NORTHERN TERRITORY GOVERNMENT
Department of **LANDS, PLANNING AND ENVIRONMENT**

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6 March 2026

Our Ref: DLPE2026/0047

Mr Andrew Scott
Environment Assessments
Department of Lands, Planning and Environment
GPO Box 3675
DARWIN NT 0801

Dear Mr Scott

Re: Invitation to Comment - Darwin H2 Project Nominee Pty Ltd - Wak Wak Solar Farm - Referral

The information submitted for the above Referral has been assessed by the relevant divisions within the department and the following comments are provided:

Flora and Fauna Division

The Flora and Fauna Division reviewed the Referral and the available biodiversity information. The report states that the infrastructure footprint was specifically located to minimise impacts. A larger investigation area was considered with the project site chosen to avoid mining titles and areas with the highest concentration of biodiversity values. Within the proposal area high value habitats which support species with restricted ranges, sandsheet heath, rainforest and riparian vegetation were excised and buffered. Three *Melaleuca* dominated wetlands (28ha in total) assessed as low value occur within the area proposed for clearing.

For the remaining woodland habitats Total Energies (TE) H2 used the Northern Brushtail Possum as an "umbrella species" for its assessment, focusing the infrastructure footprint on the lowest-quality habitat for this species, which overlaps with the habitat requirements of other threatened woodland fauna. The proposal includes 900ha of managed wildlife corridors to maintain connectivity and provide refuge for fauna, particularly ground-dwelling and arboreal species.

Generally, the Flora and Fauna Division agrees with the referral report that there is a low risk of significant impact to threatened species or other biodiversity values from the project, due to the avoidance of high value habitats. However, six recommendations are made for further information to clarify or provide confidence in this conclusion. Detailed comments are provided in **Attachment 1**.

It is recommended that:

1. Information should be provided on the potential impacts of the proposal on feral animals and how they will be managed;

2. Further information should be provided on how weeds or invasive flora will be managed to ensure maintenance and improvement of retained habitat;
3. Partridge Pigeon habitat availability and use across the project area requires further consideration to inform the significant impact assessment;
4. Further information about localised hydrological changes, and proposed stormwater management is required to provide confidence in the adequacy of buffers for sandsheet heath habitats;
5. The presence and buffering of riparian vegetation areas should be clarified where aerial imagery appears to show inconsistencies with data from the Referral; and
6. The presence and importance of sinkholes that are mapped within the project area should be clarified.

Environment and Heritage Division

Heritage Branch

The Heritage Branch has reviewed the referral and provides comment in **Attachment 2**.

Lands and Planning Division

Lands Planning

The Lands and Planning Division has reviewed the application and provides comment in **Attachment 3**.

Crown Land Estate

Crown Land Estate have reviewed the referral and provides the following comment:

Main report - section 2.3.1 - Related developments - Overhead transmission line

TE H2 has sought an allocation for a 50m wide corridor in part of an existing Zone U (Utilities) corridor for the operation of a high-voltage AC (HVAC) transmission line from its solar generation site, through Weddell to the Middle Arm Precinct. Users of this corridor would be solely responsible for obtaining all approvals, permits, clearances and authorisations necessary for their project infrastructure to be in the corridor.

This is a separate and different corridor to the Territory Energy Link corridor which is a proposed 130m wide corridor that does not contemplate inclusion of high-voltage overhead electricity transmission

Water Resources Division

Licencing And Regulation Team

The proposed development intersects several waterways ranging from minor stream order 1 to stream order 2 non-perennial waterways. If the works are likely to result in material impacts to the beds, banks, or flow of any of these waterways, the proponent may be required to submit an application to Interfere with a waterway under section 41 of the *Water*

Act 1992. It is recommended that, where such impacts are anticipated, the proponent contacts the Water Resources Division to confirm whether an application is required and to discuss the supporting information that may be necessary.

Water Monitoring Team

The Water Monitoring Team currently have two active groundwater monitoring bores which will require access to continue to be available:

- NT Portion 4477 - RN030346
- Section 1580, Hundred of Guy - RN030233.

These bores are generally visited twice a year. Once at the end of the wet season, and again at the end of the dry season.

Land Resources Division

Land Assessment Branch

A substantial proportion of the proposed Wak Wak Solar Farm contain areas that are constrained by either excessive slopes, drainage issues associated with waterlogged or seasonally inundated soils (Hydrosols) and contain areas of Significant or Sensitive vegetation communities. These constraints will pose significant impediments regarding planning and development and the placement of infrastructure.

It is recommended that the proponent undertake a land type assessment to ensure the land resources are capable and appropriate for the intended use. As per section 4.2 of the Northern Territory Planning Scheme Land Clearing Guidelines (NTPS LCG), a detailed and field verified land assessment survey (i.e. scale of 1: 5,000 to 1: 20,000), with particular emphasis on the identification and extent of constrained land and a land capability assessment of land types will be essential.

Land Management Unit

The Land Management Unit have reviewed the Referral and considers that the potential risks to land and water have generally been identified.

The Wak Wak Solar Farm proposal is likely to require a detailed level of erosion and sediment control, supported by independent auditing, due to the environment that it will be impacting. This includes, but is not limited to, significant soil disturbance in and around sensitive vegetation, water courses, and sloped areas. Significant soil disturbance works should be scheduled for the dry season to avoid increased potential for erosion and sediment issues.

