Submission on the referral

Aurizon Operations Ltd – Berrimah Freight Terminal Expansion Project

This submission is made under regulation 53 of the Environment Protection Regulations 2020

Government authority: Department of Climate Change, Energy, the Environment and Water (DCCEEW)

Summary: DCCEEW have received a referral for the proposed action by proponent Aurizon Operations Ltd. that is currently under validation. The referral provided to the NT EPA concluded that the project will have a significant impact on matters of national environmental significance (MNES). If the proposed action is determined to be a controlled action under the EPBC Act, it may be considered for assessment under the bilateral agreement.

<table>
<tr><th>Section of Referral</th><th>Theme or issue</th><th>Comment</th></tr>
<tr><td>Environmental Referral, Appendix K: EPBC Act Significant Impact Assessment</td><td>Table 1. Threatened fauna located within the project site</td><td>Table does not include migratory sea birds, as mentioned being present in the proposed action area in Appendix I. A preliminary survey recorded a total of two migratory shorebird species from one family: Common Greenshank (Tringa nebularia), and the Eastern Curlew (Numenius madagascariensis). As a result, a Significant Impact Assessment has not performed for the two listed migratory species.</td></tr>
<tr><td>Environmental Referral, Appendix K: EPBC Act Significant Impact Assessment</td><td>Section 2.2: Previous studies</td><td>A field assessment was conducted between May and June 2023, and a preliminary field survey was made in March 2023 to identify conservation significant species and their habitat that occur within the study area. However, migratory birds identified as occurring within the proposed action area are known to migrate to the area outside of this time frame, indicating that timing of the bird surveys may not have been adequately performed in alignment with the department's Guidelines for detecting birds listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999. The proponent notes that further studies will be required before this proposal can be referred to the department to be assessed under the EPBC Act.
<table>
<tr><th>Species</th><th>Arrival in Australia</th></tr>
<tr><td>Curlew Sandpiper</td><td>August/September</td></tr>
<tr><td>Eastern Curlew, Far Eastern Curlew</td><td>July/August</td></tr>
<tr><td>Lesser Sand Plover, Mongolian Plover</td><td>September - April/May</td></tr>
<tr><td>Common Greenshank, Greenshank</td><td>August-November</td></tr>
<tr><td>Red Knot, Knot</td><td>August/September - December</td></tr>
<tr><td>Grey Plover</td><td>August/September - December</td></tr>
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<tr><td>Terek Sandpiper</td><td>August</td></tr>
<tr><td>Asian Dowitcher</td><td>August</td></tr>
<tr><td>Sharp-tailed Sandpiper</td><td>August/September</td></tr>
<tr><td>Ruddy Turnstone</td><td>August/September</td></tr>
<tr><td>Greater Sand Plover, Large Sand Plover</td><td>July</td></tr>
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<td>Environmental Referral, Appendix K: EPBC Act Significant Impact Assessment</td>
<td>Section 5.0: Significant Impact Assessment Conservation Significant Species</td>
<td>
DCCEEW recognises that the proposed action may intersect with the known occurrence of the following EPBC listed migratory bird species:

Curlew Sandpiper (Calidris ferruginea) (Critically Endangered)
Eastern Curlew (Numenius madagascariensis) (Critically Endangered)
Lesser Sand Plover (Charadrius mongolus) (Endangered)
Common Greenshank (Tringa nebularia) (Endangered)
Red Knot (Calidris canutus) (Vulnerable)
Grey plover (Pluvialis squatarola) (Vulnerable)
Terek Sandpiper (Xenus cinereus) (Vulnerable)
Asian Dowitcher (Limnodromus semipalmatus) (Vulnerable)
Sharp tailed sandpiper (Calidris acuminata) (Vulnerable)
Ruddy Turnstone (Arenaria interpres) (Vulnerable)
Greater sand plover (Charadrius leschenaultia) (Vulnerable)

Field surveys have observed two migratory species, the Common Greenshank and the Eastern Curlew. Fauna habitat mapping was undertaken based on a combination of aerial imagery, field observations and fauna habitat assessment data. Three broad fauna habitats were identified within the Survey Area:

Mangrove habitat
Woodland habitat
Intertidal mudflat habitat

The intertidal mudflat and mangrove habitat areas of the proposed action area fulfills the criteria for habitat for the survival of the species for the following Threatened and Migratory Species, as well as being habitat utilised by the migratory species which are at the limit of their species range and/or populations that are near the limit of the species range.

