*. The approved Roper River water extraction regime has not been altered, and includes:

- extraction of a maximum of 1.649 GL from a natural pool in the Roper River at Judy Crossing
- a 'cease to pump' condition that applies when river flows are below 900 L/sec.

The proposed streamflow capture and current water extraction allocation would provide a maximum water supply of 5.149 GL per year. To contain 5.149 GL would require construction of all three embankments (A+B+C). Construction of embankments A + B (volume 3.99 GL) could contain the full current Roper River allocation plus up to 2.341 GL of Highway Dam catchment runoff (i.e. 1 GL more than the average year of runoff in the Highway Dam catchment).

This Proposal does not include any increase to the current authorised 1.649 GL extraction from the Roper River. In the event that the Proponent identifies that it requires additional water to be extracted from the Roper River it must notify the NT EPA of the increased extraction under clause 14A of the Environmental Assessment Administrative Procedures, and this would likely require further assessment.

CONSULTATION

The NOI has been reviewed as a notification under the EA Act in consultation with Northern Territory Government (NTG) advisory bodies (see Attachment A) and the responsible Minister, in accordance with clause 8(1) of the EAAP.

JUSTIFICATION

Having regard to the NOI, the NT EPA assessed the potentially significant environmental impacts and risks associated with the Proposal in line with the NT EPA's environmental factors and objectives, and in accordance with the requirements under the EA Act. The NT EPA identified three environmental factors (Table 2) that could be potentially significantly impacted by the Proposal. The NT EPA considered the importance of other environmental factors during the course of its assessment, however those factors were not identified as potentially significantly impacted.

Table 2 - Key environmental factors

Theme	Key Environmental Factor	Objective
Water	1. Hydrological processes	Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.
Land	2. Terrestrial flora and fauna	Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.
	3. Terrestrial environmental quality	Maintain the quality of land and soils so that environmental values are protected.

1. Hydrological processes

Objective: Maintain the hydrological regimes of groundwater and surface water so that environmental values are protected.

The Highway Dam catchment hydrological values include:

- Wet season contribution of flows to the Roper River
- Wet season stream flows supplying riparian habitats / ecosystems in the Highway Dam catchment.

The Proposal is to capture 100 % of Highway Dam sub-catchment flows (maximum of 3.5 GL/year). 100% capture of river flows does not comply with the NT Water Allocation Planning Framework¹, which states:

'At least 80 per cent of flow at any time in any part of a river is allocated as water for environmental and other public benefit water provision, and extraction for consumptive uses will not exceed the threshold level equivalent to 20 per cent of flow at any time in any part of a river'.

Ephemeral stream flow within the Highway Dam sub-catchment captured by the Highway Dam would no longer contribute to Roper River flows. The 79,600 km² total area of the Roper River catchment generates an average annual streamflow estimated at 14,394 GL (CSIRO, 2009 cited in the NOI). The Proposal would capture the equivalent of approximately 0.25 % of the average annual Roper River streamflow at Judy Crossing.

DENR advised that the volume of water captured by the Proposal represents an insignificant portion of total annual flows in the Roper River and would have no observable impact on Roper River flows except during local intense rainfall events.

The NT EPA recognises that hydrological regimes within and downstream of the Highway Dam catchment will be altered, however, due to the relatively small contribution of this catchment to the Roper River, the change to the regime is unlikely to result in a significant impact on hydrological values of Roper River. With the implementation of commitments in the NOI, the NT EPA objective for the maintenance of regional hydrological regimes of groundwater and surface water is likely to be met so that environmental values are protected.

¹ https://denr.nt.gov.au/_data/assets/pdf_file/0011/476669/NT-Water-Allocation-Planning-Framework.pdf

2. Terrestrial flora and fauna

Objective: Protect the NT's flora and fauna so that biological diversity and ecological integrity are maintained.

The areas to be disturbed (cleared, flooded or deprived of seasonal stream flows) for the Proposal are within a relatively intact landscape of native savannah woodland vegetation, although some of this area has been previously disturbed by the construction of a stock watering dam. The native vegetation types at the site occurring extensively across the region and not considered sensitive or significant, however may provide suitable habitat for threatened species.

The DENR Flora and Fauna Division advised that at least 13 listed threatened fauna species potentially occur in the vicinity of the Proposal (Table 3).