Weed Management Branch

A desktop assessment of the Northern Territory (NT) Weeds Database for the application area, surrounding parcels and roads has revealed current and/ or previous data records of the following:

Common Name	Botanical Name	Declared
NT Portion 4477		
Bellyache bush	*Jatropha gossypiifolia*	Class A
Gamba grass	*Andropogon gayanus*	Class B
Perennial mission grass	*Cenchrus polystachios*	Class B
Olive hymenachne	*Hymenachne amplexicaulis*	Class B
Neem	*Azadirachta indica*	Class B
Giant sensitive plant	*Mimosa pudica*	Class B
Mimosa	*Mimosa pigra*	Class B
Flannel weed	*Sida cordifolia*	Class B
Spinyhead	*Sida acuta*	Class B
Sicklepod	*Senna obtusifolia*	Class B
Knobweed	*Hyptis capitata*	Class B
Hyptis	*Mesosphaerum suaveolens*	Class B
Snakeweeds	*Stachytarpheta spp.*	Class B
Parcel 1435 Hundred of Guy		
Gamba grass	Andropogon gayanus	Class B
Mimosa	*Mimosa pigra*	Class B
Parcel 1436 Hundred of Guy		
Gamba grass	Andropogon gayanus	Class B
Parcel 1580Hundred of Guy		
Yellow burrhead	*Limnocharis flava*	Class C
Gamba grass	*Andropogon gayanus*	Class B
Neem	*Azadirachta indica*	Class B
Perennial mission grass	*Cenchrus polystachios*	Class B
Spinyhead	*Sida acuta*	Class B

Common Name	Botanical Name	Declared
Hyptis	*Mesosphaerum suaveolens*	Class B
Snakeweeds	*Stachytarpheta spp.*	Class B

All land in the NT is subject to the *Weeds Management Act 2001* (WM Act). The WM Act describes the legal requirements and responsibilities that apply to all persons, owners and occupiers of land regarding declared and potential weeds. General duties described in Division 1 of the WM Act include the requirement for owners or occupiers of land to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading.

Gamba grass, mimosa, neem and bellyache bush are subject to statutory weed management plans. Management obligations outlined in these plans are legally binding on all owners and occupiers. Management requirements and copies of the statutory weed management plans are available online[1].

Bellyache bush is a declared weed, Class A and is listed in the Darwin Regional Weeds Strategy 2021-2026 as a Category 2 – priority weed for strategic control (including eradication of outliers).

The proponent must ensure that all vehicles and machinery are free of weeds, weed seeds, soil and vegetative matter, prior to entering or exiting the site. Vehicles must avoid driving through weeds already present on-site to prevent further spread. Vehicles and machinery exhibiting such material must be thoroughly washed down before entering/departing.

Any works that cause disturbance to vegetation and soils will create conditions favourable for the growth of weed species and weed control will be required following disturbance caused by exploration and/or extraction. Weed control prior to seed set should be carried out in all areas affected by these works.

Guidelines for the prevention of weed spread are outlined in '*Preventing Weed Spread is Everybody's Business*[2]', which highlights the areas of risk for all activities associated with weed spread. The document details the pathways through which weeds are spread and provides actions to reduce weed spread. Proponents seeking to develop land for any purpose should address these actions..

Further information as to weed management requirements are available on the Department of Lands, Planning and Environment (DLPE) website[3], or alternatively contact the Weed Management Branch for further advice on (08) 8999 4567.

Environmental Regulation Division

Under the *Waste Management and Pollution Control Act 1998* (WMPC Act), all persons have statutory obligations to take all reasonable and practicable measures to prevent or minimise pollution and environmental harm, and to reduce the amount of waste generated. This is

[1] https://nt.gov.au/environment/weeds/weed-management-planning
[2] https://denr.nt.gov.au/__data/assets/pdf_file/0011/257987/preventing-weed-spread.pdf
[3] http://www.nt.gov.au/environment/weeds

known as the General Environmental Duty, set out in section 12 of the WMPC Act. The proponent is responsible for ensuring that their activities comply with these obligations.

Guidelines to assist proponents to avoid environmental impacts are available on the Northern Territory Environment Protection Authority (NT EPA) website[4].

The proponent is advised to take notice of this non-exhaustive list of environmental issues that should be considered to help satisfy General Environmental Duty:

1. **Dust**: The proponent must ensure that nuisance dust and/or airborne particles are not discharged or emitted beyond the boundaries of the premises.
2. **Noise**: The proponent must ensure that the noise levels from the proposed premises comply with the NT EPA Northern Territory Noise Management Framework Guideline[5].

   If the proposal is situated where there are existing activities nearby that may already generate noise, please see the NT EPA advice on Recommended Land Use Separation Distances[6].
3. **Erosion and Sediment Control (ESC):** The proponent must ensure that pollution and/or environmental harm do not result from soil erosion.

   ESC measures should be employed prior to and throughout the construction stage of the development. Larger projects should plan, install and maintain ESC measures in accordance with the current International Erosion Control Association (IECA) Australasia guidelines[7].

   Where sediment basins are required by the development, the NT EPA recommends the use of at least Type B basins, unless prevented by site specific topography or other physical constraints.

   Basic advice for small development projects is provided by the NT EPA document: Guidelines to Prevent Pollution from Building Sites[8] and Keeping Our Stormwater Clean[9].
4. **Storage:** Where an Environmental Protection Approval or Environmental Protection Licence is required, the proponent must act in accordance with that authorisation.

   If an Environment Protection Approval or Environment Protection Licence is not required, the proponent should store liquids only in secure bunded areas in accordance with VIC EPA Publication 1698: Liquid storage and handling guidelines[10]. Where these guidelines are not relevant, the storage should be at least 110% of the total capacity of the largest vessel in the area.
5. **Site Contamination**: If the proposal relates to a change of land use or if the site is contaminated, a contaminated land assessment is required in accordance with the National Environment Protection (Assessment for Site Contamination) Measure (ASC NEPM). The proponent is encouraged to refer to the information provided on the NT EPA website[11], and the NT Contaminated Land Guidelines[12].