The department recognises that avoidance has been undertaken whilst the Project is still in the concept design phase, where the project footprint has reduced significantly from initial concepts to avoid a potential migratory shorebird habitat in the western portion of Section 5412.
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		Potential impacts on migratory bird species may occur as a result of anthropogenic disturbance at feeding and roosting sites. Anthropogenic disturbance causes birds to stop feeding and fly around. This may force birds away from traditional roosting and feeding sites and reduce fat/energy reserves. This can affect an individual's ability to complete the northward migration back to their breeding grounds and may negatively affect survival or reproductive success. There is a possibility that the proposed action could be considered to have following impacts under the Significant Impact Guidelines 1.1 for the listed Threatened and Migratory species: • The clearing of intertidal mangrove and terrestrial vegetation may substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species, as the project area fulfills the criteria for habitat critical to the survival of the following species and is necessary for activities such as foraging, breeding, roosting, or dispersal. • The clearing of intertidal mangrove and terrestrial vegetation and seawall construction may also interfere with the recovery of the species and cause a reduction in the area of occupancy of the species, as actions that remove coastal stop-over locations disturb important feeding and roosting sites.
Environmental Referral, Appendix K: EPBC Act Significant Impact Assessment	Section 5.0: Significant Impact Assessment Conservation Significant Species	DCCEEW recognises that the proposed action may intersect with the known occurrence of the following EPBC listed migratory marine species: • Loggerhead turtle (*Caretta caretta*) (Endangered, Migratory) • Olive Ridley turtle (*Lepidochelys olivacea*) (Endangered, Migratory) • Flatback turtle (*Natator depressus*) (Vulnerable, Migratory) • Hawksbill turtle (*Eretmochelys imbricata*) (Vulnerable, Migratory) • Green turtle (*Chelonia mydas*) (Vulnerable, Migratory) • Green Sawfish (*Pristis zijsron)* (Vulnerable, Migratory) • Dwarf Sawfish (*Pristis clavata*) (Vulnerable, Migratory) Field surveys for the occurrence of marine species have not been provided. Habitat mapping was undertaken based on a combination of aerial imagery, field observations and fauna habitat assessment data. Three broad fauna habitats were identified within the Survey Area: • Mangrove habitat • Woodland habitat • Intertidal mudflat habitat The marine area surrounding the proposed action area intersects with a Biologically Important Area for the Flatback Turtle. The marine area surrounding the proposed action area may be influenced by the clearing of the intertidal mudflat and mangrove areas of the proposed action area. This surrounding marine area fulfills the criteria for habitat for the survival of the species for the following

		Threatened and Migratory Species, as well as being habitat utilised by the following migratory species which are at the limit of their species range and/or populations that are near the limit of the species range: • Loggerhead turtle • Olive Ridley turtle • Flatback turtle • Hawksbill turtle • Green turtle Potential impacts onto the surrounding marine environment from the clearing of vegetation and construction of a sea wall have been addressed by the proponent in Appendix M: Environmental Risk Assessment Report, Table 7. Risk pathways include increased sediment levels in the stormwater caused by erosion during construction, mobilisation of soil or water contaminants into the Darwin Harbour, disturbance of acid sulphate soils, species exposure to acid sulphate soils, generating acidic conditions and subsequent metal mobilisation in drainage/runoff, and light spill impacting on nocturnal fauna activities. Recovery Plan for Marine Turtles in Australia (2017) identifies key threats to the turtle species as chemical and terrestrial discharge, as acute terrestrial discharge includes large sediment pulses due to extreme flooding events. These events can cause considerable loss of seagrass habitat due to light limitation that in turn can result in decreased turtle health, starvation, increased stranding, and decreased breeding conditions. Habitat modification including the construction of ports and marinas coastal urbanisation can modify of habitat as a result of sedimentation and has the potential to spatially displace individuals or modify behaviour. There is a possibility that the proposed action could be considered to have following impacts under the Significant Impact Guidelines 1.1 for the listed Threatened and Migratory species: • The clearing of intertidal mangrove and terrestrial vegetation may substantially modify the marine environment, destroy or isolate an area of important habitat for a migratory species, as the project area fulfills the criteria for habitat critical to the survival of the species and is necessary for activities such as foraging, internesting, or dispersal. • The clearing of intertidal mangrove and terrestrial vegetation and seawall construction may also interfere with the recovery of the species and cause a reduction in the area of occupancy of the species, as actions that modify the physical environment and cause avoidance of critical habitat areas.
Environmental Referral, Appendix K: EPBC Act Significant	Section 5.0: Significant Impact Assessment Conservation	DCCEEW recognises that the proposed action may intersect with the known occurrence of the following EPBC listed threatened bird species: • Nunivak Bar-tailed Godwit (*Limosa lapponica baueri*) (Endangered) • Gouldian Finch (*Erythrura gouldiae*) (Endangered)

