ntepa Northern Territory Environment Protection Authority

Statement of Reasons

DEPARTMENT OF INFRASTRUCTURE, PLANNING AND LOGISTICS – ARNHEM HIGHWAY UPGRADE NEAR ADELAIDE RIVER CROSSING

PROPOSAL

The Department of Infrastructure, Planning and Logistics (DIPL) (the Proponent) submitted the Notice of Intent (NOI) for the Arnhem Highway Upgrade near Adelaide River crossing (the Proposal) to the Northern Territory Environment Protection Authority (NT EPA) on 29 June 2018, for consideration under the *Environmental Assessment Act* (EA Act).

DIPL propose to upgrade a section of the Arnhem Highway in the vicinity of the Adelaide River Bridge between chainage 30.5 km to chainage 36.7 km. The roadworks involve raising the level of the road to improve flood immunity either side of the bridge. No upgrade is proposed to Adelaide River bridge itself as it has a 1:100 year or 1% annual exceedance probability (AEP) flood immunity; whereas the roadway across the floodplain either side of the bridge has an immunity of 39% AEP or approximately 1:3 year flood immunity.

Arnhem Highway commences approximately 35 km south of Darwin and continues for approximately 250 km through Kakadu National Park to Jabiru township. It is a major road servicing the cattle industry, mining and tourist industry. The Proposal area (immediate area of roadworks) is located approximately 70 km southeast of Darwin, in the Litchfield Municipality and unincorporated area (Marrakai-Douglas Daly). All roadworks will be within the road reserve. No works are proposed on the Adelaide River Bridge or river banks. Proposed works include:

- realignment of 6 km of Arnhem Highway
- raising the embankment of the road from the lowest point at Reduced Level (RL) 2.4 m Australian Height Datum (AHD) to RL 4.7 m AHD
- reducing the annual average time of closure from 159 hours/year (6.6 days/year) to 8 hours/year (0.17 days/year).

Ancillary works associated with the roadworks include construction of detours, water extraction and temporary establishment of construction compounds and laydown areas for the duration of construction works.

Proposal construction works are planned to commence in the 2018 Dry Season and are expected to be completed at the end of 2019 Wet Season. Works in the Wet season are likely to be restricted to bridge construction, well above the water and existing road levels.

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 Environmental Assessment Administrative Procedures.

JUSTIFICATION

The NOI was assessed against the NT EPA's environmental factors and objectives.

1. Terrestrial flora and fauna

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

Threatened fauna species have been historically recorded from the area immediately adjacent to the Proposal area. The Department of Environment and Natural Resources (DENR) notes that there is potential for the following threatened terrestrial fauna species to occur on the site:

Scientific Name	Common Name	TPWC Act	EPBC Act
Acanthophis hawkei	Plains Death Adder	Vulnerable	Vulnerable
Epthianura crocea tunneyi	Yellow Chat (Alligator Rivers)	Endangered	Endangered
Erythrura gouldiae	Gouldian Finch	Vulnerable	Endangered
Glyphis glyphis	Speartooth Shark	Vulnerable	Critically endangered
Mesembriomys gouldii gouldii	Black-footed Tree-rat	Vulnerable	Endangered
Numenius madagascariensis	Eastern Curlew	Vulnerable	Critically Endangered
Varanus mertensi	Mertens' Water Monitor	Vulnerable	
Varanus mitchelli	Mitchell's Water Monitor	Vulnerable	
Varanus panoptes	Yellow-spotted Monitor	Vulnerable	
Cycas armstrongii	cycad	Vulnerable	
Ptychosperma macarthurii	palm	Endangered	

The plains death adder (*Acanthophis hawkei*) has been recorded as present in the Proposal area; however, risk to this species is likely to be low due to the small area of disturbance (1.2 ha) compared to the extensive areas of relatively undisturbed suitable habitat for these species in the broader region. Additionally, proposed mitigation procedures (i.e. pre-clearance survey, visual inspection of excavation areas) are likely to minimise direct impact to this species.

A review of the habitat requirements of the other species suggests that important habitat is unlikely to occur or be impacted during construction activities. In addition, the Proposal is unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that any these species would be likely to decline.

There are potential impacts and risks associated with the introduction and spread of weeds during the proposed works. Invasive weeds, particularly introduced pasture grasses (i.e. gamba grass *Andropogon gayanus*, mission grass *Cenchrus polystachios*, buffel grass *C. ciliaris*) have the potential to alter the floristic diversity of the community in addition to increasing the frequency/intensity of fire. Bellyache bush, gamba grass, grader grass, mimosa, neem and prickly acacia are subject to statutory Weed Management Plans. All landholders and managers must adhere to management obligations outlined in these plans.

To address potential impacts associated with the introduction and spread of weeds, the NT EPA has recommended that DIPL develop and implement a Weed Management Plan that addresses: management of current and possible future weed spread and incursions; vehicle and machinery hygiene procedure; and stockpile and topsoil management and rehabilitation weed control.

The NT EPA is satisfied that the potential impacts and risks on terrestrial flora and fauna can be mitigated through implementation of the management measures presented in the NOI. The NT EPA considers that its objective for terrestrial flora and fauna is likely to be met.