[4] https://ntepa.nt.gov.au/publications-and-advice/environmental-management
[5] https://ntepa.nt.gov.au/__data/assets/pdf_file/0004/566356/noise_management_framework_guideline.pdf
[6] https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/453192/guideline_recommended_land_separation_distances_oct.pdf
[7] https://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document
[8] https://ntepa.nt.gov.au/__data/assets/pdf_file/0010/284680/guideline_prevent_pollution_building_sites.pdf
[9] https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/284676/guideline_keeping_stormwater_clean_builders_guide.pdf
[10] https://www.epa.vic.gov.au/about-epa/publications/1698
[11] https://ntepa.nt.gov.au/your-environment/contaminated-land/investigating-contaminated-land
[12] https://ntepa.nt.gov.au/__data/assets/pdf_file/0020/434540/guideline_contaminated_land.pdf

6. **Waste Management - Import and Export of Fill**: The proponent must ensure all fill imported or exported as part of the activity is certified virgin excavated natural material (VENM) in accordance with the NSW EPA guidelines[13].

   All imported fill material must be accompanied by details of its nature, origin, volume, testing and transportation details. All records must be retained and made available to authorised officers upon request. The proponent should also consider the following NT EPA fact sheet: Illegal Dumping - What You Need to Know[14].

7. **Odour or Smoke:** The proponent must ensure that nuisance odours or smoke are not emitted beyond the boundaries of the premises.

   If the proposal is situated where there are existing activities nearby that may already generate odour or smoke, please see the NT EPA advice on Recommended Land Use Separation Distances[15].

8. **Water:** The proponent must ensure stormwater is not polluted, refer to water management in the NT EPA guidelines to Prevent Pollution from Building Sites[16].

   If the activity requires the discharge of waste to water or could cause water to be polluted, then a waste discharge licence under the *Water Act* 1992 (NT) may be required. Please refer to the Guidelines[17].

Should you have any further queries regarding these comments, please contact the Development Coordination Branch by email DevelopmentAssessment.DLPE@nt.gov.au or phone (08) 8999 4446.

Yours sincerely

Alaric Fisher
Executive Director Flora and Fauna

Attachment 1 – Flora and Fauna Division comment
Attachment 2 – Heritage Branch comment
Attachment 3 – Lands and Planning Division

[13] https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/virgin-excavated-natural-material/
[14] https://ntepa.nt.gov.au/__data/assets/pdf_file/0008/285740/factsheet_illegal_dumping_what_you_need_know.pdf
[15] https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/453192/guideline_recommended_land_separation_distances_oct.pdf
[16] https://ntepa.nt.gov.au/_media/waste-and-pollution/pdf/guidelines/guideline_prevent_pollution_building_sites.pdf
[17] https://nt.gov.au/__data/assets/pdf_file/0016/1131073/waste-discharge-licensing-guidelines.pdf

Attachment 1

Submission on the Referral

Darwin H2 Project Nominee Pty Ltd – Wak Wak Solar Farm

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

Government authority: Department of Lands, Planning and Environment – Flora and Fauna Division

Theme / issue	Comment
Terrestrial ecosystems - loss of vegetation and habitat	The proposal will clear 2500ha of woodland habitat in the greater Darwin region. The region is known to support high biodiversity values and important residual populations of threatened species, particularly woodland-dwelling mammals. The mitigation approach taken by the proponent is to retain and buffer riparian habitat and include additional wildlife corridors to reduce fragmentation and allow movement between the surrounding uncleared habitat. The proposal states that the area of woodland to be cleared is in poor condition (low quality habitat) due to the very high frequency of fire and the area retained as corridors would be managed to improve habitat quality. There is little information provided in the Referral about how the habitat improvement will be achieved other than being conducted in accordance with the *Bushfires Management Act 2016* and the *Weeds Management Act 2001*. The Flora and Fauna Division supports the approach to retain high value habitats and agree that the low occupancy of threatened species recorded across much of the woodland habitat is likely due to the high fire frequency and resultant changes to habitat structure and predation efficacy for some species. The provision of a cumulative vegetation retention assessment in the Referral is commended. Bioregional or catchment boundaries are often used by the Flora and Fauna Division for these calculations. However, the greater Darwin region (GDR) defined by the Darwin Regional Land Use Plan would have been a more meaningful boundary for the threatened species for which GDR contains important populations. The calculation of cumulative habitat loss across the region does not consider current or planned developments such as Adelaide River Off-stream Water Storage (AROWS) project. The Flora and Fauna Division is not clear on the approach by the NT EPA on how planned future developments are considered in understanding cumulative impacts and therefore have not analysed this further.

<table>
<tr><td>Threatening processes</td><td>The potential for impact in relation to feral animals was not considered in the Referral. Feral cats and pigs were detected across the project area, and their negative impacts in biodiversity may become more pronounced in the retained areas. Information should be provided on the potential effects of the proposal on feral animals and how these will be managed.</td></tr>
<tr><td>Degradation of habitat</td><td>The Referral states that weeds will be managed in accordance with the proponent's responsibilities under the Weeds Management Act 2001, but this in itself will not necessarily ensure that habitat quality in retained native vegetation is maintained or improved. Responsibilities under the Weeds Management Act 2001 extend only to declared species and not to invasive species that may degrade the value of habitat over time. Control of non-declared invasive species (such as Humidicola) or eradication rather than control of class B weeds may be required. Further information should be provided on how weeds or invasive flora will be managed to ensure maintenance and improvement of retained habitat.

