



# **CENTRAL LAND COUNCIL**

**Submission to the Environmental Protection Agency of the  
Northern Territory  
Singleton Horticulture Project**

**Comments on draft terms of reference for the  
environmental impact statement to be prepared by  
Fortune Agribusiness Funds Management Pty Ltd**

**September 2023**

## **ACKNOWLEDGEMENT**

*The Central Land Council (CLC) acknowledges the traditional owners of the Northern Territory who, with their ancestors, have been custodians of the Territory and its resources for tens of thousands of years.*

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## A. EXECUTIVE SUMMARY

1. THE Central Land Council (**CLC**) welcomes the opportunity to comment upon the Northern Territory Environment Protection Agency's (**NTEPA**) draft terms of reference (**draft TOR**) for an environmental impact statement (**EIS**) concerning the Singleton Horticulture Project (**Project**) proposed by Fortune Agribusiness Funds Management Pty Ltd (**Proponent**).
2. In the CLC's submission, the draft TOR need to be strengthened in several important respects which are identified throughout the submissions. Three are prioritised.
  - a. People and culture: the Proponent's existing social impact assessment and engagement with Aboriginal people are inadequate for a Project of this nature. A new *cultural and social impact assessment* needs to be undertaken. The design, terms and output of that assessment should be determined by the Aboriginal stakeholders themselves, with input from the Proponent.
  - b. Timing: to avoid causing harm to affected Aboriginal people, the cultural and social impact assessment should be undertaken only after it is clear that the Proponent has, and will keep, a groundwater extraction licence for the Project.
  - c. Biodiversity: the biodiversity described in the Proponent's **Referral** of the Project to the NTEPA does not reflect the true biodiversity Aboriginal people see in that country. The Referral relies on the surveys undertaken during hot and dry years which cannot and do not capture the full, baseline biodiversity. The flora and fauna surveys need to be redone, including during a 'boom' time.
3. The CLC's submissions also emphasise the need for:
  - a. independent, peer reviewed research, methodologies and analysis; and
  - b. cumulative assessment of impacts. This includes the combined impacts of the Proponent and other land users across the potentially affected area. It also includes impacts which, alone, may not appear significant but which become significant when combined with other low or moderate impacts.
4. In addition to these discursive submissions, the CLC has taken a liberty and marked up a version of the draft TOR. The mark ups show in detail the changes which the CLC considers should be made. That **Amended TOR** is **Annexure A**. This submission should be read in conjunction with the Amended TOR.

## **B. THE CLC'S ROLE**

### Land Rights Act

5. The CLC is a Commonwealth corporate entity established under section 21 of the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) (**Land Rights Act**) and has functions and duties under Land Rights Act. The functions include:
  - a. ascertaining and expressing the wishes and opinion of Aboriginals living in the area of the CLC's responsibility as to the management of Aboriginal land in the area;
  - b. protecting the interests of traditional Aboriginal owners of, and other Aboriginals interested in, Aboriginal land in the area of the CLC's responsibility; and
  - c. assisting Aboriginal people to take measures likely to help protect sacred sites on land (whether or not on Aboriginal land) in the area of CLC's responsibility.<sup>1</sup>
6. Aboriginal land likely to be within the **potentially affected area** of the Project (as defined in section 2.2.2 of the draft TOR) includes the Warrabri Aboriginal Land Trust, the Iliyarne Aboriginal Land Trust and the Karlantijpa South Aboriginal Land Trust. If, as a result of investigations undertaken for the EIS, the potentially affected area expands, additional Aboriginal Land Trusts may also be affected.
7. As the Land Council for those Aboriginal Land Trusts, the CLC must be involved on their behalf.

### Native Title Act

8. The CLC is also the recognised Aboriginal/Torres Strait Islander representative body for the southern region of the Northern Territory pursuant to section 203AD of the *Native Title Act 1993* (Cth) (**Native Title Act**) which includes Singleton and Neutral Junction Stations.
9. Singleton Station is subject to a Native Title consent determination by the Federal Court in *Rex on behalf of the Akwerlpe-Waake, Iliyarne, Lyentyawel Ileparranem and Arrawatyen People v Northern Territory of Australia* (2010) FCA 911, as varied by Orders made in 2020 in *Mpwerempwer Aboriginal Corporation RNTBC (ICN 7316) v Northern Territory of Australia and Ors* NTD42/2018. Mpwerempwer Aboriginal Corporation RNTBC (**Mpwerempwer**) is the prescribed body corporate for the purposes of section

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<sup>1</sup> Section 23(1) of the Land Rights Act

57(2) of the Native Title Act and acts as agent for the native title holders of Singleton Station. The CLC has been engaged by Mpwerempwer to assist it with its functions.

10. Neutral Junction Pastoral Lease is subject to two native title determinations:
  - a. *Arnerre, Wake-Akwerlpe, Errene and Ileyarne Landholding Groups v Northern Territory of Australia* [2011] FCA 765; and
  - b. *Pwerle v Northern Territory of Australia* [2016] FCA 304,(together the **Neutral Junction Determinations**).
11. The 2011 *Arnerre & ors* determination covers the area of Neutral Junction Station closest to Singleton Station. The 2016 *Pwerle* determination covers the rest of Neutral Junction Station. Depending on the extent of the potentially affected area, both Neutral Junction Determinations may be affected. Three maps are included in **Annexure B**. The first two show the Neutral Junction Determinations. The third shows other Aboriginal interests in land in the region.
12. Kaytetye Tywerate Arenge Aboriginal Corporation RNTBC (**KTAAC**) and Eynewantheyne Aboriginal Corporation RNTBC (**EAC**) are prescribed bodies corporate for the Neutral Junction Determinations for the purposes of section 57(2) of the Native Title Act. They act as agents for the native title holders of their determination area. The CLC has been engaged by both KTAAC and EAC to assist them with their functions.
13. As the existing representative of these groups, the CLC is well placed to assist them in the EIS processes.
14. These groups together form a significant portion of the **Aboriginal stakeholders**, as that term is defined in section 2.3.1 of the draft TOR. To the list in that section should be added:
  - a. the residents of Ali Curung and surrounding outstations;
  - b. Aboriginal run businesses in the potentially affected area; and
  - c. the CLC, both as representative of the groups and as an Aboriginal stakeholder in its own right.

### Expertise

15. In accordance with traditional laws and customs, these Aboriginal peoples have localised rights and responsibilities across the potentially affected area which give rise to highly significant cultural values. These rights, responsibilities and cultural values

include maintaining spiritual connections and protecting sacred sites; undertaking ritual activity; upholding ecological knowledge associated with natural resources; continuing customary roles and responsibilities; and being able to live and travel on country.<sup>2</sup>

16. Such cultural values are therefore fundamentally linked to the health of other environmental factors, including groundwater resources, groundwater dependent ecosystems and biodiversity.
17. The CLC has been working with Aboriginal people about these matters for almost 50 years. Over that time, it has developed significant experience engaging in the environmental sciences and administering a range of programs in relation to environmental management and cultural heritage. Those programs traverse fields including:
  - a. land and environmental management (including well established, on-country ranger programs);
  - b. community and economic development (including with residents of communities, regardless of whether they are also traditional owners or native title holders);
  - c. social and cultural heritage, anthropology and customary practices (including close work with traditional owners and native title holders about their connections to their land).
18. The CLC is a repository of much traditional information, knowledge, expertise and trust. It is often described by one senior man as traditional owner's "shield". The CLC is well placed to consult with traditional owners and native title holders and represent their views and interests in externally-driven processes like this one. The CLC is also well positioned to offer guidance to the NTEPA on how it should require the Proponent to engage in culturally appropriate ways.

## **C. PRIORITIES**

19. Three priority changes to the draft TOR are identified briefly in paragraph 2. They, and the reasons for them, are described more fully in this section and in the Amended TOR.

### **C.1 Cultural and Social Impact Assessment**

20. Maureen Nampijinpa O'Keefe is a resident of Ali Curung, a mostly Aboriginal community within the potentially affected area of the Project. Nampijinpa has directed a short video

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<sup>2</sup> **Donaldson, S., 2023.** Addendum: Aboriginal Cultural Values Impact Assessment prepared by Susan Dale Donaldson dated 07.02.2023. p1 (Copy available here: [https://ntepa.nt.gov.au/\\_data/assets/pdf\\_file/0018/1214343/central-land-council-part2.pdf](https://ntepa.nt.gov.au/_data/assets/pdf_file/0018/1214343/central-land-council-part2.pdf), Attachment M)

in which she and other senior Aboriginal people tell some of their views of the Project. The video shows both their deep connection to the country, and their dread for damage that may be caused by the Project.

21. The CLC urges NTEPA board members to watch (or rewatch) that video before finalising the terms of reference for the Proponent's EIS. It can be viewed here:

<https://youtu.be/uwY1KYugPac?si=qqApiFoXqLyAXg5d>

22. The CLC is concerned that section 2.5.5 of the draft TOR does not expressly require the Proponent to undertake a new social impact assessment with Aboriginal stakeholders to identify values to be protected. All that section requires is that “*any additional ... values*” identified through stakeholder engagement be incorporated into a “*summary*” of the existing social and economic impact assessments.<sup>3</sup>
23. While section 2.3.1 of the draft TOR does require consultation with Aboriginal stakeholders, it does not guide the Proponent as to how that is to occur.
24. The remainder of this section:
- a. describes why the work done consulting Aboriginal stakeholders to date (as reflected in the existing social impact assessment) is inadequate; and
  - b. offers suggestions as to how it can be done in an appropriate and best-practice manner.
25. It is taken for granted that the NTEPA accepts that informed and culturally appropriate consultation with Aboriginal stakeholders is essential.

*Work done to date is inadequate*

26. Nampijinpa's video and the consultations undertaken by the CLC make clear that currently there is no social licence from Aboriginal stakeholders for this Project, let alone their free, prior and informed consent to it occurring on their country.
27. The existing social impact assessment (Annexure I of the Referral) describes at section 4.3 the Proponent's consultations with Aboriginal stakeholders: a total of 82 face to face meetings, telephone and virtual meetings, and emails and letters over 3.5 years.
28. Two of those consultations (possibly more, if emails and letters are included) involved the CLC. The first introductory meeting in 2019 was to allow the Proponent to introduce its representatives and describe the Project. There was no discussion of the size of the

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<sup>3</sup> Annexures I and J of the Referral

water licence required to undertake the Project. No free, prior or informed consent was given to anything at that meeting.

29. The second consultation occurred in February 2021. The CLC organised a large, two-day meeting in Tennant Creek. Approximately 80 traditional owners, native title holders, residents and community members attended. The Proponent's representatives were invited to talk about the Project. However the meeting remained a CLC information session, not a substantive consultation by Fortune with native title holders. Again, no free, prior or informed consent was given to the Project that meeting.
30. Instead, the CLC was given instructions to scrutinise the Project and take legal action to protect native title holders' rights and interests. Since shortly after that date, Mpwerempwer, represented by the CLC, has been pursuing merits review (before the Minister and her Water Resources Review Panel) and judicial review (before the Court) proceedings. With the litigation on foot, it has not been appropriate for the CLC to facilitate consultations between the Proponent and Aboriginal stakeholders.
31. The CLC is aware of limited consultations in Ali Curung done on behalf of the Proponent during 2022. While acknowledging that CLC was not present at those consultations and that its information may be incomplete, reports that reached us were concerning.
  - a. The clearest recollection attendees had of the meeting was the "*teaspoon and bucket*" story. Some attendees did not understand the analogy and reported that the Proponent must surely need more water than that. Other attendees understood that if the bucket represents the aquifer, then all the Proponent needed was one teaspoon of it.
  - b. If it is correct that such an analogy was used, that is concerning. The vivid image would stick in attendees minds while conflating the difference between aquifer storage and recharge, and ignoring the importance a "*teaspoon*" from the top of the "*bucket*" may make to key depth to groundwater measurements. Such an analogy is culturally inappropriate, misleading and oversimplifies complex groundwater matters.
  - c. There were mixed reports of representatives door knocking in the community and perhaps being asked to leave. It is not clear the extent to which that occurred. Nevertheless it is important to understand that consultations of this nature should be done collectively in a public space, not individually, unsolicited at a private house.

- d. While reports given soon after the meeting were relatively clear (especially about the teaspoon and bucket), recollections have faded since. That demonstrates underlying understanding based on consultations by the Proponent is inadequate for a Project of such magnitude.
32. A consultant anthropologist engaged by the CLC, Susan Dale Donaldson wrote in early 2023:
- The capacity of affected community members to access and understand information about the proposal and the management of potential significant impacts is hindered by a lack of information required to enable informed decision making. As such, the level of community confidence in predicting and managing potential significant impacts to sacred sites and other important cultural values is low.*<sup>4</sup>
33. According to Donaldson, and based on her (not the Proponent's) consultations with traditional owners and native title holders:
- There has been extensive community engagement with Traditional Owners and other affected Aboriginal community members [by her] in relation to the proposal. The overwhelming community response is one of concern for future generations given the unknowns in relation to how the significant impacts will be managed in order to avoid catastrophic consequences (for people and country).*<sup>5</sup>
34. That concern is not reflected in the social impact assessment included in the Referral. In so far as it relates to the social impact on Aboriginal stakeholders, the assessment is inadequate.