Table 3 -Threatened species assessed as potentially occurring on Namul Namul Station

Common Name	Scientific Name	EPBC Act	TPWC Act
Mertens' water monitor	<i>Varanus mertensi</i>		Vulnerable
Mitchell's water monitor	<i>Varanus mitchelli</i>		Vulnerable
red goshawk	<i>Erythrotriorchis radiatus</i>	Vulnerable	Vulnerable
grey falcon	<i>Falco hypoleucos</i>		Vulnerable
Gouldian finch	<i>Erythrura gouldiae</i>	Endangered	Vulnerable
crested shrike-tit	<i>Falcunculus frontatus whitei</i>	Vulnerable	
masked owl	<i>Tyto novaehollandiae kimberii</i>	Vulnerable	Vulnerable
northern quoll	<i>Dasyurus hallucatus</i>	Endangered	Critically Endangered
freshwater sawfish	<i>Pristis pristis</i>	Vulnerable	Vulnerable
pale field rat	<i>Rattus tunneyi</i>		Vulnerable
ghost bat	<i>Macroderma gigas</i>	Vulnerable	
yellow-spotted monitor	<i>Varanus panoptes</i>		Vulnerable
partridge pigeon	<i>Geophaps smithii</i>	Vulnerable	Vulnerable

The Proposal would potentially involve the clearing or flooding of a total of 1.78 km² (178 ha) of native vegetation, which could displace native fauna. However, given the relatively small area of clearing within a largely intact landscape, the narrow linear footprint of the road and pipeline, and the mobile nature of the threatened species that potentially occur within the area, the Flora and Fauna Division advised that the risks to threatened species populations at the regional scale and clearing associated with the Proposal are unlikely to have a significant impact on terrestrial biodiversity.

Riparian vegetation may occur in the 3 km drainage line downstream of the Highway Dam, above the confluence with the Roper River. This vegetation could be impacted by the cessation or reduction in flows due to capture of water in the Highway Dam. The DENR Water Resources Division advised that no significant water dependent ecosystems occur in the drainage line. Disturbance to this section would equate to disturbance of 5% of the first order stream length in that sub-catchment, and thus represent a low impact to biodiversity values within the sub-catchment overall.

The creation of a new permanent water body could affect local biodiversity distribution as it would attract water-dependent species. There is potential for a local increase in abundance of feral animals (particularly donkeys) and weeds around the Highway Dam. The Proposal includes the mitigation of this by fencing the Highway Dam to exclude stock and feral animals. Proposed weed

management includes inspection and cleaning of construction equipment prior to accessing the site, and onsite weed control.

Provided that the mitigation and management measures outlined in the NOI are implemented, the NT EPA considers that the clearing of vegetation and other changes to habitat are unlikely to have a significant impact on regional biodiversity values, and the NT EPA's objective for terrestrial flora and fauna is likely to be met.

3. Terrestrial environmental quality

Objective: Maintain the quality of land and soils so that environmental values are protected.

The NOI notes that there is a risk of erosion of soils in the footprint of the Proposal, especially due to the presence of sodic subsoils in the vicinity of the Highway Dam. The Proposal includes the development and implementation of an erosion and sediment control plan (ESCP) for the dam, pipeline and access road construction. The ESCP includes the reinstatement of topsoil on disturbed areas and minimisation of disturbance of the water storage footprint.

The NT EPA notes that decommissioning of Highway Dam and associated infrastructure are standard considerations in the assessment of the Proposal under the *Mining Management Act*. With appropriate regulatory oversight, decommissioning is not expected to impact significantly on environmental values.

The NT EPA considers that soil erosion and sedimentation can be avoided and mitigated as per the Proponent's commitments and with appropriate regulatory oversight of decommissioning. The NT EPA's objective for terrestrial environmental quality is likely to be met.

CONCLUSION

The NT EPA considers that the potential environmental impacts and risks associated with the Proposal are not significant and that the Project does not require assessment under the EA Act.

The NT EPA notes that it may need to consider any future application for increased water allocation to the Project from the Roper River.

Comments from NTG advisory bodies have been provided to the Proponent to ensure that potential impacts on the environment are minimised and responsibilities under the legislation can be met.

DECISION

The proposed action, which was referred to the NT EPA by Australian Ilmenite Resources Pty Ltd, has been examined by the NT EPA and preliminary investigations and inquiries conducted. The NT EPA has decided that the potential environmental impacts and risks of the proposed action are not so significant as to warrant environmental impact assessment by the NT EPA under provisions of the *Environmental Assessment Act*. However, the proposed action will require assessment and approvals under the *Mining Management Act* to ensure the environmental issues associated with the proposed action are effectively managed.

This decision is made in accordance with clause 8(2) of Environmental Assessment Administrative Procedures, and subject to clause 14A the administrative procedures are at an end with respect to the proposed action.