Similarly, the Bushfires Management Act 2016 is primarily designed to protect property, rather than manage fire to promote habitat for biodiversity. Improving fire regimes for species for which habitat is retained should also be considered as part of fire management planning for the project area.</td></tr>
<tr><td>Terrestrial ecosystems (threatened species)</td><td>The threatened species listed in Table 1 occur, or are likely to occur within, or immediately adjacent to, the proposed clearing area. This is based on a search of DLPE databases within a 20km radius of the proposed area to be cleared, expert knowledge of species' habitat requirements, and information about habitats occurring within the application area. Table 1 provides an assessment of the risk posed by the project to each species, based on current available information.

Table 1 – Threatened species that are known to occur, or have a high potential of occurring within, or adjacent to, the proposed clearing area. Conservation status = VU – Vulnerable; EN – Endangered; CR – Critically Endangered

<table>
<tr><th>Common Name</th><th>Scientific Name</th><th>TPWC Act</th><th>EPBC Act</th><th>Potential impact</th></tr>
<tr><td colspan="5">Threatened Terrestrial Fauna</td></tr>
<tr><td>Gouldian Finch</td><td>Chloebia gouldiae</td><td>VU</td><td>EN</td><td>Low</td></tr>
<tr><td>Masked Owl (northern mainland)</td><td>Tyto novaehollandiae kimberli</td><td>VU</td><td>VU</td><td>Low</td></tr>
<tr><td>Red Goshawk</td><td>Erythrotriorchis radiatus</td><td>VU</td><td>EN</td><td>Low</td></tr>
<tr><td>Partridge Pigeon</td><td>Geophaps smithii smithii</td><td>-</td><td>VU</td><td>Uncertain</td></tr>
</table>
</td></tr>
</table>

	Northern Quoll	*Dasyurus hallucatus*	CR	EN	Low
	Black-footed Tree-rat	*Mesembriomys gouldii gouldii*	EN	EN	Low
	Northern Brushtail Possum	*Trichosurus vulpecula arnhemensis*	-	VU	Low
	Bare-rumped Sheath-tailed Bat	*Saccolaimus saccolaimus*	-	VU	Low
	Mertens' Water Monitor	*Varanus mertensi*	VU	EN	Low
	Mitchell's Water Monitor	*Varanus mitchelli*	VU	CR	Low
	Northern Blue-tongued Skink	*Tiliqua scincoides intermedia*	-	CR	Low
	Howard River Toadlet	*Uperoleia daviesae*	VU	VU	Low
	Flora				
	Darwin Cycad	*Cycas armstrongii*	VU	-	Low
	Typhonium	*Typhonium praetermissum*	VU	EN	Low
	Bladderwort	*Utricularia dunstaniae*	VU	-	Low
	Helicteres	*Helicteres macrothrix*	EN	EN	Low
	Stylidium	*Stylidium ensatum*	EN	-	Low
	Cleome	*Cleome insolata*	-	VU	Low
	-	*Typhonium taylori*	-	EN	Low

*Territory Parks and Wildlife Conservation Act 1976
**Environment Protection and Biodiversity Conservation Act 1999

The proposal correctly identifies the threatened species with a moderate to high likelihood of occurring on the site. The proponent classified habitat condition across the site and undertook surveys for threatened species.

The potential impacts posed by the project to threatened species are habitat loss and direct mortality. Up to 2500ha of predominately woodland habitat will be cleared. The proposed clearing area has been designed to avoid and buffer key areas for most threatened species identified by surveys. The proponent provides significant impact assessment for six woodland species (Northern Brushtail Possum, Partridge Pigeon, Bare-rumped Sheathtail Bat, Northern Blue-tongue Skink, Darwin Cycad and *Typhonium praetermissum*) and 2 riparian species (Merten's Water Monitor and Mitchell's Water Monitor). No sandsheet heath species were assessed under the '*Significant Impact Guidelines 1.1* –

	Matters of National Environmental Significance', as sandsheet heath areas were excised from the development footprint. **Woodland Species** Northern Brushtail Possum: The Northern Brushtail Possum was the most widely recorded threatened woodland species during the initial investigations. The project proposes to remove up to 2500ha of habitat for this species, considered to be low-quality due to a history of frequent and intense fires. The sub-population of Northern Brushtail Possum in the GDR is considered to be an important population. The Flora and Fauna Division generally agrees with the significant impact assessment for this species. Managed wildlife corridors are likely to reduce the fragmentation of the population due to the intact native vegetation surrounding the project. However, it is uncertain whether the area of habitat retained within the footprint will be sufficient to support the ongoing local persistence of Northern Brushtail Possums, even if managed to improve quality. As the key purpose of the corridors are to facilitate movement, retention of the local sub-population is likely to be dependent on the future retention of extensive surrounding native vegetation. The Referral states that any impacts through direct mortality will be reduced by spotter catchers. However, there is little published evidence on the efficacy of spotter catchers reducing mortality, either in the short term or longer term (for translocated animals and 'native' populations of areas to which they are translocated. The Flora and Fauna Division advises that the use of spotter catchers should not be considered to be a mitigation measure. Black-footed Tree-rat: The Darwin region is considered an important area for Black-footed Tree-rat, as they appear to have declined less in this region compared to many other areas across its range. The main risks to the species are direct habitat loss through clearing, degradation of habitat due to frequent fire (which may be compounded by invasive grasses) and effects of feral predators. Despite comprehensive camera surveying, the species was recorded at only one location across the approximately 5,000ha investigation area. The single record was found outside the infrastructure footprint to the south-west. There are no other recent records of the species in the immediate vicinity of the investigation area. Regional data from the last decade show that records are generally concentrated in areas that do not burn frequently or in refugial riparian zones. The report states that the Black-footed Tree-rat has a high rate of detection using the methods applied and the lack of detections in other areas is assumed to represent actual absence and therefore a significant impact assessment was not undertaken for this species. The temporal patterns of habitat use of the Black-footed Tree-rat are not well understood, and there is evidence from nearby locations to show that the species can occupy highly burnt areas at low occupancy rates. However, the Flora