What the CLC submits should be done

35. The draft TOR refer to the NSW Social Impact Assessment Guidelines. While those guidelines are good in many respects, they are not adequate or appropriate for this Project. They were not prepared in the context of communal freehold title of the kind provided for in the Land Rights Act. This is important, as three Aboriginal Land Trust fall within the potentially affected area. Nor do the NSW guidelines adequately address some of the language and conceptual issues relevant to the Aboriginal stakeholders in the central region of the Northern Territory.
36. During consultations, one consistent request that traditional owners and native title holders asked the CLC to tell the NTEPA was that they wanted the CLC to represent them in this process and to be their "shield".

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<sup>4</sup> Donaldson, S., 2023, p45

<sup>5</sup> Donaldson, S., 2023, p44

37. The CLC submits that the NTEPA should require the Proponent to undertake a new, specifically designed and fit for purpose *cultural and social impact assessment* with Aboriginal stakeholders. The assessment should expressly cover *cultural* and *social* matters, including sacred site protection measures via the CLC, if that is what traditional owners and native title holders choose. In reality, it would be difficult to separate cultural and social matters completely and an attempt to do so would be artificial.
38. The design, terms and output of the cultural and social impact assessment should be determined by the Aboriginal stakeholders themselves, with input and funding from the Proponent. Such a process allows Aboriginal people to determine how they will best receive and understand information about the Project and it allows them control over how their experiences are told.
39. The CLC is ideally placed to facilitate and assist with this. The CLC has much relevant in-house expertise, particularly within its land management, community development and anthropology teams. For the additional specialist skills that are required, the CLC would engage consultants. This includes not just consultant anthropologists such as Donaldson whose work is referred to above, but also specialists in social impact fields.
40. The CLC has experience with this type work. One previous example which traversed Singleton Station was the social and cultural impact assessment into the Alice Springs to Darwin railway, done in 1998. Other examples (including much more recent ones) occur in the context of mineral or gas resource development.
41. To assist the NTEPA, the CLC has marked up the changes it proposes in the Amended TOR at sections 2.3.1 and 2.5.5.

*Why the CLC submits it should be done that way*

42. Centrality of Aboriginal knowledge. The CLC is encouraged that the NTEPA intends to direct the Proponent to treat the views of Aboriginal stakeholders as the primary source of information on Aboriginal cultural values. Such information should include the work already done by traditional owners and native title holders with Donaldson. By adopting the process recommended by the CLC above, the NTEPA would be guiding the Proponent about how to achieve that objective.
43. Risk to cultural values. The risk posed to Aboriginal cultural values by this Project is both great and uncertain. The worst case scenario currently being envisioned by some Aboriginal stakeholders (and described in Nampijinpa's video) includes the loss of Ali Curung's drinking water supply causing residents to become refugees and catastrophic groundwater drawdown that leads to the death of groundwater dependent ecosystems,

destruction of sacred sites and desertification. The post-colonial history of Ali Curung is that its residents were relocated there by government after being moved on and off several other reservations. In one instance, relocation occurred because of insufficient water. Residents know that history and do not want it repeated. That worst case scenario would only occur if all environmental protection measures failed. Such failures may be unlikely, but they are not unheard of. They help explain the genuine dread experienced around this Project, the fear for Aboriginal cultural values and Mpwempwer's determined challenge to the Proponent's groundwater extraction licence.

44. A more likely scenario may be the destruction of 30% of groundwater dependent ecosystems within the potentially affected area. That would be permissible if the **Guideline: Limits of acceptable change to groundwater dependent vegetation in the Western Davenport Water Control District** is treated as a binding document and it survives the challenge to it currently before the Northern Territory Supreme Court. However even that scenario poses a significant risk to Aboriginal cultural values. Work undertaken by Donaldson has identified that:

*Anerre, Waake-Akwerlpe, Iliyarne and Arlpwe people and their tribal neighbours maintain these six key cultural values across the SWLDA [Singleton Water Licence Drawdown Area] in relation to 40 sacred sites (Ihangkele) associated with surface expressions of groundwater, aquatic GDEs and terrestrial GDEs. Whilst there are additional sacred sites across the SWLDA that do not depend on groundwater (e.g., a few rocky outcrops and other rock formations), approximately 95% of sacred sites present across the SWLDA are groundwater dependant. Accordingly, the majority of sacred sites across the SWLDA are vulnerable or sensitive to changes to groundwater levels.<sup>6</sup>*

45. Destruction of 30% of groundwater dependent ecosystems could affect many of those sacred sites if protections are not very carefully tailored. Even if sacred sites themselves are protected,<sup>7</sup> other Aboriginal cultural values are threatened. Donaldson<sup>8</sup> identified six cultural values currently practiced in the potentially affected area of the Project:

- a. Following the Altyerre Law and cultural obligations;
- b. Maintaining spiritual connections and protecting sacred sites;

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<sup>6</sup> Donaldson, S., 2023. p9

<sup>7</sup> In accordance with the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT)

<sup>8</sup> **Donaldson, S., 2021.** Singleton Water Licence Aboriginal Cultural Values Assessment – Public Report prepared by Susan Dale Donaldson dated 01.09.2021. (Copy available here: [https://ntepa.nt.gov.au/\\_data/assets/pdf\\_file/0018/1214343/central-land-council-part2.pdf](https://ntepa.nt.gov.au/_data/assets/pdf_file/0018/1214343/central-land-council-part2.pdf), Attachment L)

- c. Undertaking rituals;
  - d. Upholding ecological knowledge associated with natural resources;
  - e. Continuing customary roles and responsibilities; and
  - f. Being able to live and travel on country.
46. Each of those cultural values could be affected by significant destruction of groundwater dependent ecosystems.
47. In its Referral, the Proponent refers to protection of sites via a current (and potentially a future) certificate from AAPA and the conditions precedent to the groundwater extraction licence. Otherwise, traditional owner and native title holder involvement in mitigation strategies is limited to being consulted by Fortune to ensure the monitoring plan “*includes issues of importance to them*” and having Fortune’s “*Engagement Plan ... implemented which involves ongoing engagement with the TOs throughout the life of the Project*”.<sup>9</sup>
48. That is akin to traditional Aboriginal owners having things done to them. The better alternative is empowerment, as Donaldson encourages:
- Good practice in the field of cultural heritage management includes working in cooperation with Traditional Owners to develop and apply an approach to cultural heritage management inclusive of a broad range of tangible and intangible cultural values. Traditional Owners’ cultural values should not only be documented, Traditional Owners themselves should be empowered as active stakeholders and decision makers in matters that affect their land and waters.*<sup>10</sup>
49. These risks to cultural values, including sacred sites, mean that it is critical that Aboriginal people are involved in identifying their values and shaping the protection measures for them. The CLC considers that if the Project proceeds, then that work would be best done via the cultural and social impact assessment described above.
50. Language and risk. Aboriginal people are familiar with risk and deal with it in their daily lives. Such risks, however, are often concrete. They rarely involve abstract concepts like an uncertainty analysis for groundwater modelling or using that model to predict possible impacts on cultural values. How Aboriginal people understand the risks associated with abstract ideas depends on how those ideas are presented. That is amplified when a listener speaks languages other than English as their mother tongue. Many people affected by the Project do not have English as their first language.

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<sup>9</sup> Fortune’s NT EPA Referral “*Main Document*”, p. 127

<sup>10</sup> Donaldson, S., 2021. p13

51. Three peak Aboriginal organisations<sup>11</sup> have developed a Plain English Legal Dictionary.<sup>12</sup> That dictionary expressly avoids using the following words for the reasons set out in the table:

<b>Probably</b>	No close equivalent in most Aboriginal languages. Indicating % of possibility/probability is very difficult in many Aboriginal languages.
<b>Possibly</b>	No close equivalent in many Aboriginal languages
<b>Usually, often</b>	Expresses degrees of probability – no close match in many Aboriginal languages
<b>Abstract nouns</b>	These are intangible, and often do not have a close equivalent in Aboriginal languages
<b>Important</b>	Meaning is ambiguous; what is 'important' is culturally and context dependant; no equivalent that matches the full range of the English meaning
<b>Serious</b>	Meaning is culturally and context dependant; no equivalent that matches the English range of meanings
<b>Could/would</b>	Expresses possibility and uncertainty. A wide range of meanings in English
<b>Should</b>	A wide range of meanings in English. Can express possibility or social/moral expectations. 'You shouldn't do that.'
<b>Have to</b>	Multiple meanings 'have' = possess. 'Have to' also has a wide range of meanings in English. 'I have to check my email.' 'You have to report to police.'
<b>Don't have to</b>	Often understood as 'must not' (the opposite of have to)
<b>Can</b>	This word has multiple meanings in English – physically can, socially can, permission or might. 'Police can take that evidence to court.'
<b>Need</b>	This word has a wide range of meanings in English (want, desire, must, require). 'I need medical treatment.' 'I need some coffee.' 'I need to take your instructions.' 'What do you need?'
<b>Unless</b>	This word reverses the chronological order of clauses within a sentence. No close equivalent in many Aboriginal languages
<b>Instead</b>	Requires an abstract/hypothetical substitution. No close equivalent in many Aboriginal languages.

<sup>11</sup> Aboriginal Resources and Development Services, North Australian Aboriginal Justice Agency and Aboriginal Interpreter Service

<sup>12</sup> Available here: <https://www.ards.com.au/resources-2/p/legal-dictionary-plain-english>

52. The list of words to avoid highlights the difficulty in consulting the Aboriginal stakeholders about this Project. They are all words which native English speakers would frequently use to describe complex, contingent and abstract matters. Not only do these words lack direct translations in many Aboriginal languages, but the concepts behind the words are frequently not directly transferrable.
53. Another example is the apparently simple word “*if*”. A native English speaker would understand what followed to be hypothetical in nature. However to many Central Australian Aboriginal language speakers, “*if*” is often understood as “*when*”. That can change entirely the understanding of a hypothetical risk.
54. Such mismatch between English and Central Australian Aboriginal languages creates a high chance of miscommunication if people presenting complex, abstract and highly contingent material are unaware of these issues. The difficulty is not always able to be overcome with an interpreter alone. First, few are available. Second, those who are available often have kinship or familial relationships that make it difficult for them to act, particularly if the matter is controversial. Third, simple translation of language does not overcome the conceptual differences between cultures.
55. Further, a widely recognised cultural tendency is “*gratuitous concurrence*”, where a person will agree with questions put to him or her in order to placate the interrogator. Gratuitous concurrence is illustrated by Professor Diana Eades as follows:
- Aboriginal English speakers often agree to a question even if they do not understand it. That is, when Aboriginal people say “yes” in answer to a question it often does not mean “I agree with what you are asking me”. Instead, it often means “I think that if I say “yes” you will see that I am obliging, and socially amenable and you will think well of me, and things will work out between us”.*<sup>13</sup>
56. Linguistic and cultural matters such as these show the difficulty any proponent will have ensuring their complex, abstract and hypothetical ideas (such as hydrological modelling and predictive uncertainty) are understood in the manner intended. It is critical to get the consultation right and avoid cultural miscommunications which leave Aboriginal stakeholders improperly informed about the Project.
57. The CLC’s submission is that the best way to avoid these issues is for the Aboriginal stakeholders (including and with assistance from the CLC) to design a cultural and social impact assessment that meets their needs. To be properly consulted, Aboriginal stakeholders need to be involved in determining how information is presented, and how

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13 Diana Eades, *Aboriginal English and the Law*, Queensland Law Society (1992), p26

their stories are told. Their involvement in a cultural and social impact assessment should feed into the ongoing social impact management plan that the Proponent will be required to prepare.

58. Naturally the Proponent will need to be heavily involved throughout (including by funding it), but the best outcome will be achieved if Aboriginal stakeholders themselves control the process.
59. CP10 not sufficient. In the Referral, the Proponent points to condition precedent 10 (**CP10**) as providing assurance that these matters will be addressed before any groundwater is extracted. That is not an adequate response. There are a number of startling features of CP10 that mean it does not provide the comfort to the Aboriginal stakeholders that might have been intended.
  - a. The CLC and its clients had no input into the drafting of CP10. The lack of procedural fairness offered to Mpwempwer about CP10 (and other conditions precedent) is a matter before the Supreme Court of the Northern Territory. In the CLC's submission, CP10 does not adequately protect Aboriginal cultural values.
  - b. Although the cultural values are those of Aboriginal people, it is left to the Proponent to do this work. CP10 imposes on the Proponent no obligation to consult traditional Aboriginal owners, native title holders or the CLC. The only restriction is that the assessment must be prepared by a suitably qualified professional. To undertake such an assessment, the professional will need to have a relationship of trust and confidence with traditional owners and native title holders. That is likely to be strained if the person has been contracted by the Proponent and is understood to be acting on its behalf. It would be preferable to direct the Proponent to engage with the CLC and properly resource it to undertake some of the tasks identified in CP10, including via the cultural and social impact assessment described above.
  - c. Furthermore, approval of the assessment is left entirely in the Proponent's hands. CP10 requires that the Proponent to "*develop and submit to the Controller a groundwater dependent Aboriginal cultural values impact assessment*". By contrast, all other conditions precedent (except CP6 re salinity) require it to "*develop and submit for approval by the Controller...*".
  - d. The scope of CP10(b), (c) and (d) show the magnitude of the task that remains to be done. First, the Aboriginal cultural values must be identified, mapped and documented. Then reference points need to be identified to be used in modelling

the impacts of groundwater extraction on those Aboriginal cultural values. Subterranean, aquatic and terrestrial groundwater dependent ecosystems must be examined. Finally, monitoring parameters, trigger values and limits of change for adaptive management need to be determined.