2. Terrestrial environmental quality

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

The proposed roadworks are located within the Adelaide River Coastal Floodplain Site of Conservation Significance (SOCS). Part of the road reserve is adjacent to the Djukbinj National Park. The potential impacts and risks to terrestrial environmental quality associated with the

proposal include potential impacts associated with the disturbance of acid sulfate soils (ASS). There is a high probability of ASS or potential ASS (PASS), predominantly below one metre, with some below three metres. However, no excavation of the existing surface is proposed, limiting oxidation of any PASS soils. Fill is required to raise the road. In the case ASS is identified, the Proponent has committed to proceed with management in accordance with Queensland Acid Sulfate Soil Technical Manual (QASSIT).

The NT EPA is satisfied that the potential impacts and risks on terrestrial environmental quality can be mitigated through implementation of the management measures presented in the NOI. The NT EPA considers that its objective for terrestrial environmental quality is likely to be met.

3. Inland water environmental quality

Objective: Maintain the quality of groundwater and surface water so that environmental values including ecological health, land uses, and the welfare and amenity of people are protected.

Soils at the site have been identified as Vertosols which are unlikely to erode as they have high clay content and low position in the landscape. The Proposed construction is expected to extend into the Wet season hence there is potential that disturbed areas might be susceptible to sheet erosion. The potential impacts and risks to inland water environmental quality associated with the Proposal include sedimentation from erosion, facilitated by vegetation clearing. To address this risk, the Proponent has committed to ensuring its contractors implement an Erosion and Sediment Control Plan (ESCP). The ESCP would be prepared by a suitably qualified professional with experience in erosion and sediment control planning. The ESCP would be endorsed by DIPL.

The NT EPA is satisfied that the potential impacts and risks on inland water environmental quality can be mitigated through implementation of the management measures presented in the NOI. The NT EPA considers that its objective for inland water environmental quality is likely to be met.

4. Hydrological processes

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

The proposed roadworks are located in the mid-reaches of the Adelaide River catchment and subject to closure in the Wet Season due to flooding of the river. The section of Arnhem Highway where works are proposed is estimated to have a flood immunity of less than 39%, or alternatively, a two year annual recurrence interval (ARI).

Water for the Proposal will be sourced from existing bores and quarries (where available) or from the Power Water Corporation domestic supply. No additional water extraction from the site is anticipated.

Flood modelling indicates that the Proposal will have potential impacts risks to hydrological processes including:

- Changes in hydrology north and south of the raised highway, with peak afflux causing areas near the proposed work that were wet, will now be dry and vice versa. However, this increase in height is at the peak afflux and will be a short duration. The Proponent has committed to include bridges at 12-15 locations which will be less obstructive (for water flow and sediment accumulation) compared to culverts, and to improve the current annual average time of submergence.

- The Adelaide River Jumping Crocs site (closest receptor to the existing Adelaide River bridge) may be subject to a 5-10 cm increase in floodwater peak during a 5% AEP peak event. The Proponent has committed to lift the Jumping Croc building 500 mm, above afflux levels.

The NT EPA is satisfied that the potential impacts and risks on hydrological processes can be mitigated through implementation of the management measures presented in the NOI. The NT EPA considers that its objective for hydrological processes is likely to be met.

5. Social, economic and cultural surroundings

Objective: Protect the rich social, economic, cultural and heritage values of the Northern Territory.

The Arnhem Highway connects Darwin with the town of Jabiru, Kakadu National Park and communities in Arnhem Land. It crosses the Adelaide River – an important tourist destination in the Top End – approximately 70 km southeast of Darwin. Construction of the upgrade is expected to commence during the Dry season which coincides with tourist peak season. The potential impacts and risks to social, economic and cultural surroundings associated with the proposal include:

- High probability of delays for road users during the construction period. Although these delays are unavoidable, the Proponent has committed to preparing and implementing a Traffic Management Plan which complies with Australian Standard AS 1742.3 (Traffic Control Devices for Works on Roads). The NT EPA acknowledges that delays may negatively affect the satisfaction of visitors using the road during the construction period, however the longer-term social benefits from improved safety and flooding immunity would outweigh any short-term impacts to road users.
- Additional noise, vibration and dust in proximity to the Adelaide River Jumping Crocs site (closest receptor to the Proposal area) which may affect its visitors. Dust from the construction works would be suppressed using water and is unlikely to have medium or long-term impacts to the amenity of visitors to this site.

The NT EPA is satisfied that the potential impacts and risks on social, economic and cultural surroundings can be mitigated through implementation of the management measures presented in the NOI. The NT EPA considers that its objective for social, economic and cultural surroundings is likely to be met.

Conclusion

The NT EPA considers that significant environmental impacts are unlikely due to the limited disturbance footprint and construction methods which can be adequately managed by implementing the measures outlined in the NOI and in accordance with the Contractor's Environmental Management Plan.

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

Comments from NTG advisory bodies have been provided to the Proponent and the NT EPA has provided recommendations 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 was referred by DIPL. The NT EPA conducted preliminary investigations and inquiries and has determined 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*. Environmental management of the potential environmental impacts is the responsibility of DIPL through preparation and implementation of procedures and management plans specified in the NOI.

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

DR PAUL VOGEL

CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

27 AUGUST 2018

Attachment A: Northern Territory Government Advisory bodies consulted on the Notice of Intent

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