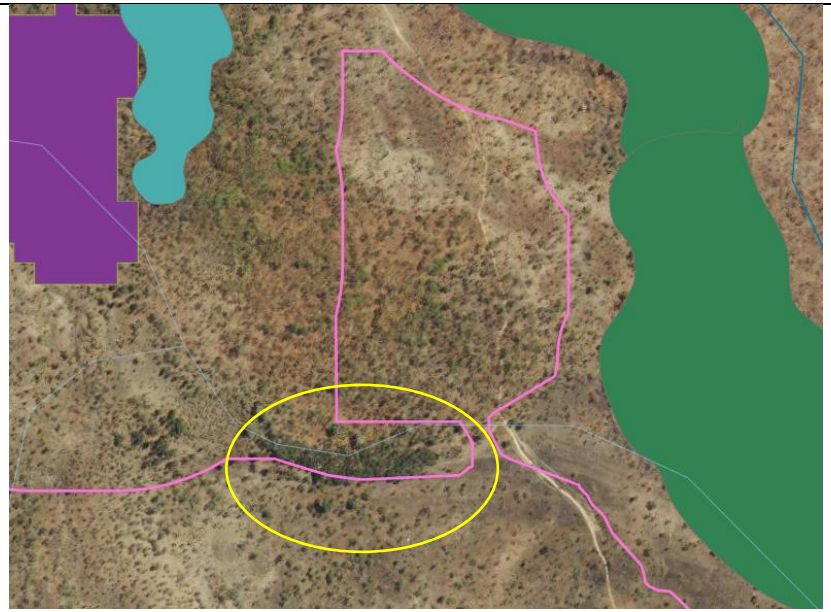
	and Fauna Division agrees that few animals are likely to use the project footprint area with the current fire regime, and therefore the project is unlikely to have a significant impact on the species. Partridge Pigeon: This species is regularly recorded in the Darwin rural area and has been recorded at several sites within the proposal area. Camera trapping was the primary survey method used, with three deployments spread across the investigation area. Deployment 1 was the only one where cameras were activated during the day, deployment 2 and 3, which cover the majority of the proposed footprint, were only activated from 18:00 – 7:00, reducing the window of detection for the Partridge Pigeon. Most records of this species were from incidental observations, so it is difficult to determine the relative value of the habitat within the project area in relation to the investigation area without systematic survey effort. A large area of potential habitat for this species (up to 1700ha) will be cleared. The proponent states that the infrastructure footprint has been placed over the lowest quality habitat, with the highest quality habitat retained and therefore impacts to this sub-species are unlikely to be significant. However, the classification of habitat quality is based on the Northern Brushtail Possum, and the habitat requirements of Partridge Pigeon are different as it utilises both open and recently burnt areas for foraging, and unburnt areas for nesting and shelter. The records of this species within the project area were from areas with a low habitat quality score based on the criteria used by the proponent. The fire regime suited to this species is also likely to operate at a smaller scale than the 250m^2 pixel size used by the Northern Australian Fire Information (NAFI) mapping provided by the proponent. The retained habitat may provide suitable cover as breeding habitat, but the on-going provision of foraging habitat within corridors is unlikely without patch burning, making the area potentially unsuitable for Partridge Pigeon. If this is the case, the proposal may reduce the area of occupancy (AOO) of the sub-species which could lead to a significant impact - and therefore potential impacts of the proposal on this species require further consideration. This may be partly informed by further investigation of grass cover at surveyed sites to determine habitat condition and suitability across the site. Gouldian Finch: Gouldian Finches have been recorded within ~20km of the project area. The ecology report considered the species to have a low likelihood of occurrence, and it is not considered further in the Referral. This species has habitat preferences that vary seasonally, preferring rocky upland woodland dominated by *Eucalyptus tintinnans* (or similar species) in proximity to persistent waterholes or springs in the breeding season and moving to lowland grassy habitats in the wet season. Given the species is highly mobile there is a moderate likelihood of occurrence in the project area in some seasons. Although Gouldian Finches have been anecdotally recorded as breeding in the region, the habitat within the project footprint is not likely to provide breeding habitat. The understory species present in the vegetation communities of the area proposed for clearing would provide foraging habitat. Given the high mobility of the species, the amount of surrounding remnant vegetation and lack of breeding