- e. Any errors or omissions in the baseline studies, links to modelling or selection of monitoring parameters, trigger values and limits of change required by CP10 have real potential to cause significant impacts of the kind described in *Donaldson S, 2023*.

- 60. For all of those reasons, the CLC urges the NTEPA to require the Proponent to undertake the cultural and social impact assessment described above and at sections 2.3.1 and 2.5.5 of the Amended TOR.

## **C.2 Timing**

- 61. Nampijinpa's video shows the hurt and fear Aboriginal people in the region already hold about this Project. For that reason, Mpwerempwer instructed the CLC to attempt to have the Proponent's groundwater extraction licence **WDCP10358** overturned. That matter was heard before the Supreme Court of the Northern Territory in September 2022. Judgment remains reserved.
- 62. While the status of WDCP10358 is unresolved, the Aboriginal stakeholders will find it difficult to engage with the Project in a manner which contemplates it proceeding. At this stage, all their effort and energy is focussed on stopping it. To instead contemplate how it could proceed means they must contemplate how their culture will be impacted by it, including the potential destruction of aspects of it. Such contemplation alone is enough to exacerbate the existing hurt and cause further trauma and pain.
- 63. One senior traditional owner described it this way: "*We can't talk about that. We need to know the full story*". Whether the Proponent has, and will keep, a groundwater extraction licence is part of that full story.
- 64. Given that hurt and trauma will result from undertaking the cultural and social impact assessment, the least harm principle means it is imperative that it only be done if it is absolutely necessary to do so. It will only be necessary if all challenges to the Proponent's WDCP10358 fail. That means waiting not only for judgment in the present case, but also for:
  - a. decisions in any appeal from that judgment;

- b. any issue of a substitute or new groundwater extraction licence to the Proponent;  
and
  - c. any challenge to a substitute or new licence.
65. Further, any premature consultations will be difficult for the reasons described in paragraph 50 and following: while challenges to WDCP10358 remain outstanding, the Project itself is hypothetical.
66. The conceptual difficulty for Aboriginal stakeholder to engage, together with the hurt they will suffer by doing so, means that the quality of any engagement will be difficult, people will be reluctant to engage and if they do so, it is unlikely to be able to be in a way that best protects their interests.
67. For those reasons, the CLC urges the NTEPA to direct consultations with the Aboriginal stakeholders if, and only if, it becomes clear that the Proponent has and will keep the groundwater extraction licence needed to make the Project a reality.
68. This does not mean that the entire EIS needs to be delayed.
- a. The draft TOR already describe much other work that the Proponent can do in the meantime.
  - b. The Proponent and the CLC could start preparing for the cultural and social impact assessment. However, as the design must be workshopped with and agreed to by the Aboriginal stakeholders, it could not be finalised.

### **C.3 Biodiversity**

69. For traditional owners and native title holders, land, people and local plant and animal species are spiritually interconnected. Loss of biodiversity from an area is often seen as an indication that there is disturbance to spiritual equilibrium and interconnectedness of the spiritual and physical world. When species are lost, traditional owners often feel deep grief associated with that loss. Loss of biodiversity could have a significant impact on Aboriginal cultural values, including cultural responsibilities to care for country.
70. The Biodiversity Assessment Report included in the Proponent's Referral was a desktop analysis. It did not involve on new on-ground surveys.<sup>14</sup> Instead, it relied on the "Mapping the Future" survey undertaken in 2019 by the Territory Department of Environment, Parks and Water Security.

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<sup>14</sup> GHD 2022, Biodiversity Assessment Report: Singleton Horticulture Project (Biodiversity Report) prepared for Fortune Agribusiness Pty Ltd. p 2.

71. That survey was critically limited. It was done in a period of extreme heat and water scarcity (March to October 2019). The limitations of the survey design and results are acknowledged throughout its report:

*...unfortunately, the timing of the flora surveys coincided with a period of prolonged severe drought, meaning that only the perennial subset of the herbaceous flora was sampled.*<sup>15</sup>

*Greater bilby (*Macrotis lagotis*, Vulnerable, EPBC Act and TPWC Act) has historically been recorded in the study area (most recently in 2009) but was not detected during this assessment. The spectacled hare-wallaby (*Lagorchestes conspicillatus*, Near Threatened, TPWC Act), a species is of cultural significance to the traditional owners, persists in the study area in very low densities, and its occurrence is potentially dependent on favourable climatic conditions. Preservation of a mosaic of vegetation types and habitats are likely to be necessary to support the persistence of the range of fauna species that occur across the Western Davenport study area' (emphasis added).*<sup>16</sup>

*The region experienced well below average rainfall for several years prior to our survey, with drought conditions evident in the study area during field surveys... the environmental conditions, in concert with these cattle impacts [intense cattle use] are likely to have influenced our survey findings and adds some uncertainty regarding what flora and fauna may be supported during 'normal' or wet periods, and with respect to identifying areas with high biodiversity value in the study area.*<sup>17</sup>

72. According to 2019 climate data from Bureau of Meteorology, the period through which flora and fauna surveys were taken was marked by record temperatures and severe, protracted drought. Between January and December the Western Davenport region experienced mean temperatures “*very much above average*” or highest on record, and rainfall was “*very much below average*” or the lowest on record.<sup>18</sup>
73. Extensive peer-reviewed literature assessing the presence of flora and fauna during climatic “*boom and bust*” periods in arid environments confirm that trends regarding species cannot be determined by limited surveying undertaken during “bust” (or dry) spells.<sup>19</sup> As a consequence, best-practice dictates that surveying must be undertaken over longer timescales that also incorporate “boom” conditions, which can be brief but significant for biodiversity. Failure to do so will invariably skew survey results. Indeed, this is consistent with the Australian Government’s “*Survey guidelines for Australia’s*

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<sup>15</sup> DEPWS, 2022, Mapping the Future – Biodiversity Assessment of the Western Davenport Area, p. 2.

<sup>16</sup> DEPWS Mapping the Future, p.2.

<sup>17</sup> DEPWS Mapping the Future, p.58.

<sup>18</sup> Bureau of Meteorology, <http://www.bom.gov.au/climate/current/annual/aus/2019/#tabs=Maps>

<sup>19</sup> See for example: Pavey, C.R. and Nano, C.E., 2013. Changes in richness and abundance of rodents and native predators in response to extreme rainfall in arid Australia. *Austral Ecology*, 38(7), pp.777-785; Pavey, C. R., Nano, C. E., Cole, J. R., McDonald, P. J., Nunn, P., Silcocks, A., & Clarke, R. H. (2014). The breeding and foraging ecology and abundance of the Princess Parrot (*Polytelis alexandrae*) during a population irruption. *Emu-Austral Ornithology*, 114(2), 106-115. Pavey, C.R., Nano, C.E.M., Waltert, M., 2020. Population dynamics of dasyurid marsupials in dryland Australia: Variation across habitat and time, *Austral Ecology*, 45, 283–290.

*threatened mammals – Guidelines for detecting mammals listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (Cth)*”,<sup>20</sup> as well as the NTEPA’s own Guidelines for Assessment of Impacts on Terrestrial Biodiversity.<sup>21</sup>

74. Aboriginal people know this. One senior elder said: “*After the rain all animals come out, bush potato, everything. With this Project, all the animals will go away. All the bush tucker, sugar bags, everything*”.
75. The draft TOR do not currently require the Proponent to undertake field surveys of flora or fauna in the potentially affected area. It is the CLC’s submission that the draft TOR should be amended to impose that requirement and, moreover, to do so in “boom” times.
76. We acknowledge that an El Nino is likely to arrive shortly. If it is as strong as predicted, the Proponent may not be able to undertake “boom” time surveys in the near future.
77. However the CLC does not consider that should excuse the Proponent from doing so. The Proponent purchased Singleton Station in 2016. There have been “boom” times since that purchase occurred. The Proponent could have undertaken field surveys. It *chose* not to do so.
78. Because of that choice by the Proponent, there is no baseline flora or fauna survey which measures the greatest potential biodiversity in the potentially affected area. A key principle of environmental management is that you cannot protect what can’t be or hasn’t been measured.
79. Protection of the environment (including cultural values associated with biodiversity) should not be made to suffer because the Proponent *decided* not to undertake surveys when it could have done so. It should be immaterial that the Proponent now wishes to seek environmental approval and the weather is unfavourable. That should not be an excuse when previous opportunities were not taken up.
80. The CLC therefore urges the NTEPA to require the Proponent to:

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<sup>20</sup> Australia Government, Survey guidelines for Australia’s threatened mammals – Guidelines for detecting mammals listed as threatened under the Environment Protection and Biodiversity Conservation Act 1999 (Cth), p.6. <https://www.dcceew.gov.au/sites/default/files/documents/survey-guidelines-mammals.pdf> (accessed 10.02.23).

<sup>21</sup> These guidelines state (at p.9) that for threatened and migratory fauna, ‘[s]ampling is to occur at suitable times of year and appropriate intensity to determine the presence of the species and obtain estimates of population abundance where the species occur. Search areas, sampling methods, search time/effort, capture effort as appropriate and results are to be reported for each possible threatened or migratory species. The adequacy of sampling needs to be demonstrated.  
[https://ntepa.nt.gov.au/\\_\\_data/assets/pdf\\_file/0004/287428/guideline\\_assessment\\_terrestrial\\_biodiversity.pdf](https://ntepa.nt.gov.au/__data/assets/pdf_file/0004/287428/guideline_assessment_terrestrial_biodiversity.pdf)

- a. undertake field surveys of flora and fauna across the potentially affected area, including at a time when the highest baseline level of biodiversity is likely to be recorded;
  - b. while performing the surveys, be guided by peer reviewed research on the importance of refugia in arid environments;
  - c. have the survey methodology and results peer reviewed; and
  - d. demonstrate that destruction of up to 50kms of grey falcon, greater bilby or spectacled hare-wallaby habitat will not impact those threatened and near threatened species.
81. The additional obligations the CLC submits should be imposed are marked up in the Amended TOR at section 2.5.3. The close interaction between what Western science describes as purely “environmental science” and what the Aboriginal stakeholders see as cultural matters, mean that the CLC proposes these amendments for both Western environmental and Aboriginal cultural reasons.

#### **D. OTHER MATTERS**

##### *General comments / themes*

82. There are two general themes that apply across the remaining matters.
- a. Wherever possible, work undertaken by the Proponent should draw upon best practice. The draft TOR generally recognise that. However they do not always require independence (from the Proponent or the Territory) nor reliance on peer reviews of research, methodologies and analysis. In addition, the Proponent should be asked to address in the EIS the peer reviews of its work that the CLC has commissioned, for example, from Vogwill and De Sousa (in relation to hydrogeology) and Connor, et al (in relation to economics). Those papers are listed in the bibliography in the Amended TOR. The CLC encourages the NTEPA to recommend such peer review as its primary position.
  - b. The Project’s cumulative environmental and cultural impacts must be assessed as a whole and, in some places, the draft TOR acknowledges that. The CLC submits that it should do so in all places. The ultimate decision maker, the Minister, will need information on the cumulative environmental and cultural impacts in order to make an informed, lawful decision which takes into account all relevant matters. A cumulative assessment involves considering combined impacts of the Proponent and other land users across the potentially affected area. It also includes impacts

which, alone, may not appear significant but which become significant when combined with other low or moderate impacts.

83. The remainder of this section addresses proposed changes to other environmental factors in the draft TOR. That the CLC has prioritised three matters should not be taken to mean that it regards the remainder as unimportant.

Hydrogeological processes (including adaptive management) (Section 2.5.1)

84. CLC commissioned expert review of the draft TOR from a hydrogeological perspective by Dr Ryan Vogwill.<sup>22</sup> Vogwill found that the draft TOR address some of the existing uncertainties, but some ambiguity remains.
85. In summary, his expert review of the draft TOR made the following recommendations.
- a. The potential impacts on the hydrological regime must include not only groundwater, but also the surface water regime (which can be impacted through stormwater management, diversions and water quality impacts).
  - b. Assessment of impacts on groundwater and surface water regimes must consider both water quantity and quality impacts.
  - c. Aquatic groundwater dependent ecosystems must be explicitly incorporated into the assessment, as a distinct form of ecosystem with site-specific groundwater requirements. Aquatic groundwater dependent ecosystems will require detailed investigation into site-specific water sources and groundwater dependence and may require a “no drawdown impact” drawdown criteria to protect their dependent values.
  - d. Groundwater dependent ecosystems impact assessment must incorporate the uncertainty of drawdown predictions (both extent and magnitude). This assessment should require best and worst-case scenarios at a minimum, as defined by predictive uncertainty analysis.
  - e. Baseline data on the hydrology and biology of potentially impacted sites of high biodiversity and cultural value must be collected by the proponent and independently assessed prior to any possibility of impact, preferably for 5+ years so any future impacts can be identified with sufficient clarity.