DR PAUL VOGEL
CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

18 DECEMBER 2018

Figures and tables

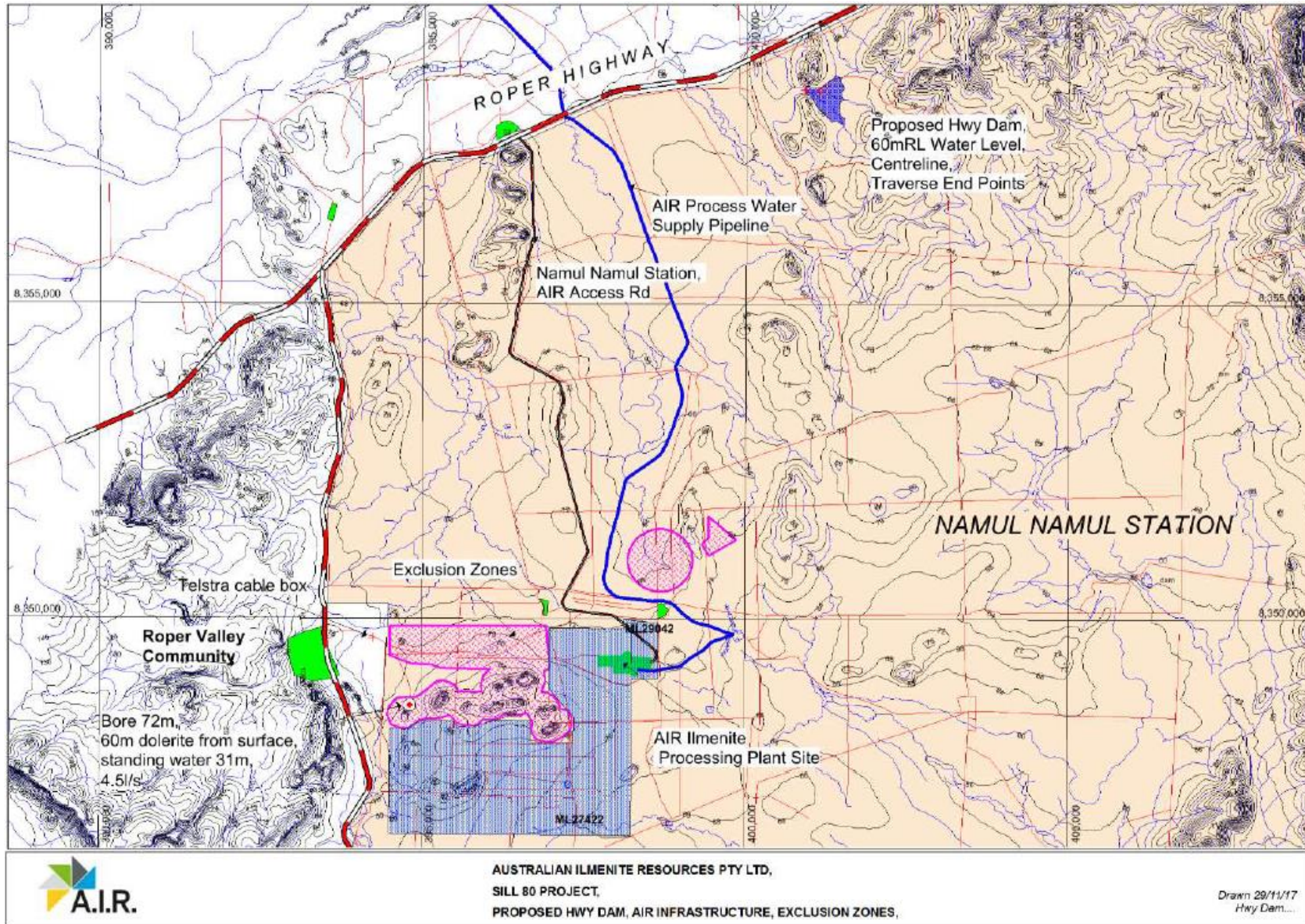


Figure 1 - Highway Dam and pipeline location (NOI)