	habitat, the removal of foraging habitat for this species associated with the project is considered unlikely to have a significant impact. Northern Quoll: Suitable habitat for this species occurs across the entire proposal area with the species potentially present, but in low densities. No quolls were detected during woodland surveys. Survey methods and effort are considered adequate to detect Northern Quoll. Rocky habitats that are known refuge habitat for Northern Quoll are avoided by the project footprint. The potential for the project to have a significant impact on this species is considered low. Bare-rumped Sheath-tailed Bat: The species was recorded at five locations during ecological surveys for the project. One record was within the infrastructure footprint, and one was on its boundary (the others were to the south-east). The proponent acknowledges that all remnant vegetation within the infrastructure footprint and potentially even cleared areas constitutes foraging habitat for the bat. The species roosts in large trees with deep hollow pipes (e.g., *Eucalyptus miniata* and *E. tetrodonta*). The proponent determined that high-quality roosting habitat, specifically old-growth forest, has been largely avoided through design to minimise potential impacts. The Flora and Fauna Division agrees with the assessment that the clearing is unlikely to have a significant impact on this species, particularly given the highly mobile nature of the species and the high proportion of remnant habitat within the surrounding area. Although there have been no specific studies on the movement of this sub-species, knowledge of other similar large aerial insectivores suggest they utilise areas of tens of square kilometres. Masked Owl: The likelihood assessment provided with the referral identified this species as having a 'medium' likelihood of occurring within the proposal area. This assessment was based on the presence of suitable Eucalyptus tall open forests, monsoon rainforests and open vegetation types, including grasslands. Targeted surveys for the species were undertaken using passive acoustic recorders (117 nights) and call playback acoustic surveys within the area. No Masked Owls were observed or heard during the call playback surveys or detected on the acoustic recorders. While the species was not detected, there are areas of potential habitat for the species (large trees with hollows) within and adjacent to the proposal (Figure 4-9 of EcOz 2025). Tree counts suggest that the majority of the large trees occur to the south-west as well as the north western and northern parts of the study area. With the exception of the south-western vegetation, the remainder of suitable habitat is outside of the area proposed to be impacted by the proposal. Based on the surveys provided in the referral, the Flora and Fauna Division is satisfied that the loss of suitable habitat will be relatively localised with the most suitable habitat retained outside the proposal footprint, and risks to the species are therefore low.

	Red Goshawk: This species is a sparsely distributed across the Top End and has been recorded in the greater Darwin area. The likelihood assessment provided with the referral did not identify this species as potentially occurring within the proposal area despite the presence of suitable habitat (tall open Eucalypt forests near riparian vegetation associated with watercourses). While some suitable habitat is present within the study area there is minimal habitat being impacted by the proposal with mapped tall trees and riparian vegetation largely excluded from the footprint, so that Flora and Fauna Division considers that the proposal poses a low risk to the species. Darwin Cycad: Retaining high density stands of cycads are a priority for the conservation of the species. The proponent has undertaken density surveys across the investigation area with thirteen areas of high (400 – 699 stems/ha) and seven areas of very high density (>700 stems/ha) stands recorded. The project area encompasses two sites of very high and four of high cycad density (Figure 5-6). The Referral states that the highest density stands are within or immediately adjacent *to* buffered areas that have been excised. Although it is not clear from this wording or the scale of the map, it appears that three high density stands will be lost and some proportion of the high and very high density stands on the edge of retained areas will be lost. The significant impact assessment for this species undertaken by the proponent concludes that the cycads within the project area do not constitute an important population and therefore, the project impact is not significant. The Flora and Faun Division agrees that cycads within the project area do not constitute an important population, but risks to the species could be further reduced by retaining all of the very high-density patches in the exclusion area. Impacts to local cycad populations or individuals can be further reduced by applying the principles outlined in the '*Management Program for Cycads in the Northern Territory of Australia 2009-2014'*. This could include conservation or salvage from the area and may require appropriate permits if salvage for commercial purposes is proposed. *Typhonium praetermissum*: DLPE modelling identifies overlapping areas in the centre and north of the proposal area that have a high likelihood of supporting *Typhonium praetermissum.* The proponent adequately surveyed these modelled areas and detected the species within the clearing area – a single patch of 33 plants located inside the western boundary. The proponent determined that the proposal is unlikely to result in a significant impact because the footprint design avoids areas with a high abundance of this species and the modelled highest-quality habitat. The Flora and Fauna Division agrees with this assessment for direct impacts. There is also a high likelihood of indirect impacts to *Typhonium praetermissum* associated with the potential introduction of grassy weeds, including spreading outside the project area into areas of higher occurrence unless well managed. There is limited information about how the threat from invasive grasses will be managed, other than in line with responsibilities under the *Weed Management Act* 2001, which may not be sufficient.

	Mertens' Water Monitor, Mitchell's Water Monitor, Northern Blue-tongued Skink: These reptiles were all detected within the investigation area. They are generally associated with waterways, wetlands, floodplains and riparian vegetation, and rainforest (Blue-tongued Skink only). Impacts to these key habitats have been avoided and buffered across the project area. In addition, the Flora and Fauna Division notes that project activities are unlikely to exacerbate existing threats to these species (i.e. cane toads). The Flora and Fauna Division agrees that the project is unlikely to have a significant impact on these species. Howard River Toadlet: The Howard River Toadlet breeds in sandsheet heath habitats. The degree of movement from these wetlands into the surrounding woodland in non-breeding periods is not currently known, but it is assumed that the recommended buffer distances around sandsheet heath habitats are adequate for this species. Areas mapped as sandsheet heath Northern Territory Government ((NTG) data)) were ground-truthed by the proponent and reclassified as correct, incorrect or disturbed, explaining some discrepancies between NTG map unit classifications and the Referral report. The Howard River Toadlet was detected at multiple locations across the investigation area. Sandsheet heath habitat where toadlets were detected has been avoided and buffered according to the NTPS LCG. Mapped drainage lines intersecting sandsheet heath (Figure 5-10 - Referral report) are for the most part retained. With the fairly flat topography and localised drainage into the sandsheet heath habitats, the native vegetation buffers are likely to reduce potential impacts to local hydrology. The proponent determined that the proposal is unlikely to have a significant impact on the Howard River Toadlet because sandsheet heath habitat is being avoided and the likelihood of indirect impacts such as reduced surface water quality or groundwater drawdown are considered low. The Flora and Fauna Division agrees with this conclusion, but notes that additional information about storm water management for the site would provide greater certainty. *Utricularia* species: Darwin sandsheet heath habitats support internationally significant levels of Utricularia diversity including *Utricularia dunstaniae*, listed as vulnerable under the TWPC Act 1976. Utricularia species richness is used as a measure to determine the biodiversity value of sandsheet heath habitats and was surveyed for this Referral. Utricularia species were recorded in sandsheet heath habitat across the investigation area, providing a range of values from disturbed to very good (Table 4-1 in the Referral report), with *Utricularia dunstaniae* only present in an area to the north-east of the project footprint. The verified sandsheet heath habitat within the project area has been avoided and appropriately buffered, therefore the risk of impact to *Utricularia* species is considered low. *Cleome insolata*: Surveys for this species were conducted at an appropriate time of year using standardised methodology. *Cleome insolata* was detected at a single sandsheet heath patch. This patch also recorded relatively high *Utricularia* species richness and was classified as very high-quality habitat. As discussed above, the proponent has