- f. Maps of depth to groundwater need to be based on measured data, not on highly uncertain model predictions.
  - g. The proponent should be required to follow the Australian Guidelines on groundwater modelling and GDE impact assessment.
86. In relation to Vogwill's recommendation for 5+ years of assessment, the CLC notes that such measurements could have been commenced by the Proponent when it purchased Singleton Station in 2016, seven years ago. Like with the Proponent's decision not to undertake flora and fauna surveys during recent boom times, the Proponent could have but did not collect adequate baseline data of the hydrology and biology of potentially impacted sites of high biodiversity and cultural value. It should not be excused from doing so now just because it would mean a delay to environmental approvals.
87. Expert advice recommends that the proponent's adaptive management plans adhere to peer reviewed literature, including the groundwater specific framework proposed by Thomann J.A., Werner, A.D. and Irvine, D.J., 2022.<sup>23</sup>
88. The CLC encourages the NTEPA to explicitly require the adaptive management plan to include all options up to and including ceasing groundwater extraction entirely and to identify triggers for action with precision. While such matters are included in the NTEPA's guidance on adaptive management, they have not been incorporated in the adaptive management plan included in the Referral. The current draft adaptive management plan does not envisage "*turning the taps off*" in response to any trigger. Rather, the identified management actions include relocating bores and artificially watering or off-setting groundwater dependent ecosystems.<sup>24</sup> The triggers for implementation of those management actions remain largely undefined, but may include the spatial extent of drawdown being 20% greater than anticipated by modelling or 5% destruction of GDEs.<sup>25</sup> Without sufficient baseline studies, triggers defined in that manner will always be vague and open to interpretation. Advice given to the CLC is that once a GDE's health declines visually, it is usually too late to save that GDE. Particularly for GDEs that are also sacred sites, off-setting is an inappropriate response and would not meet the Proponent's obligations under the *Northern Territory Aboriginal Sacred Sites Act 1989*.

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<sup>23</sup> Thomann, J.A., Werner, A.D. and Irvine, D.J., 2022. Developing adaptive management guidance for groundwater planning and development. *Journal of Environmental Management*, 322, p.116052

<sup>24</sup> Fortune Agribusiness Referral Documents to the NT EPA, Schedule G: Groundwater Monitoring Program & Adaptive Management Plan, pp 42 – 43

<sup>25</sup> Fortune Agribusiness, Schedule G: Groundwater Monitoring Program & Adaptive Management Plan, pp 39 – 40

89. The NT EPA's own guidance on adaptive management states that plans *should* consider the temporary and permanent cessation of activities. This must be an explicit requirement in the TOR, to meet obligations of the Sacred Sites Act and align with best practice precautionary principle, as also outlined by the NT EPA's own guidance<sup>26</sup>.

Water quality (including salinity) (Section 2.5.2)

90. Given the critical gaps in the Proponent's initial salinity report, external expert advice given to the CLC by Professor Peter Cook of Flinders University<sup>27</sup> cautions that the proposed requirements in the draft TOR are insufficiently specific to overcome the Project's salinity uncertainty and impact risk.
91. The expert advice recommends that the draft TOR specifically require the Proponent:
- a. In the assessment and quantification of 'the cumulative impacts of accumulated salts over the life of the proposal':<sup>28</sup> Consider the increase in salinity of the water that is applied due to evapotranspiration, and, therefore the likely increase to the salinity of irrigation drainage.
  - b. In the documentation and incorporation of field observations, which include 'soil types and quality (including salinity)'<sup>29</sup>: consider the naturally occurring levels of salinity in the soils within the unsaturated zone below 3m.
92. In modelling the 3D salt plume, the Proponent should be required to determine not just its rate and direction of movement, but its full extent over time. That may result in changes to the potentially affected area to ensure that the entire plume is captured.
93. The impact on water quality should also capture nutrient run off, as well as agricultural chemicals. This could have significant impact on aquatic groundwater dependent ecosystems in particular. Consequently, they should be properly mapped and assessed as part of the inland water environmental quality section of the EIS.

Terrestrial ecosystems (including land clearing and the GDE guideline) (Section 2.5.3)

94. The CLC encourages the NTEPA to broaden the draft TOR to consider the impact of all forms of land clearing. This should include:

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<sup>26</sup> NT EPA's guidance on adaptive management, p.4-5.

<sup>27</sup> This external advice was given to the CLC by Peter Cook, a Professor of Hydrogeology at Flinders University and Director of the National Centre for Groundwater Research and Training (NCGRT). One of Australia's foremost groundwater scientists, Professor Cook has more than 20 years of experience in groundwater research, spanning the fields of groundwater hydrology, ecohydrology, isotope hydrology, unsaturated zone flow process, and surface water – groundwater interaction.

<sup>28</sup> Draft TOR p15.

<sup>29</sup> Draft TOR p14.

- a. Land actively cleared by the Proponent's machinery.
  - b. Land that will be cleared due to the destruction of groundwater dependent ecosystems as a result aquifer drawdown. Groundwater extraction licence WDCP10358 is modelled to result in significant groundwater drawdown including in areas where groundwater dependent ecosystems are located: up to 50 metres in certain areas over 30 years.<sup>30</sup> This represents potentially significant land clearing. Where the baseline depth to groundwater is less than 15 metres:
    - i. 26% of alluvial GDEs and 13% of sandplain GDEs on the Singleton Station may be impacted; and
    - ii. 25% of alluvial GDEs and 15% of sandplain GDEs on the Central Plains Management Zone may be impacted after 40 years.<sup>31</sup>
  - c. Any land clearing associated with the photo voltaic solar power plant foreshadowed in the Proponent's Referral.
95. The Proponent's application for a land clearing permit currently only includes the clearing described in paragraph 93.a. That is contrary to the NT Land Clearing Guidelines (DENR 2019) which cover clearing *by any means*. The Proponent should be directed to seek a permit for all its land clearing activities.
96. Consideration only of the impacts of land clearing on atmospheric processes is unacceptably limiting. The draft TOR should be strengthened to require that the impacts of all land clearing (by any means) are considered for their potential impacts on:
- a. flora and fauna due to habitat loss;
  - b. earth disturbance and erosion;
  - c. changes to the hydrological regime due to those impacts, particularly given the impacts of flooding in the area;
  - d. residual impacts on land, soil and water quality values;
  - e. any other potential, together with cumulative impacts.

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<sup>30</sup> Paragraph 66 of the Statement of Decision by the Water Controller for the Singleton Licence dated 08.04.2021 (**Statement of Decision**). In her decision to grant the Singleton Licence on 15.11.2021, Minister Worden relied on the Statement of Decision.

<sup>31</sup> Paragraph 101 of the Statement of Decision

97. The CLC and its experts have identified serious legal, ecological and cultural deficiencies in the assumption that 30% of groundwater dependent ecosystems in the Western Davenport Water Control District can be impacted.<sup>32</sup> In summary:
- a. The threshold figure has no discernible scientific basis and according to the references provided is based entirely on incorrect interpretations from unrelated research with no relevance to the arid zone.
  - b. The Guideline does not take into account the relative value of groundwater dependent ecosystems, which means that 30% of the most ecologically and culturally significant groundwater dependent ecosystems could in theory be degraded or destroyed.
  - c. Groundwater dependent ecosystems are frequently associated with discrete sacred sites and broader cultural values. Under the *Northern Territory Aboriginal Sacred Sites Act* all sacred sites must be protected. No sacred sites can be damaged.<sup>33</sup>
  - d. There was no consultation with traditional owners or CLC at any stage during the Guideline's development. However, it does appear to have been developed in consultation with the Proponent, which stands to benefit from it. That raises questions of its propriety as well as its lack of scientific justification.
98. The CLC submits that the Proponent should not be permitted to place reliance on the Guideline in preparing its EIS. This is for two primary reasons:
- a. The lawfulness of the Guideline, and whether any reliance can be placed on it, is currently being challenged in the Northern Territory Supreme Court. Until that proceeding and any appeals are resolved, the Guideline should be considered of uncertain legal effect.
  - b. The starting point for the identification of environmental values should not be that 30% of them could be destroyed. Only by identifying all values and assessing them holistically can a complete picture of the state of the environment be obtained. That may require some "ranking" of dependent ecosystems to ensure that if any are destroyed, they are not those of highest "value". If reliance is placed on the Guideline too early in the process, that "ranking" of groundwater dependent ecosystems cannot properly take place.

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<sup>32</sup> As the *Guideline: Limits of acceptable change to groundwater dependent vegetation in the Western Davenport Water Control District* purports to allow

<sup>33</sup> s 35.

Atmospheric processes (including particulate matter, GHG and climate change, Section 2.5.4)

99. The draft TOR focus only on greenhouse gas emissions (GHG). Other impacts to air quality are not included. As a key factor of the NTEPA's EIA guidance<sup>34</sup>, air quality ought to be addressed in the EIS. Impacts upon air quality could include at minimum dust (arising from land clearing, cropping or otherwise) and chemical spray (such as aerial fertiliser or pest control).
100. The proposed GHG assessment is too ambiguous. Particular areas of uncertainty that require clarification or strengthening are:
- a. Benchmarking against other comparable projects: The only horticulture operations in the region are significantly smaller than the Project. Scaling such models requires careful consideration of the accumulation of uncertainties and assumptions used, and ensuring that the scaling accurately accounts for any compounding factors.
  - b. Industry standards and best practice: The draft TOR should be strengthened to require the Proponent to clearly describe the standards, emissions factors, assumptions and datasets used to create the model. The CLC recommends:
    - i. The use of the PAS-2050-1 Standard for the life cycle assessment of GHG emissions from horticultural products as best practice;
    - ii. Independent assessment as part of the EIS of the vegetation classification to calculate emissions from land clearing.
    - iii. Inclusion of Scope 3 emissions is appropriate given the scale of the project, including, fly-in-fly-out work force during harvesting, manufacturing emissions from fertiliser and herbicide production.
  - c. Clarifying the activity types to be included in calculating projected emissions intensity, for example: pre-establishment (drilling bores), establishment (land clearing, civil works), functioning (including all irrigation infrastructure, fuel combustion, growing crops, processing, refrigeration, onsite accommodation, internal traffic and plant movement, fertiliser usage, herbicide usage, pesticide usage)
  - d. Listing the key GHG to be monitored, including methane and refrigerants.

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<sup>34</sup> NTEPA, Environmental factors and objectives – Environmental impact assessment guidance, p.6

101. The EIS would also be more informative if the Proponent were asked to undertake a climate change risk assessment. That assessment should include risks to the Project as well as risks caused or increased by the Project. It should extend beyond the lifetime of the Project, until any impact from it is no longer apparent. The risk assessment should consider the role of groundwater dependent ecosystems as refugia as well as the cumulative impact of changing climate on groundwater dependent trees, soaks, springs and swamps.

Economy (Section 2.5.5)

102. The CLC is concerned that the NTEPA appears to accept the adequacy of the economic impact assessment included in the Referral. The CLC commissioned peer reviews of the Proponent's economic claims for the Project, including of the economic impact assessment itself.<sup>35</sup> Those reviews concluded that the Project's economic credentials:

- a. does not meet the Territory and Commonwealth governments' standards, nor does it adhere to guidelines for Economic Impact Assessment of proposed projects;
- b. used optimistic assumptions to estimate public benefits, leading to overstated public benefit forecasts;
- c. omitted social costs, including potential loss of groundwater-dependent cultural and spiritual benefits, thereby effectively assigning them a value of 'zero';
- d. did not account for the value of water entitlements that would be provided free of charge to the Proponent;
- e. used unsubstantiated assumptions about potential flow-on benefits, which suggests exaggerated flow-on impact estimates;
- f. overstate employment benefits, which questionably assumes that there is, currently, a large pool of available skilled labour in the Barkly Region; and
- g. contain vague statements about the Project's public service and benefit provision without providing any financial commitment to support these claims.

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<sup>35</sup> See **Connor, et al, 2022**. Review of the Singleton Horticulture Project's Water Entitlement Provision Costs, Benefits and Employment Impacts. Appendix N of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral.

**Grafton, Q (2022)**. Peer review of *Connor et al (2022)* Economic Analysis Report of the Singleton Horticulture Project. Appendix O of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral.

**Connor, et al, 2023**. Singleton Project Economic Impact Analysis Review in reference to the *Connor et al (2022)* Critical Review. Appendix O of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral

103. The Proponent should respond to those peer reviews in its EIS. The Proponent should be required to redo or at least update its economic impact assessment so that it:
- a. is done by an independent body;
  - b. meets Northern Territory and Commonwealth standards and conforms to guidelines for the Economic Impact Assessment of proposed projects;
  - c. accounts for the value of water entitlements that would be provided free of charge to the Proponent;
  - d. uses appropriate modelling methods to adjust for small region limited labour supply contexts;
  - e. includes scenario analysis, probabilistic calculations and other widely and typically applied tools for social benefit cost analysis;
  - f. described the methods applied and makes the results publicly available; and
  - g. require ongoing independent assessment of any negative impacts over the course of the Project.

**E. CONSULTATION, CONCLUSION AND CONTACTS**

104. When the EIS is published for public comment, the CLC will need to hold consultations with large groups of the Aboriginal stakeholders. Those consultations will be intense and require planning. That is not always possible during short consultation periods. The CLC recommends that an extended 90 day consultation period be adopted instead of the usual 30 or 60 days period. If such an extension is not permitted, then the CLC asks that 30 days advance notice be given of the impending release of the EIS and, if possible, an advanced draft of it. That will assist us to prepare for complex consultations.
105. It will also be important for the EIS to include a diagrammatic, plain English summary, and for a copy to be displayed at the CLC's office in Tennant Creek.
106. Measures cannot be designed to avoid, mitigate or manage significant impacts that are not understood. The level of confidence in such measures would be increased if the identified gaps in the draft TOR are filled as proposed. The CLC urges the NTEPA to strengthen the terms of reference for the Proponent's EIS in the manner marked up in the Amended TOR in Annexure A.