Impact Assessment	Significant Species	• Partridge Pigeon (*Geophaps smithii smithii*) (Vulnerable) Field surveys have not observed either of the the three species. Fauna habitat mapping was undertaken based on a combination of aerial imagery, field observations and fauna habitat assessment data. Three broad fauna habitats were identified within the Survey Area: • Mangrove habitat • Woodland habitat • Intertidal mudflat habitat Nunivak Bar-tailed Godwit feeding habitat includes exposed sandy or soft mud substrates on intertidal flats and beaches, and habitat critical to the survival of bar-tailed godwits includes a mosaic of feeding and roosting habitat. The species is likely highly selective about foraging environments due to its specialised feeding techniques. The intertidal mudflat and mangrove habitat areas of the proposed action area fulfill the criteria for habitat for the survival of the species. Critical habitat has not been defined for the Gouldian Finch or the Partridge Pigeon, and the occurrence of the species does not occur at the limit of the species range. Potential impacts on the Nunivak Bar-tailed Godwit from the proposed action may result from the clearing of intertidal mangrove and terrestrial vegetation with a seawall construction. The loss of mudflats, wetlands, saltmarshes, sandflats, and beaches reduces the availability of resting and feeding habitat and may limit the individual's ability to build up energy stores required for successful migration and breeding. A reduction in the extent or quality of habitat in one part of the Flyway can have far-reaching consequences for the subspecies, even if its other habitats remain in good condition. There is a possibility that the proposed action could be considered to have following impacts under the Significant Impact Guidelines 1.1 for the Nunivak Bar-tailed Godwit: • The clearing of intertidal mangrove and terrestrial vegetation may adversely and affect habitat critical to the survival of a species, destroy or isolate an area of important habitat the species, as the intertidal mudflat habitat of the project area fulfills the criteria for habitat critical to the survival of the species and may limit the individual's ability to build up energy stores required for successful migration and breeding. • The clearing of intertidal mangrove and terrestrial vegetation may modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline as the species is highly selective about foraging environments due to its specialised feeding techniques. The clearing of intertidal mangrove and terrestrial vegetation and seawall construction may also interfere with the recovery of the species and cause a reduction in the area of occupancy of the species, as actions that remove coastal stop-over locations disturb important feeding and roosting sites.

Environmental Referral, Appendix K: EPBC Act Significant Impact Assessment	Section 5.0: Significant Impact Assessment Conservation Significant Species	DCCEEW recognises that the proposed action may intersect with the known occurrence of the following EPBC listed threatened terrestrial species: • Northern Blue-tongued Skink (Critically Endangered) • Mitchells Water Monitor (Critically Endangered) • Mertens Water Monitor (Endangered) • Northern Quoll (Endangered) • Plains Death Adder (Vulnerable) • Northern Brushtail Possum (Vulnerable) • Bare-rumped Sheath-tailed Bat (Vulnerable) Field surveys have observed the occurrence of Mitchells Water Monitor, Northern Brushtail Possum and the Bare-rumped Sheath-tailed Bat . Fauna habitat mapping was undertaken based on a combination of aerial imagery, field observations and fauna habitat assessment data. Three broad fauna habitats were identified within the Survey Area: • Mangrove habitat • Woodland habitat • Intertidal mudflat habitat The Mangrove habitat and the Woodland habitat areas of the proposed action area fulfill the criteria of critical habitat for the survival of the species, with areas of dense vegetation that provide cool and moist conditions within the historical distribution for the Northern Blue-Tongue Skink; woody vegetation near the water, partially submerged logs, mangroves, riverbanks, rocks, and manmade structures such as rocky sea walls and slabs of concrete for the Mertens and Mitchells Water Monitor, and the *Melaleuca* communities and semi-urban areas for the Northern Brushtail Possum. Field surveys identified cane toads within the project area. Areas where threatened species exist alongside cane toads are resilient toward cane toads persistence and increased abundance. The proposed action area contains remnant populations of threatened species that when found within the distribution of the cane toad, are therefore considered important population's according to their conse rvation advices: • Northern Blue-tongued Skink • Mertens Water Monitor • Northern Quoll Potential impacts from the clearing of intertidal mangrove and terrestrial vegetation with a seawall construction can result in an increase in invasive species such as cane toads and feral cats, increasing key threatening processes to Northern Quoll, Mertens Water Monitor, Bare-rumped Sheath-tailed Bat. As well as the loss and degradation of critical habitat to urban development projects whare are identified as key threatening process identified in their relative Conservation Advice'.

		There is a possibility that the impacts of these key threatened processes made by the proposed action could be considered to have following impacts under the Significant Impact Guidelines 1.1: • Adversely affect habitat critical to the survival of a species and reduce the area of occupancy of the species of through the clearing of approximately 39.5 ha Mangrove and Woodland area, identified as critical habitat for the Northern Blue-Tongue Skink, Mertens and Mitchells Water Monitor, Northern Brushtail Possum and Northern Quoll. • Introduce disease that may cause the species to decline. The clearing and disturbance of vegetation for the construction and operations of the freight rail will increase the susceptibility of the receiving environment to cane toads and feral cats, which have been identified as key threatening processes for Northern Blue-Tongue Skink, Mertens and Mitchells Water Monitor, Northern Brushtail Possum and the Northern Quoll, resulting in the decline of an important population. The Referral's EPBC Act Significant Impact Assessment has assessed the following species: • Bare-rumped Sheath-tailed Bat • Northern Brushtail Possum • Mitchell's Water Monitor The Referral's EPBC Act Significant Impact Assessment has concluded that there will not be a significant impact on the Bare-rumped Sheath-tailed Bat and the Northern Brushtail Possum, and that there will be a significant impact on the Mitchells Water Monitor.