	avoided all verified sandsheet heath habitat and appropriately buffered these areas. The Flora and Fauna Division agrees that the risk of impact to this species is low. *Typhonium taylori*: This species was previously thought to be restricted to the Howard River catchment and was not considered as a species of concern at the commencement of this project. Since this time, *T. taylori* has been recorded outside of the Howard River catchment in the Weddell region to the west of the project area. *T. taylori* is restricted to sandsheet heath habitats. Although the presence of this species within the sandsheet heath habitat of the project area is unknown, the measures to avoid or mitigate impacts to significant sandsheet heath species are relevant, so that further targeted survey for *T. taylori* is not required. Habitat modelled as suitable for *Helicteres macrothrix* and *Stylidium ensatum* were surveyed and neither species was detected.
Terrestrial ecosystems (sensitive and/or significant vegetation)	Riparian Vegetation: Riparian vegetation may occur within the clearing area. While most of the riparian vegetation within the proposal area has been excised, high resolution aerial photography indicates that some riparian vegetation along drainage channels may not have been adequately buffered. There also may be a small degree of spatial misalignment with the aerial imagery. The image below shows an example of vegetation that appears to be unidentified riparian habitat (indicated by the yellow circle) without an appropriate buffer applied (pink lines indicate clearing footprint). It is noted that under the NTPS LCG the buffer distance is to be applied from the edge of the riparian vegetation, not the centre line of the watercourse.

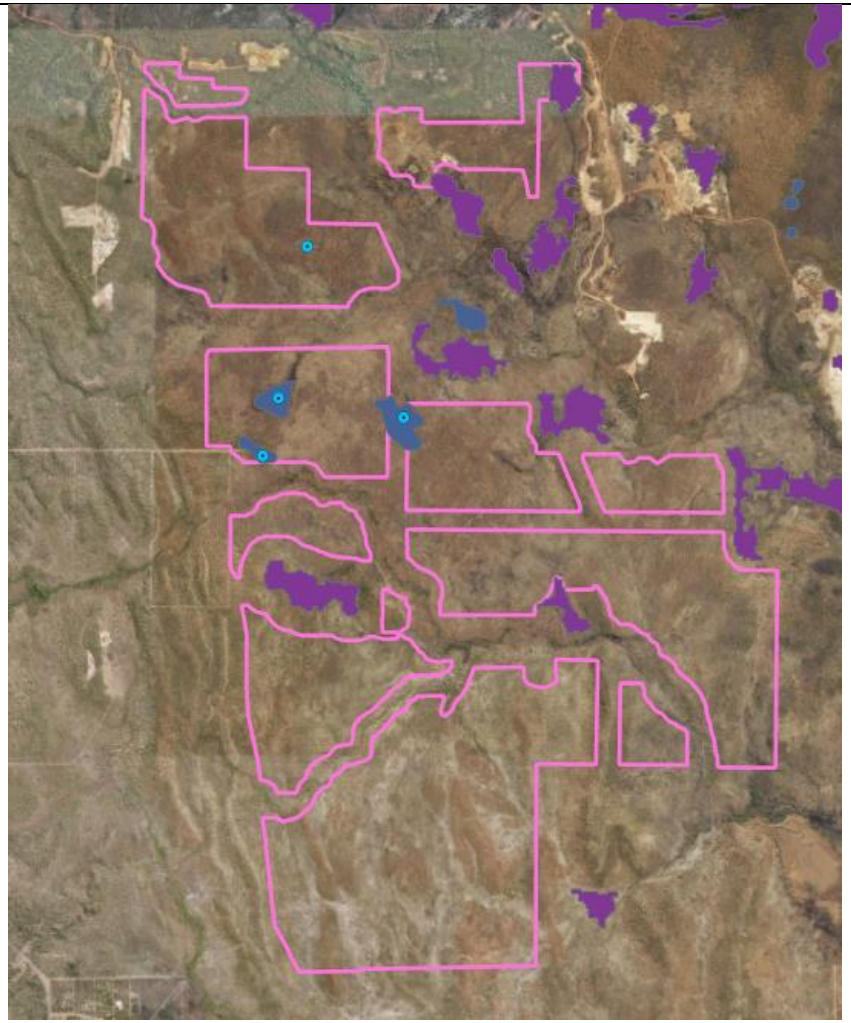


Sandsheet Heath: Sandsheet heath habitats within the project area have been surveyed and assessed for biodiversity value. All instances of sandsheet heath are avoided with buffers applied according to the assessed value of the patch, following the NTPS LCG. There is some uncertainty on how the proposed land use change will affect hydrological processes in relation to biodiversity values. Land clearing and ground levelling for infrastructure is likely to alter surface water flows and reduce infiltration and recharge, resulting in increased surface water run-off and potentially reduced ground water levels. Native vegetation buffers are provided but their adequacy in buffering indirect impacts of potential hydrological change are uncertain. Further information about potential localised hydrological changes and the proposed stormwater management would provide more confidence in the adequacy of buffers.