107. CLC would welcome further discussion with the NT EPA about any matter outlined in this submission. Please contact either of the following staff members should the NTEPA wish to take up that offer.

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**CENTRAL LAND COUNCIL**

**ANNEXURE A**

# Draft Terms of Reference for an Environmental Impact Statement (EIS)

## Singleton Horticulture Project

Fortune Agribusiness Funds Management Pty Ltd

Singleton Station, Barkly Region

August 2023

*Annexure A: Amended TOR proposed by the CLC*

<b>Proposal :</b>	Singleton Horticulture Project
<b>Proponent:</b>	Fortune Agribusiness Funds Management Pty Ltd
<b>NT EPA Reference:</b>	NTEPA2022/0163
<b>Location:</b>	Singleton Station, Davenport, Northern Territory
<b>Local Government Area:</b>	Barkly Region
<b>Public consultation period:</b>	Draft Terms of Reference – 15 business days

Further information and guidance on the environmental impact assessment process is available on the NT EPA website at: <http://www.ntepa.nt.gov.au>

<b>Document title</b>	Draft Terms of Reference for an Environmental Impact Statement (EIS)
<b>Document type</b>	Terms of Reference
<b>Version</b>	0.2
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<b>TRM number</b>	NTEPA2022/0163-012~0020

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# 1. Introduction

## 1.1. Overview

The *Singleton Horticulture Project* (the proposal) proposed by Fortune Agribusiness Funds Management Pty Ltd (FAFM) (the proponent) is being assessed by the Northern Territory Environment Protection Authority (NT EPA) under the *Environment Protection Act 2019* (EP Act) at the level of an Environmental Impact Statement (EIS).

These Terms of Reference (TOR) set out the matters relating to the environment that are to be addressed in the EIS for this proposal, in accordance with regulations 98(1)(a) and 98(2) of the Environment Protection Regulations 2020 (EP Regulations). The EIS must also address all requirements in the [NT EPA guidance: Preparing an environmental impact statement \(NT EPA 2021\)](#).

A list of relevant guidance material and references is provided at Appendix A.

The proposal involves development of a large irrigated fruit and vegetable farm on Singleton Station, approximately 130 km south of Tennant Creek and about 35 km northeast of Ali Curung in the Barkly region.

The proposed activities, as outlined in the referral, include:

- clearing of 4,037 hectares of native vegetation on pastoral land
- development of 3,300 ha of irrigated crops
- groundwater extraction of up to 40,000 megalitres per year, from 144 bores, subject to development over four stages including gradual increase in extraction rates<sup>1</sup>
- a services hub including:
  - accommodation for approximately 150 permanent staff and families, and up to 1,350 seasonal staff
  - packing facilities, cold storage and machinery workshops
  - telecommunications infrastructure
  - potential future power station
  - waste and water services
- access tracks, fences and fire breaks
- upgrade of power transmission from Tennant Creek.

The proponent has advised the NT EPA that the operational life of the farm is planned for 30 years<sup>1</sup>.

Further details of the proposal and its assessment are on the [NT EPA's website](#). This includes:

- the referral, including extensive reporting on investigations already undertaken
- submissions received on the referral
- the notice of decision and statement of reasons for the NT EPA's decision for assessment by EIS.

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<sup>1</sup> In accordance with groundwater extraction licence WDGP10358

## 1.2. Assessment context

Separate to the assessment under the EP Act, the proponent holds water extraction licence WDCP10358 for the proposal under the *Water Act 1992* and is progressing approvals for non-pastoral use and land clearing under the *Pastoral Land Act 1992*. This is in accordance with indicative [approvals mapping](#) by the Department of Environment, Parks and Water Security. The grant of water extraction licence WDCP10358 has been challenged in the Northern Territory Supreme Court. Judgment in that challenge is reserved.

The proponent also holds authority certificate C2019/083, pursuant to the *Northern Territory Aboriginal Sacred Site Act 1989*, for proposed works associated with agricultural land use within Singleton Station. The authority certificate includes conditions stating no damage may occur to the sacred sites featured on the certificate. It does not cover areas and sacred sites outside of Singleton Station.

These TOR recognise the investigations undertaken to date, extensive information provided in the referral, and the existing regulatory instruments that apply to the proposal, and focus on the information required in the draft EIS to inform the NT EPA's assessment of potential significant impacts in accordance with the EP Act and EP Regulations.

Some of the information required by these TOR overlaps with information that the proponent is required to provide to meet conditions precedent of its water extraction licence. These are conditions that must be fulfilled prior to any water entitlement taking effect. For clarity, these overlaps are referenced throughout these TOR using footnotes pointing to Appendix B which provides further explanation on related condition precedent (CP).

## 1.3. Assessment period

The specified assessment period within which the draft EIS is to be submitted to the NT EPA, in line with regulation 99 of the EP Regulations, is two years from the date these TOR were issued or the status of WDCP10358 is finally resolved, whichever is later. In determining this assessment period, the NT EPA has considered the matters listed under EP Regulation 99(3).

# 2. Matters to be addressed in the EIS

The EIS must address section 4 of the [NT EPA guidance: Preparing an environmental impact statement](#). Specific information requirements for this proposal are outlined below.

## 2.1. Executive Summary of the draft EIS

A summary of the draft EIS is required as part of the EIS documentation. The summary should be written as a stand-alone document, able to be provided on request to interested parties who may not wish to read the full draft EIS.

The summary should provide the following at a minimum:

- a plain English, diagrammatic summary version
- a clear and concise overview of the proposal including proponent, proposal lifespan, key components, development stages, activities, the potentially affected area, and appropriate map/s
- a summary of the key environmental values in the potentially affected area
- a summary of the potential environmental impacts of the proposal on the identified values

- a summary of measures to avoid, mitigate and offset (if applicable) potential impacts of the proposal, with a clear and measurable outcomes for environment protection
- a summary of the intended future use of the site and rehabilitation outcomes
- a summary of stakeholder engagement undertaken and commitments to future stakeholder engagement.

## 2.2. Proposal description

### 2.2.1. Operations

Provide a clear, updated, description of the proposal and the full scope of works for which approval is sought. The proposal description should include:

- summary table/s listing the key components of the proposal (including known or planned future components that are not included in the current referral), and their maximum spatial extent or quantity, using appropriate parameters; including the matters outlined in Table 1
- any changes, amendments or refinements to the proposal or its components since submission of the referral<sup>2</sup>
- for any uncertainty in the detailed design, footprint, capacity or lifespan of the proposal or its components, a clear explanation of the approach to resolving this uncertainty.

**Table 1 Minimum information requirements for the proposal description**

Topic	Required information
Site layout maps	<p>Provide a high-quality contemporary aerial view of the proposal area to describe current site conditions including existing disturbance.</p> <p>Show the location and dimensions of the proposal components, clearly identifying the areas of:</p> <ul style="list-style-type: none"> <li>• existing disturbance, infrastructure, roads/tracks, natural and modified landforms / landscape features</li> <li>• new disturbance and infrastructure, including: <ul style="list-style-type: none"> <li>○ all areas to be cleared and/or disturbed <u>by any means (including by drawdown of groundwater)</u></li> <li>○ designated horticultural plots</li> <li>○ borefield</li> <li>○ access roads and tracks</li> <li>○ service corridors and firebreaks</li> <li>○ windbreaks</li> <li>○ accommodation village</li> <li>○ services hub</li> <li>○ other structures and facilities</li> <li>○ stormwater drainage</li> <li>○ wastewater management and disposal facilities</li> <li>○ storage areas for chemicals and hazardous substances (including fuel)</li> <li>○ <u>waste storage and management facilities, including temporary stockpiles and permanent landfills</u></li> <li>○ <u>future, planned infrastructure which has not been included in the referral</u></li> </ul> </li> </ul>

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<sup>2</sup> Noting that the NT EPA must be formally notified of any significant variations under section 51 of the EP Act

Topic	Required information
Operation	<p>Describe all components and activities of the proposal, including:</p> <ul style="list-style-type: none"> <li>• vegetation clearing <u>by any means</u>, and site preparation</li> <li>• infrastructure – location, size and type</li> <li>• facility functional design – where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts</li> <li>• chemicals and hazardous substances (including fuel) required - major types, quantities, and key hazards</li> <li>• proposal stages and timeframes, including the operational life of the farm</li> </ul>
Water	<p>Describe all water requirements relevant to each proposal component and stage of development. Provide detailed information on demand/volume required, storage, and wastewater management. Demonstrate that the waste management hierarchy has been applied during the design of the proposal and will be applied to water management throughout the life of the proposal. Provide an overall site water balance for the proposal.</p>
Transport and traffic	<p>Provide a summary of traffic and transport activities, and their management, including any update on the information provided in the referral (section 7.6.1 and Appendix V).</p>
Energy	<p>Provide relevant information including:</p> <ul style="list-style-type: none"> <li>• energy requirements, source/s, and upgrade of existing infrastructure</li> <li>• options for sourcing energy from renewable sources, with a preferred option and justification for the selected option <u>and if such renewable sources are to be built by the proponent, their location</u></li> </ul>
Waste	<p>Describe the overarching approach to waste management, confirming the key waste infrastructure that will be used<sup>3</sup>.</p> <p>Describe the proposed onsite waste management and storage facilities for all waste streams including waste horticultural produce. Include capacity, location, site-selection considerations, and measures to contain any leachate or gases.</p> <p>Demonstrate that the waste management hierarchy has been applied during the design of the proposal and will be applied to waste management throughout the life of the proposal.</p>
Workforce	<p><u>Provide a summary of the following, for each proposal stage Describe the overarching approach to the management of workforce, including:</u></p> <ul style="list-style-type: none"> <li>• estimated number of permanent and seasonal employees and contractors</li> <li>• estimated number of people to be accommodated on site, including families of employees and contractors</li> <li>• skills base required</li> <li>• likely sources (local, regional, Australia-wide, overseas) <u>and the proportion of each source</u></li> <li>• <u>proposed on-site facilities for employees</u></li> <li>• <u>effect of competition for labour on other local and regional businesses</u></li> <li>• <u>training and support to be provided to maximise employment of (a) local and (b) Territory workers in permanent and seasonal jobs</u></li> <li>• <u>proposed staff training program, including in remote living, cultural awareness, use of drugs /</u></li> </ul>

	<u>alcohol, disease and infection control</u>
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<sup>3</sup> Noting that Appendix B of the referral suggested consideration of a lined onsite landfill, a waste transfer station, and an onsite organics processing facility.

### 2.2.2. Potentially affected area

Delineate the potentially affected area of the proposal, taking into account the area of proposed works plus all areas of potential impact from groundwater drawdown (~~maximum extent~~ including both maximum depth and areal spread, and accounting for modelling uncertainty), potential increased salinity and potential downstream effects, with a suitable buffer to allow for uncertainty.

Provide maps showing:

- the extent of this potentially affected area alongside key regional features.
- current land tenure, land use, and native title in the potentially affected area
- other interests in land such as minerals and petroleum
- sensitive environment, including towns, communities, homesteads and residences and any sites of conservation significance, cultural values, aquatic and groundwater dependent ecosystems within the potentially affected area.

### 2.2.3. Proponent

Provide information about the proponent (and the proponent's key personnel) including:

- experience in the agricultural industry
- any environmental history
- partnerships or anticipated relationships or contracts with other organisations or industries as part of the proposal, and their environmental history
- notification/disclosure of offences, or any non-compliances with state/territory or Commonwealth environmental approval conditions.

### 2.2.4. Alternatives

Provide a discussion on alternative horticultural practices that have been considered, in the context of:

- addressing the principle of sustainable use including in relation to water-use
- addressing the environmental decision-making hierarchy
- accounting for uncertainty of securing increases in staged water entitlements.

### 2.2.5. Restoration

Describe actions that will be taken to manage land within Singleton Station and reduce existing threatening processes, as committed to in section 7.1.2.4 and relevant appendices of the referral, and with reference to section 2.4.2 of these TOR.

### 2.2.6. Transition to post-proposal land-use

Provide information on the transition to future land-use following cessation of the proposal. This is to include:

- intended future land-use/s in accordance with the *Pastoral Land Act 1992*
- arrangements for the transition to the new land-use in the cases of:
  - planned cessation of the proposal

- unplanned early cessation of the proposal, for any reason including inability to secure increases in staged water entitlements
- concept map/s indicating future land-use/s of the proposal area and any infrastructure that may remain
- a description of any legacy benefits of the proposal to the community such as renewable power and water supply
- a description of decommissioning and rehabilitation of the land, including any rehabilitation objectives
- a description of how the post proposal land use will consider the *Northern Territory Aboriginal Sacred Site Act 1989* (NT)
- where rehabilitation objectives do not include returning land to a natural and/or stable state, or where Aboriginal cultural values will not be able to be enjoyed as they were before the proposal commenced, explanation of why and outline methods to identify and achieve best outcomes
- provisions to finance the transition to future land-use in the event of planned or unplanned proposal cessation
- plan for consultation with stakeholders about the closure proposals.