Figures and tables

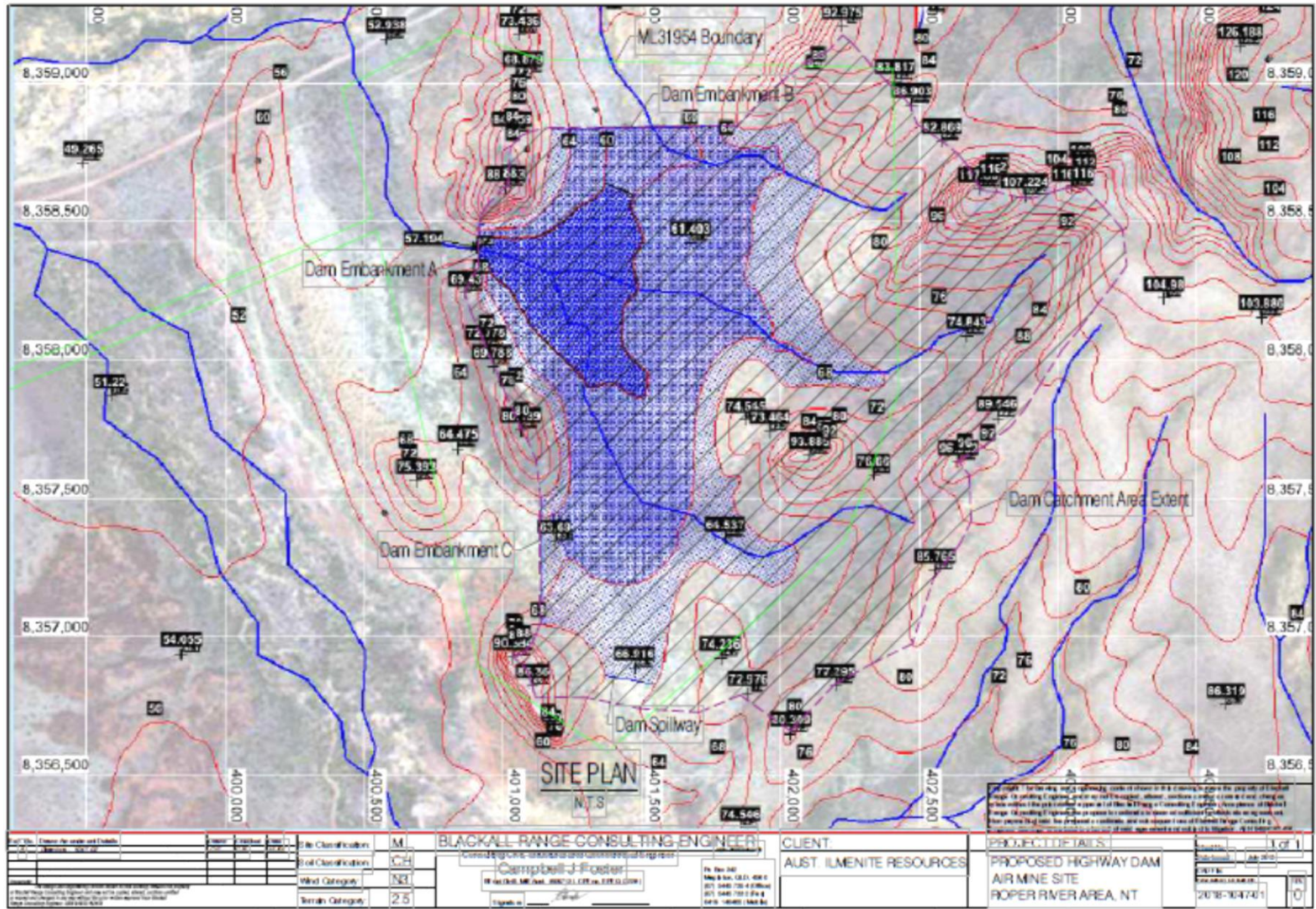


Figure 3 - Highway Dam -Proposed Locations of the Dam Walls and Spillway

Attachment A: Northern Territory Government Agencies consulted on the Notice

Department	Division
Department of Environment and Natural Resources	Flora and Fauna Water Resources Weeds Environment Bushfires NT Rangelands
Department of Infrastructure, Planning and Logistics	Lands Planning Infrastructure Transport
Department of Primary Industry and Resources	Fisheries Mining Compliance Petroleum Primary Industry
Department of Tourism and Culture	Heritage Tourism NT Arts and Museums Parks and Wildlife
NT Police, Fire and Emergency Services	Business Improvement and Planning
Department of Health	Environmental Health Medical Entomology
Department of Trade, Business and Innovation	Economics and Policy Strategic Policy and Research
Department of Housing and Community Development	Maintenance Planning Housing supply
Power and Water Corporation	
Aboriginal Areas Protection Authority	Technical
Department of the Attorney-General and Justice	Commercial Division NT Worksafe
Land Development Corporation	
Department of the Chief Minister	Economic and Environmental Policy