Rainforest and Monsoon vine-thicket: There are no rainforest or monsoonal vine thicket habitats known from within the project area.

Wetlands: Wetlands and inundated drainage depressions occur across the development area. The proponent states that 28ha of low-quality wetland habitat will be cleared, comprising three swamps partially or wholly within the

	proposal area. One comprises 8ha of *Melaleuca leucadendra*, one is 16ha of *Melaleuca cajuputi* fringed with grassland and the third is approximately 4ha of *Melaleuca leucadendra*. The proponent assessed wetlands within the clearing area as low in biodiversity value based on the criteria in the NTPS LCG. The Flora and Fauna Division agrees with the proponent that those areas of wetland are likely to be of low value in a local and regional context and therefore their loss is not likely to significantly impact regional biodiversity values associated with these habitats. <u>Sinkholes:</u> Sinkholes are mapped within the project area (blue circles): three overlap with the wetlands proposed for clearing (blue polygons) and one is mapped in one of the northern polygons (see figure below, purple polygons are sandsheet heath). The Referral report provides no information about sinkholes. If they are present, their value or potential to create issues for the project should be assessed.



Attachment 2

Submission on the Referral

Darwin H2 Project Nominee Pty Ltd – Wak Wak Solar Farm

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

Government authority: Department of Lands, Planning and Environment – Environment and Heritage Division - Heritage Branch

Summary: Applicant has committed to ongoing engagement with impacted Traditional Owners and Custodians, and to undertaking archaeological surveys in the project area. The Heritage Branch are in regular correspondence with the engaged archaeological consultant for this project. Minor suggestions noted below.

Section of Referral	Theme or issue	Comment
Referral form Pages 13–14.	Commitment to consultation and archaeological surveys.	• The applicant has identified that risks to Aboriginal archaeological places protected by the *Heritage Act 2011* can be best managed by undertaking archaeological surveys in the project area. • The Heritage Branch acknowledges the commitment to undertaking archaeological surveys as part of the ongoing development of this project. The applicant's commitment to early and continuous engagement with impacted Traditional Owners and Custodians is commendable. • The engaged archaeological consultant regularly liaises with the Heritage Branch. We will continue this communication as the project progresses and archaeological surveys are undertaken. We have no recommended changes to the Referral form.
Referral main report, Executive Summary, Page iv. 5.6.2 Impact assessment Page 98.	Avoidance of 'high-value archaeology' or 'high-value sites'.	• The applicant noted in the executive summary that the project design will accommodate the results of the archaeological survey. Where impacts cannot be avoided, they will be managed under the work approval process of the *Heritage Act 2011*. • The use of the term 'high-value archaeology/sites' is problematic and does not reflect terminology typically used by heritage practitioners and may be misinterpreted by other parties. In general, heritage places (including Aboriginal archaeological places) are assigned 'significance', rather than

Table 8-1, Page 106.		'value'. For Aboriginal archaeological places, this will typically involve both a statement of archaeological significance, and of cultural significance to Traditional Owners and Custodians. • All Aboriginal archaeological places are protected by the *Heritage Act 2011* and managed through its processes. If the applicant's intention is to protect significant Aboriginal archaeological places, it may be possible to avoid all impacts through project design. It is too early in the data collection phase for the applicant to appropriately speculate what will or will not be impacted. • At this stage of the project, the Heritage Branch are satisfied with the applicant's written commitment to undertake archaeological surveys, as well as engagement and consultation with Traditional Owners and Custodians. If the applicant wishes to demonstrate further good intention, a general statement regarding "minimising risks of impact to Aboriginal archaeological places through project design where possible" or similar is appropriate.

Attachment 3

Submission on the Referral

Darwin H2 Project Nominee Pty Ltd – Wak Wak Solar Farm

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

Government authority: Department of Lands, Planning and Environment – Lands Planning Division

Summary: Further reference to the NT Planning Scheme 2020 required in relation to the Strategic Framework (Litchfield Subregional Land Use Plan).

Section of Referral	Theme or issue	Comment
Referral Under the *Environment Protection Act 2019* Section 3.2 Approvals, licences and authorisations	*Planning Act 1999*	• In relation to land use planning matters: - The NT Planning Scheme 2020 (NTPS) applies to the subject site which includes Strategic Framework (land use plans) applicable to the locality. - The applicable strategic framework is the Litchfield Subregional Land Use Plan (LSLUP) which identifies the site as 'Rural Area' with the Statements of Policy for Rural Area being *'Maintain rural amenity and lifestyle choice'* and *'provide opportunities for residential land uses in the Rural Area to meet market demand'*. - While the proposal does not align with the Statements of Policy within the LSLUP, the NTPS does provide an avenue to assess the proposed 'Renewable energy facility' (as a defined use of the NTPS) as an Impact Assessable use in the current land use zone, Zone R (Rural). - The LSLUP also identifies 'Urban/ Peri-urban' land uses on lots that share the western boundary of NT Portion 4477, a 'Utility Corridor' traversing NT Portion 4477 from the west to the north, and a 'Planned Arterial Road and Transport Corridor' also traversing NT Portion 4477 from west to the north. Whilst this area is yet to be developed for urban/ peri-urban uses (see the Lloyd Creek Rural Village Area Plan) and utility and road corridors are yet to be developed, the proposed development should be considerate of, and ensure it does not compromise, intended future land uses in the area. - The proposal has been checked against NTPS Part 3 – Overlays, specifically Overlay 3.2 CNV – Clearing of Native Vegetation, which does not apply where the clearing of the land is controlled under another Act in force in the NT.