## 2.3. Stakeholder engagement and consultation

The EIS is include an ongoing stakeholder engagement plan and to document the following:

- the proponent's approach to stakeholder engagement and consultation for the life of the proposal<sup>4</sup>, including demonstration that this is consistent with the NT EPA's guidance for proponents: [Stakeholder Engagement and Consultation \(NT EPA 2021\)](#) and aligns with best-practice guidance<sup>5</sup>
- a summary of information presented in the referral on consultation undertaken up until mid-2022, including identified stakeholder groups, key issues raised, and adjustments made to the proposal as a result of consultation.
- details of further stakeholder engagement and consultation undertaken on the proposal, including with Aboriginal stakeholders as outlined in section 2.3.1 below, with detail on:
  - additional identified stakeholders
  - the manner in which information has been disseminated and communicated to stakeholders, and how stakeholder input was invited and incorporated
  - key issues raised in consultations

any adjustments to the proposal as a result of consultation

### 2.3.1. Aboriginal stakeholders

The EIS is to be informed by consultation with Aboriginal stakeholders. The EIS should set out the processes applied to identifying and determining Aboriginal stakeholders.

Consultations are to take place as part of a best practice, fit for purpose cultural and social impact assessment, specifically designed for this project and funded by the proponent. The design, terms and output of that assessment are to be determined by the Central Land Council and Aboriginal stakeholders, with input from the proponent. The assessment is to take place only after the legal status of the proponent's

groundwater extraction licence is certain. That means waiting until after: judgment in the current litigation about groundwater extraction licence WDCP10358, any appeal from judgment in that litigation, any issue of a substitute or new groundwater extraction licence to the proponent and any challenge to a substitute or new licence.

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<sup>4</sup> Inclusion of a stakeholder engagement plan would be appropriate, noting that the referral indicated that the proponent intends to prepare a Community and Stakeholder Engagement Strategy for future consultation.

<sup>5</sup> For example: [NSW Social Impact Assessment Guideline](#) (2021) that was used by the proponent in preparation of the social impact assessment included in the referral (Appendix I).

Aboriginal stakeholders must include:

- native title holders of Singleton Station, whose prescribed body corporate is the Mpwerempwer Aboriginal Corporation RNTBC
- native title holders of Neutral Junction Station, ~~within~~ whose prescribed bodies corporate are is the Kaytetye Tywerate Arengge Aboriginal Corporation RNTBC and the Eynewantheyne Aboriginal Corporation RNTBC
- traditional Aboriginal owners whose lands are within the potentially affected area, including the Iliyarne, Warrabri and Karlantijpa South Aboriginal Land Trusts, administered by the Central Land Council
- residents of Ali Curung and surrounding outstations
- Aboriginal run businesses in the potentially affected area, including but not limited to Alekarengge Horticulture Pty Ltd, Centrefarm Aboriginal Horticulture Limited and Aboriginal Land Economic Development Agency Pty Ltd
- the Central Land Council
- other people or organisations determined to be Aboriginal stakeholders.

If those stakeholders are represented by another organisation, any planned consultations must be notified to that representative. If the representative, on instructions from the stakeholders, says that consultations need to be facilitated through it, then the proponent must accept that and contribute to its reasonable cost.

The EIS is to describe the Aboriginal stakeholders and demonstrate how the proponent has:

- recognised the role of Aboriginal people as stewards-custodians of their country
- recognised the rights and interests of Aboriginal stakeholders in the area of potential impact, and encouraged their participation in environmental decision-making in relation to the proposal
- enabled Aboriginal stakeholders (and in particular affected native title holders and traditional owners) to make decisions about the proposal
- engaged with Aboriginal stakeholders in a culturally appropriate manner, using specialist expertise where required
- provided Aboriginal stakeholders with information in appropriate detail, language and format<sup>6</sup> for understanding of the proposal and its potential impacts and benefits
- promoted the cooperative use of Aboriginal knowledge of biodiversity and Aboriginal culture in environmental decision-making
- treated the views of Aboriginal stakeholders as the primary source of information on Aboriginal cultural values
- discussed options with, and obtained the views of, Aboriginal stakeholders in regards to environmental management and cultural heritage management
- adopted measures to protect the rights and interests of Aboriginal people in relation to the areas that may be impacted
- undertaken cultural and social baseline studies to describe the cultural and social context if the proposal were not to proceed

The EIS should also document how the proponent has made Aboriginal stakeholders aware of the proponent's understanding and consideration of the consultations and documentation of cultural values and sacred sites that have already undertaken.

## 2.4. Environment protection and management requirements

Provide information that demonstrates, in accordance with section 42(b) of the EP Act, that the proposal is assessed, planned and will be carried out taking into account the following:

### 2.4.1. Principles of ecologically sustainable development

Substantiate predicted outcomes in relation to the principles of ecologically sustainable development as set out in Part 2, Division 1, of the EP Act.

### 2.4.2. Management hierarchies

Summarise how the environmental decision-making hierarchy (section 26 of the EP Act) and the waste management hierarchy (section 27 of the EP Act) have been applied in the design of the proposal and will

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<sup>6</sup> Provide descriptions and possibly-representative examples of ~~any~~ specialist materials used

continue to be applied in the development and operation of the proposed action. Draw on details reported in response to Table 1, and in the assessment of environmental factors in section 2.5, of these TOR.

### 2.4.3. Ecosystem-based management

Describe how ecosystem-based management<sup>7</sup> has been taken into account in the design of all components of the proposal and the proposed mitigation and management measures. Include consideration of residual impacts (section 2.5) and justification for whether they are acceptable.

### 2.4.4. The impacts of a changing climate

Provide a summary of the projected climate changes in the region over the life of the proposal, and any continuing impact the proposal will have after its closure, referring to relevant publications. Describe how adaptation to a changing climate has been considered in the design of the proposal.

In assessing the environmental factors (section 2.5 of these TOR, and applying relevant references – see Appendix A), include the effect of projected climate changes on identified environmental values, and on mitigation measures.

## 2.5. Information requirements for environmental factors

Table 2 identifies the environmental factors<sup>8</sup> that must be addressed in the EIS.

**Table 2 Preliminary environmental factors that must be addressed in the draft EIS**

THEME	FACTOR	ENVIRONMENTAL OBJECTIVE
Water	Hydrological processes	Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare, <u>culture</u> and amenity of people are maintained.
	Inland water environmental quality	Protect the quality of groundwater and surface water so that environmental values including ecological health, <u>aquatic ecosystems</u> , land uses and the welfare, <u>culture</u> and amenity of people are maintained.
Land	Terrestrial environmental quality	Protect the quality and integrity of land and soils so that environmental ( <u>including cultural</u> ) values are supported and maintained.
	Terrestrial ecosystems	Protect terrestrial habitats to maintain environmental values including <u>culture</u> , biodiversity, ecological integrity and ecological functioning.
Air	Atmospheric processes	Minimise greenhouse gas emissions so as to contribute to the NT Government’s target of achieving net zero greenhouse gas emissions by 2050.
People	Community and economy	Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.
	Culture and Heritage	Protect culture and heritage, <u>including safeguarding cultural practises in accordance with the Burra Charter Practise note on intangible values</u> .

<sup>7</sup> As defined in section 4 of the EP Act

<sup>8</sup> NT EPA’s [Environmental factors and objectives – Environmental impact assessment guidance](#)

For each of the factors listed in Table 2, the draft EIS should identify and examine:

- potential impacts of the proposal with reference to section 10 of the EP Act, including cumulative impacts in consideration of other known or proposed activities in the region, potential natural disasters such as fire, flood or drought, and the influence of a changing climate
- the significance of the identified potential impacts with reference to section 11 of the EP Act<sup>9</sup>, including consideration of non-standard operations.

If additional potential environmental impacts are identified through the environmental impact assessment process, they must also be included in the draft EIS, even if this requires addressing additional environmental factors not specified in Table 2.

The following sections outline the information to be addressed in the draft EIS for the preliminary environmental factors (Table 2). For each environmental factor addressed, the draft EIS is to include (as applicable) appropriately detailed maps and figures to support the descriptions and findings, with any technical assessment reports as appendices.

### 2.5.1. Hydrological processes

The context for this factor assessment is the potential for the proposal to significantly impact environmental values associated with this and other factors, due to groundwater extraction and associated changes in the hydrological regime of groundwater and surface water, including impacts on water quantity and quality.

The draft EIS is to cover all matters in Table 3 for addressing the NT EPA objective for this factor: Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare, culture and amenity of people are maintained.

**Table 3 Minimum information required for the assessment of Hydrological processes**

Aspect	Specific information required
Environmental values	<p>Describe the existing groundwater regime in the potentially affected area. <u>Include reference to reviews of hydrological work referred to in the groundwater licence application and referral documentation.</u><sup>9a</sup> This is to expand on section 5.8.1 of the referral and include reference to field investigations on aquifer characteristics<sup>10</sup>.</p> <p>Include:</p> <ul style="list-style-type: none"> <li>• map/s of depth to groundwater (of the source aquifer of water extraction) over the area of potential impact, including an indication of short- and long-term variability. <u>This should cover the entire potentially affected area, and be based on measured data at both representative and sensitive locations (including but not limited to groundwater dependent ecosystem (GDE) and potential GDE locations).</u></li> <li>• information on groundwater flow direction and rates</li> <li>• information on hydrological connectivity, including with the ground surface via springs, swamps, <u>aquatic and terrestrial</u> groundwater dependent ecosystems, or other</li> <li>• information on recharge zones, rates and variability.</li> </ul> <p>Report on the occurrence of stygofauna, classified into taxonomic groups, based on field sampling and assessment of existing bores and new bores associated with the water resource assessment outlined below.</p>

<sup>9</sup> Having regard to the context and intensity of the impact; and the sensitivity, value and quality of the environment impacted on and the duration, magnitude and geographic extent of the impact.

<sup>9a</sup> Including *Vogwill, R (2021)*, *Vogwill. R and De Sousa (2023)* and *Vogwill. R (2023)*, listed in Annexure A

<sup>10</sup> See Appendix B – CP 9

Aspect	Specific information required
Potential significant impacts and risks	<p>Update the groundwater model<sup>11</sup> taking into account results of field investigations and any update to the borefield design. Report on assumptions and parameters used in the model, and justification for their use, referring to relevant literature <u>and following relevant modelling guidelines</u>.</p> <p>Discuss the drawdown predictions (<u>rate, areal extent and magnitude</u>) derived from the groundwater model and how these may change in the event critical assumptions (including transmissivity, hydraulic conductivity, <u>recharge, anisotropy, aquifer connectivity</u> and porosity/<u>confined storage</u>) were found to be incorrect. <u>This should be undertaken with a dedicated sensitivity and predictive uncertainty analysis. It should not rely on a single, best estimate of drawdown rate, magnitude or extent.</u></p> <p>Document the predicted effects (<u>including at least the expected, best and worst cases</u>) of groundwater extraction on the groundwater hydrological regime. Quantify the significance and extent of impacts at the proposal level and cumulatively with other approved and proposed water extraction in the Western Davenport Water Control District. <u>This should include both water quantity and water quality impacts.</u></p> <p>Predictions are to address the following across the proposal area and drawdown area:</p> <ul style="list-style-type: none"> <li>• changes to groundwater levels, including spatial and temporal variation</li> <li>• groundwater flow direction and rates</li> <li>• <u>groundwater level recovery-time following the cessation of water extraction</u></li> <li>• <u>impacts on water quality</u></li> </ul> <p>Predictions should consider the maximum expected water extraction and account for variability in the natural system, based on available data and including scenarios for extended periods of dry, average, and wet <u>climactic</u> conditions, represented by ten, fifty and ninety percent probabilities of rainfall. The methodology for doing this is to be developed in consultation with the Water Resources Division of the Department of Environment, Parks and Water Security (DEPWS) <u>and be based on methodologies approved in peer reviewed literature</u>.</p> <p>Provide the following predictive outputs for maximum water extraction compared with the natural system:</p> <ul style="list-style-type: none"> <li>• <u>maps of groundwater drawdown contours at 5-yearly intervals until such time as the groundwater systems has stabilised</u></li> <li>• <u>map should have contours at 1m intervals for the first 10m of drawdown and thereafter at 5m intervals</u></li> <li>• drawdown levels <u>through time (hydrographs)</u> at key receptors (<u>including other bore users, terrestrial GDEs, aquatic GDEs, sites and areas of cultural significance</u>).</li> </ul> <p>Provide an independent peer review of the groundwater model, <u>sensitivity and predictive uncertainty analysis</u> and predictions derived from it and detail any changes made to the proposal as a result of the peer review.</p> <p>Discuss the potential impacts from groundwater extraction on the occurrence of stygofauna.</p> <p>Describe any uncertainties and further work required to increase understanding of the changes to the hydrological regime and potential impacts to <u>all aquatic and terrestrial ecosystems (including the occurrence of stygofauna) and its effect on biodiversity and cultural values</u>.</p>

Avoidance, mitigation and management	<p>Conduct a robust analysis of the impacts of new alternative borefield designs including expanding the area of the borefield or splitting the borefield into multiple smaller fields <u>or relocating the borefield in accordance with an adaptive management plan</u>. Report on the borefield designs considered and demonstrate how the selected option is preferable on environmental impact grounds, or justify why the lowest impact option was not selected.</p> <p>Provide an updated adaptive management plan<sup>12</sup> that is detailed, specific and comprehensive, in accordance with <a href="#">NT EPA's guidance on adaptive management</a> and <a href="#">peer reviewed literature</a>.<sup>12a</sup> <u>The adaptive management plan should address</u> potential impacts from alterations to the hydrological regime on environmental values identified in the draft EIS <u>and include thresholds beyond which groundwater extraction ceases entirely</u>.</p>
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<sup>11</sup> Expected to be class II model in accordance with: Barnett et al, 2012, [Australian groundwater modelling guidelines](#), Waterlines report, National Water Commission, Canberra.

<sup>12</sup> See Appendix B – CP 7

<sup>12a</sup> Including Thomann, J.A., Werner, A.D. and Irvine, D.J., 2022. Developing adaptive management guidance for groundwater planning and development. Journal of Environmental Management, 322, p.116052

Aspect	Specific information required
	<p>Demonstrate that mitigation measures align with best-practice and advice from relevant government advisory authorities.</p> <p>Provide an independent peer review of the updated adaptive management plan, and detail any changes made to the plan as a result of the peer review.</p>
Monitoring and reporting	<p>Provide a robust monitoring and reporting plan<sup>13</sup> relating to changes to the hydrological regime. This may be part of, or linked with, the adaptive management plan, and must:</p> <ul style="list-style-type: none"> <li>• specify monitoring parameters, locations, and frequency of monitoring across proposal stages</li> <li>• demonstrate that the proposed monitoring locations are appropriately sited for access by the proponent and for monitoring potentially significant impacts</li> <li>• demonstrate that monitoring and reporting activities align with best practice, <u>peer reviewed literature</u> and advice from relevant government advisory agencies <u>and other key stakeholders</u><sup>13a</sup>.</li> </ul>
Residual impact	<p>Explain how the NT EPA’s objective, to protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained, will be met.</p> <p>Identify any significant residual impact of the proposal on the hydrological regime and dependent environmental values.</p>

### 2.5.2. Inland water environmental quality and terrestrial environmental quality

The context for the assessment of these factors is the potential for the proposal to significantly impact inland water environmental quality and terrestrial environmental quality through irrigation salinity, changes to the hydrological regime, earth disturbance, erosion, and the release of agricultural chemicals.

The EIS is to cover all matters in Table 4 for addressing the NT EPA objectives for this factor to protect:

- the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare, culture and amenity of people are maintained
- the quality and integrity of land and soils so that environmental (including cultural) values are supported and maintained.

**Table 4 Minimum information required for the assessment of Inland water environmental quality and terrestrial environmental quality**

Aspect	Specific information required
Environmental values	<p>Provide a map/s showing groundwater and surface water systems in the potentially affected area.</p> <p>Document the following, using appropriate parameters for physical, chemical and biological characteristics:</p> <ul style="list-style-type: none"> <li>• soil types and quality (including salinity) based on field observations <u>and historical records</u> in the proposal area</li> </ul>

<sup>13</sup> See Appendix B – CP 8

<sup>13a</sup> Including the Aboriginal stakeholders identified in section 2.3.1

Aspect	Specific information required
	<ul style="list-style-type: none"> <li>• groundwater quality, based on field observations <u>and historical records</u> in the potentially affected area</li> <li>• surface water quality, <u>based on field observations and historical records</u>, in the potentially affected area.</li> </ul> <p><u>In the documentation and incorporation of field observations, consider the naturally occurring levels of salinity in the soils within the unsaturated zone below 3m</u></p> <p>Appropriately reference and analyse the field studies and other information used in the assessment.</p> <p><u>Prepare, and have peer reviewed, an assessment identifying the groundwater dependent aquatic ecosystems in the potentially affected area.</u></p>
Potential significant impacts and risks	<p>Update the salinity assessment reported in Appendix L of the referral<sup>14</sup>. The update is to:</p> <ul style="list-style-type: none"> <li>• incorporate field observations</li> <li>• take into account salts in the leached irrigation water</li> <li>• assess the cumulative impacts of accumulated salts over the life of the proposal</li> <li>• <u>consider the increase in salinity of the water that is applied due to evapotranspiration, and, therefore the likely increase to the salinity of irrigation drainage</u></li> <li>• <u>account for how regional groundwater flow may be affected by climate fluctuations</u></li> <li>• <u>incorporate the effect of other contaminants, including nutrient and agricultural chemicals via infiltration or runoff</u></li> <li>• <u>describe the impact of salinity and other contaminants on ground and surface water quality.</u></li> </ul> <p>Determine the rate and direction of movement of the salt plume using a 3-D solute transport model. <u>Expand the potentially affected area, if necessary, to incorporate the full extent of the salt plume.</u></p> <p>Quantify predicted changes to salinity that may result from the proposal. Discuss the likelihood and extent of salinity impacts. Include maps and/or diagrams illustrating any substantial predicted increase in salinity, with a focus on areas where vegetation may access the water and/or soil.</p> <p>Assess the potential significant impacts from the proposal on soil, surface water and groundwater quality from earth disturbance, erosion, and the release of <u>nutrients or agricultural chemicals via infiltration or runoff</u>. This assessment is to take into consideration:</p> <ul style="list-style-type: none"> <li>• spatial and temporal trends in climate, including predicted climate change</li> <li>• the chemical characteristics of agricultural chemicals</li> <li>• baseline conditions and identified environmental values</li> <li>• current stressors and cumulative impacts with other proposals or activities in the region.</li> <li>• site specific water quality data and any relevant guideline thresholds including ANZECC &amp; ARMCANZ 2018</li> <li>• reversibility of potential impacts.</li> </ul> <p>Discuss potential significant impacts on the occurrence of stygofauna from any alteration of water quality, including salinity, and provide an assessment of the significance of these impacts.</p>

	<p>Describe a process for identifying future unanticipated significant impacts. Refer to any relevant sections and content of an updated adaptive management plan.</p> <p><u>Prepare, and have peer reviewed, an assessment of the impact of the proposal on groundwater dependent aquatic ecosystems in the potentially affected area.</u></p>
Avoidance, mitigation and management	<p>Describe the measures for avoiding, mitigating and managing impacts on land and water environmental quality.</p> <p>Include consideration of measures to prevent the accumulation of salts in soil and water beneath <u>and beyond</u> the irrigation area.</p> <p>Demonstrate the application of the environmental decision-making hierarchy to avoid and minimise impacts on land and water environmental quality.</p> <p>Demonstrate that mitigation measures align with best practice and advice from relevant</p>

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<sup>14</sup> See Appendix B – CP 6

Aspect	Specific information required
	<p>government advisory agencies.</p> <p>Where avoidance, mitigation and management measures form part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p> <p>To take account of <b>and document</b> any uncertainty on the existence of values or potential impacts on known values, demonstrate how management measures meet the precautionary principle (section 19 of EP Act).</p>
Monitoring and reporting	<p>Outline proposed monitoring and reporting activities related to potential significant impacts to land and water environmental quality, and measures for their mitigation and management.</p> <p>Demonstrate that monitoring and reporting activities align with best practice, and are consistent with advice from relevant government advisory agencies <b>and other key stakeholders</b>.<sup>14a</sup></p> <p>Where monitoring and reporting activities form part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p>
Residual impact	<p>Explain how the NT EPA's objective, to protect the quality of groundwater and surface water and to protect the quality and integrity of land and soils so that environmental values are maintained, will be met.</p> <p>Identify any significant residual impact of the proposal to land, soil and water quality values. <b>Include low and moderate impacts that cumulatively amount to significant impacts.</b></p>

### 2.5.3. Terrestrial ecosystems

The context for this assessment is largely the anticipated changes to the hydrological regime as a result of the proposal, as addressed in section 2.5.1 of these TOR. In addition, potential impacts on inland water environmental quality and terrestrial environmental quality have the potential to values associated with this factor.

The EIS is to cover all matters in **table 5** for addressing the NT EPA objective for this factor: to protect the NT's flora and fauna so that environmental values including **culture**, biological diversity and ecological integrity are maintained.

**Table 5 Minimum information required for the assessment of Terrestrial ecosystems**

Aspect	Specific information required
Environmental values	<p>Provide updated information on groundwater dependent ecosystems (GDEs)<sup>15</sup>. The update is to:</p> <ul style="list-style-type: none"> <li>• be informed by on-ground surveys</li> <li>• be prepared by a suitably qualified professional</li> <li>• draw on studies of the groundwater system</li> <li>• include information on:</li> </ul>

<sup>14a</sup> **Including the Aboriginal stakeholders identified in section 2.3.1**

<sup>15</sup> See Appendix B – CP 5

Aspect	Specific information required
	<ul style="list-style-type: none"> <li>○ spatial extent of GDEs <u>(including areas GDEs could develop)</u> in the potentially affected area</li> <li>○ the source of water sustaining the GDEs</li> <li>○ <u>metrics indicating the condition and value of GDEs<sup>16</sup></u></li> <li>○ <u>the relative importance of the GDEs, having regard to their cultural, biodiversity and other environmental significance and their role in the potentially affected area and across the region</u></li> <li>○ <u>threatened species habitat (actual or potential)</u></li> </ul> <p>Document the location of any sensitive and significant vegetation and wetlands<sup>17</sup> within the potentially affected area.</p> <p><u>Undertake field surveys of flora and fauna across the potentially affected area, including at a time when the highest baseline level of biodiversity is likely to be recorded. In undertaking surveys, be guided by peer reviewed research on refugia and undertake a peer review of the survey methodology and results.<sup>17a</sup></u></p> <p><u>Identify the extent and location of land clearing likely to occur by any means, including groundwater drawdown.<sup>17b</sup></u></p>
Potential significant impacts and risks	<p>Provide a summary of all pathways of potential significant impact <u>(including low and moderate impacts where the cumulative effect may be significant)</u> on the identified terrestrial ecosystem values including:</p> <ul style="list-style-type: none"> <li>● drawdown of the water table – effects on GDEs <u>and the potential for GDEs to develop in the future</u></li> <li>● <u>potentially increased groundwater salinity – effects on GDEs, sensitive and significant vegetation, and wetlands</u></li> <li>● <u>surface water impacts from increased or decreased water distribution and/or water quality impacts</u></li> <li>● <u>land clearing, by any means</u></li> </ul> <p>Using appropriate studies, investigations and relevant information, quantify the extent of potential impacts and their significance locally and regionally. <u>Include in the assessment, cumulative impacts from past and present activities in the potentially affected area. Link that assessment to identified environmental and cultural values.</u></p> <p>Describe a process for identifying future unanticipated impacts. If this forms part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p> <p><u>Prepare, and have peer reviewed, an assessment of the impact of the proposal on groundwater dependent terrestrial ecosystems (including, trees, soaks, springs and swamps) in the potentially affected area.</u></p> <p><u>Demonstrate that destruction of up to 50km of grey falcon, greater bilby or spectacled hare-wallaby habitat will not impact those species.</u></p> <p><u>Assess the impact of land clearing by any means on flora and fauna due to habitat loss, earth disturbance and erosion, changes to the hydrological regime due to those impacts, particularly given the impacts of flooding in the area, residual impacts on land, soil and water quality values and any other or cumulative impacts.</u></p>

**Amended TOR proposed by the CLC**  
Draft Terms of Reference for an Environmental Impact Statement (EIS)

Avoidance, mitigation and management	<p>Provide an updated adaptive management plan<sup>18</sup> that includes measures for avoiding, mitigating and managing impacts on GDEs, sensitive and significant vegetation, and wetlands <u>(including soaks, springs and swamps)</u>.</p> <p>Demonstrate the application of the environmental decision-making hierarchy to avoid and minimise impacts on GDEs <u>(and avoid all impacts on GDEs which are Aboriginal sacred sites)<sup>18a</sup></u>. This should include consideration of alternative borefield designs, <u>reduction in water extraction</u> and consideration of alternative cropping.</p> <p>Demonstrate that mitigation measures align with best practice and advice from relevant government advisory agencies.</p>
Monitoring and reporting	<p>Outline proposed monitoring and reporting activities related to potential significant impacts to terrestrial ecosystem <u>(including biodiversity and cultural)</u> values, and measures for their mitigation and management. Specify monitoring <u>(locations, parameters, methodology and frequency)</u> and reporting activities. <u>Ensure monitoring locations relate to the identified environmental values.</u></p> <p>Demonstrate that monitoring and reporting activities align with best practice, and are consistent with advice from relevant government advisory agencies <u>and other key stakeholders.</u><sup>18b</sup></p> <p>Where monitoring and reporting activities form part of the adaptive management approach, refer to any relevant sections and content of the updated adaptive management plan.</p> <p>Describe clear and measurable outcomes and commitments that will ensure the environmental objective is met and impacts of implementing the proposal will be acceptable.</p>
Residual impact	<p>Explain how the NT EPA’s objective, to protect the NT’s flora and fauna so that environmental values including biological diversity and ecological integrity are maintained, will be met.<sup>18c</sup></p> <p>Identify any significant residual impact of the proposal to terrestrial ecosystem values.</p>
Offsets <sup>18d</sup>	<p>Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets such as measures to enhance or restore</p>

<sup>16</sup> To be used as a baseline for detecting potential impacts from groundwater drawdown

<sup>17</sup> Refer to NT Land Clearing Guidelines (DENR 2019).

<sup>17a</sup> For example, articles by Pavey and others listed in Annexure A.

<sup>17b</sup> NT Land Clearing Guidelines (DENR 2019) cover land clearing by any means.

<sup>18</sup> See Appendix B – CP 7

<sup>18a</sup> In accordance with the Northern Territory Aboriginal Sacred Sites Act 1989(NT)

<sup>18b</sup> Including the Aboriginal stakeholders identified in section 2.3.1

<sup>18c</sup> For the purpose of this explanation, the *Guideline: Limits of acceptable change to groundwater dependent vegetation in the Western Davenport Water Control District* and its rule regarding destruction of 30% of GDEs should be ignored.

<sup>18d</sup> Not relevant if impacted GDEs are sacred sites in accordance with the Northern Territory Aboriginal Sacred Sites Act 1989 (NT)

Aspect	Specific information required
	ecosystems. Describe how any proposed offset is consistent with the <a href="#">NT Offsets Framework</a> , where relevant.

### 2.5.4. Atmospheric processes

The context for this factor assessment is the potential for the proposal to significantly affect greenhouse gas emissions in the Territory through land clearing, energy consumption, fuel combustion, growing crops, impacts to GDEs, and restoration activities.

The EIS is to cover all matters in Table 6 for addressing the NT EPA objective for this factor: Minimise greenhouse gas emissions so as to contribute to the NT Government’s target of achieving net zero greenhouse gas emissions by 2050.

**Table 6 Minimum information required for the assessment of atmospheric processes**

Aspect	Specific information required
Environmental values	Describe the current and projected greenhouse gas emissions profile from cropland and horticultural production in the NT.  <u>Undertake a climate change risk assessment, including both risks to the Proposal and risks caused by the Proposal. The risk assessment is to consider the role of GDEs as refugia as well as the cumulative impact of changing climate on groundwater dependent trees, soaks, springs and swamps.</u>
Potential impacts and risks	Provide details on the projected emissions intensity from the proposal (emissions for each activity type) and benchmarking against other comparable projects, industry standards and best practice. <u>Take into account the accumulation of uncertainties and compounding factors, and make explicit the assumptions adopted, when scaling up smaller horticultural operations for benchmarking purposes.</u>  <u>Adopt the PAS-2050-1 Standard for lifecycle assessment of greenhouse gases from horticultural products and describe the standards, emissions factors, assumptions and datasets used to create the model. Undertake peer review of the model.</u>  <u>In calculating projected emissions intensity, include pre-establishment (eg drilling bores), establishment (eg land clearing, civil works), operational (including but not limited to all irrigation infrastructure, fuel combustion, growing crops, processing, refrigeration, onsite accommodation, internal traffic and plant movement, fertiliser usage, herbicide usage, pesticide usage).</u>  <u>Identify any impact to air quality from particulate matter, including dust and chemical spray.</u>

Avoidance, mitigation and management

Outline any proposal-specific greenhouse gas reduction targets.  
Outline the measures proposed for reducing greenhouse gas emissions from the proposal so as to contribute to the Northern Territory’s target of net zero by 2050.  
Describe the proposal’s contribution to meeting NT renewable energy targets.  
Demonstrate that proposed measures are in accordance with best-practice and capable of achieving stated emissions reductions, in accordance with the Northern Territory’s Climate Change Response. This is to address any local conditions or circumstances that might influence the choice of technologies or measures to mitigate emissions.  
  
Describe methods to reduce the escape of particular matter and minimise its impact

upon air quality.

Monitoring and reporting	Outline any proposed monitoring and reporting of greenhouse gas emissions, <u>including of Scope 1, 2 and 3 emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and refrigerants.</u>
Residual impact	Describe the net contribution to the NT's greenhouse gas emissions over the life of the proposal.  Explain how the proposal will contribute to the NT EPA's objective to minimise greenhouse gas emissions so as to contribute to the NT Government's target of achieving net zero greenhouse gas emissions by 2050.

### 2.5.5. Community and economy

The context for this factor assessment is the potential for the proposal to significantly affect the welfare and amenity of people in the region due to community and economic changes through new infrastructure, groundwater drawdown, social and physical interactions, employment opportunities, and increased economic activity.

The EIS is to cover all matters in Table 7 for addressing the NT EPA objective for this factor: Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.

**Table 7 Minimum information required for the assessment of community and economy**

Aspect	Specific information required
Environmental values	<p><u>Undertake the Aboriginal stakeholder consultations described in section 2.3.1.</u></p> <p><u>Provide a summary of Identify the community-social and economic values that could be affected by the proposal by utilising best practice social impact assessment and economic impact assessment guidelines, considering the ,referring to the social-impact assessment and the economic-assessments provided in the referral (appendices I and J respectively), and including any-the additional community-social and economic values identified through stakeholder engagement undertaken for the draft EIS.</u></p> <p><u>Undertake a peer review of the economic assessment contained in the referral and update that assessment with matters raised by the peer review.<sup>18e</sup> Ensure that the updated assessment:</u></p> <ul style="list-style-type: none"> <li>• <u>meets Northern Territory and Commonwealth standards and conforms to guidelines for the Economic Impact Assessment of proposed projects</u></li> <li>• <u>accounts for the value of water entitlements that would be provided free of charge to the Proponent;</u></li> <li>• <u>uses appropriate modelling methods to adjust for small region limited labour supply contexts;</u></li> <li>• <u>includes scenario analysis, probabilistic calculations and other widely and typically applied tools for social benefit cost analysis;</u></li> <li>• <u>described the methods applied and makes the results publicly available; and</u></li> <li>• <u>require ongoing independent assessment of any negative impacts over the course of the Project.</u></li> </ul>
Potential significant impacts and risks	<p>Provide a <u>summary-detailedof the</u> assessment of the potential significant impacts and risks <u>(including cumulative moderate impacts and risks)</u>, along with the social and economic benefits to the local and NT community and economy from the proposal, referring to the relevant assessments provided in the referral <u>and other assessment tools including a discussion on the short- and long-term impacts of social and physical interactions between workers and local community members.</u></p>
Avoidance, mitigation and management	<p>Provide a social impact management plan (SIMP) that:</p> <ul style="list-style-type: none"> <li>• <u>draws upon recommendations from the Aboriginal stakeholder consultations described in section 2.3.1 and the proponent's other social and economic impact assessments</u></li> <li>• includes management measures to avoid, mitigate and manage potential significant social and economic impacts and enhance benefits</li> <li>• outlines the roles and responsibilities of the proponent, its contractors and other stakeholders for implementation of the identified social and economic mitigation and management measures throughout the life of the proposal</li> <li>• includes a framework for monitoring the effectiveness of the proposed avoidance, mitigation and management measures, and</li> <li>• addresses the following:</li> </ul>

	<ul style="list-style-type: none"><li>○ community benefit plan</li><li>○ local and Indigenous employment and procurement plan</li><li>○ workforce management plan and accommodation strategy, informed by an analysis of social needs<sup>19</sup> of the workforce</li><li>○ emergency management plan</li><li>○ traffic management plan</li><li>○ transition to future land-use/s: management of impacts on workers and the local community.</li></ul> <p>Demonstrate that proposed mitigation and management measures are in accordance with best-practice, including advice from relevant NT Government authorities <u>and Aboriginal stakeholders</u>.</p> <p>Demonstrate that the assessment of the impacts and benefits of the proposal on potentially affected community is informed by an inclusive and collaborative community and stakeholder engagement and consultation process that is iterative throughout preparation of the EIS.</p> <p>Where avoidance, mitigation and management measures form part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p> <p><u>Demonstrate how impacts to land and water rights of others (including the other holders of groundwater extraction licences) will be avoided, mitigated and managed.</u></p>
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<sup>18e</sup> Include reference to Connor et al (2022), Grafton (2022) and Connor et al (2023).

<sup>19</sup> E.g. built-environment, education, health, safety, recreation and community connection

Aspect	Specific information required
Monitoring and reporting	<p>Outline proposed monitoring and reporting activities related to potential significant impacts and risks to community and economy, and measures for their mitigation and management.</p> <p>Demonstrate that monitoring activities align with community expectations and are in accordance with best-practice, including advice from relevant NT Government authorities <u>and Aboriginal stakeholders (given during consultations described in section 2.3.1).</u></p>
Residual impact	<p>Explain how the NT EPA’s objective, to enhance communities and the economy for the welfare, <u>culture</u> amenity and benefit of current and future generations of Territorians, will be met.</p> <p>Identify any significant residual impact of the proposal to social and economic values.</p>

### 2.5.6. Culture and heritage

The context of this factor assessment is the potential for significant impacts to cultural values from the proposal as a result of changes to hydrological processes, inland water environmental quality, terrestrial environmental quality, and community and economy.

The EIS is to cover all matters in Table 7 for addressing the NT EPA objective for this factor: to protect culture and heritage.

**Table 8: Information required for assessment of Culture and heritage.**

Aspect	Specific information required
Environmental values	<p><u>Undertake the Aboriginal stakeholder consultations described in section 2.3.1.</u></p> <p>Describe the characteristics and current condition of Aboriginal cultural values<sup>20</sup> which could be impacted by the proposal within the potentially affected area. <u>This forms a baseline assessment describing cultural values prior to any chance caused by the proposal.</u> This must include (at a minimum) descriptive information<sup>21</sup> for the following:</p> <ul style="list-style-type: none"> <li>• Aboriginal stakeholders’ connection to land and waters, in terms of traditional laws and customs</li> <li>• sites, places or objects of Aboriginal cultural significance</li> <li>• land use by Aboriginal stakeholders</li> <li>• importance of amenity (e.g., visual, noise) to maintaining Aboriginal cultural values</li> <li>• importance of terrestrial <u>and aquatic</u> ecosystems (including groundwater dependent ecosystems) and biodiversity to maintaining Aboriginal cultural values</li> </ul> <p>Information must be based on engagement with Aboriginal stakeholders<sup>22</sup> and the Central Land Council, published archaeological and anthropological information, site surveys, respective registers, and other research. <u>The proponent must treat information from Aboriginal stakeholders as the primary source of information on Aboriginal cultural values and must promote cooperative use of Aboriginal knowledge of biodiversity and Aboriginal culture in environmental decision making.</u></p> <p>Presentation of information must accord with the wishes of Aboriginal stakeholders</p>

	regarding the confidentiality of cultural information, noting that the proponent may
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<sup>20</sup> See Appendix B – CP 10

<sup>21</sup> Including spatial information where relevant

<sup>22</sup> Undertaken by suitably qualified professionals or organisations [and in accordance with section 2.3.1](#).

Aspect	Specific information required
	<p>request that identified information not be made public in accordance with section 281(2)(b) of the EP Act.</p> <p><u>To the extent not already covered by design of the terms for a fit for purpose cultural and social impact assessment (as described in section 2.3.1):</u></p> <ul style="list-style-type: none"> <li>• <u>prepare a proposed methodological approach to the culture and heritage component of the assessment and seek and incorporate feedback from Aboriginal stakeholders. Explain the suitability of the methodologies, surveys or processes used to provide information about Aboriginal cultural values.</u></li> <li>• <u>undertake a gap and uncertainty analysis in relation to Aboriginal cultural values, including sacred sites, to ensure the proposed research methodology, when employed, is comprehensive and thorough. Detail any information gaps or uncertainties in relation to Aboriginal cultural values, including any further studies or measures required to address these gaps.</u></li> </ul>
Potential significant impacts and risks	<p>Describe potential significant impacts (<u>including low and moderate impacts where the cumulative effect may be significant</u>) on Aboriginal cultural values, including those arising from:</p> <ul style="list-style-type: none"> <li>• disturbance to sites, places or objects of cultural significance<sup>23</sup> due to construction and operation activities (<del>including proposed mitigation or management activities</del>)</li> <li>• changes to amenity due to construction and operation activities</li> <li>• temporary or permanent land access or use restrictions in areas of proposal infrastructure and operations</li> <li>• changes to terrestrial ecosystems and biodiversity due to construction and operation activities, including groundwater drawdown, <u>surface water management</u> or salinity.</li> </ul> <p>This is to be based on engagement with Aboriginal stakeholders <u>and their representatives described in section 2.3.1</u> and informed by scientific studies of the biophysical environment, <u>anthropological and archaeological studies</u> and the potential impacts <del>to it</del> from this proposal.</p> <p>The assessment must:</p> <ul style="list-style-type: none"> <li>• document the nature and significance of the <u>potential</u> impacts</li> <li>• consider the reversibility of potential impacts</li> <li>• assess the potential cumulative impacts from the proposal and other reasonably related past, present and reasonably foreseeable future activities in the region, combined with the potential impacts of a changing climate.</li> </ul> <p>Describe a process for identifying future unanticipated impacts. If this forms part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p>

Avoidance, mitigation and management	<p>Describe the measures for avoiding, mitigating and managing potential significant impacts on Aboriginal cultural values.</p> <p>Demonstrate the application of the environmental decision-making hierarchy to avoid and minimise impacts on Aboriginal cultural values. <u>Do not seek to apply off-sets in respect of unique Aboriginal cultural heritage, including sacred sites.</u></p> <p>Demonstrate that mitigation measures align with best practice, including advice from relevant government advisory agencies and Aboriginal stakeholders and/or their representatives. Where avoidance, mitigation and management measures form part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p> <p>To take account of any uncertainty on the existence of values or potential impacts on known values, demonstrate how management measures meet the precautionary principle (section 19 of EP Act).</p>
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<sup>23</sup> Including, but not limited to, sacred sites. Recognise that sacred sites cannot be disturbed under the *Northern Territory Aboriginal Sacred Sites 1989 Act (NT)*.

Aspect	Specific information required
Monitoring and reporting	<p>Outline proposed monitoring and reporting activities related to potential significant impacts and risks to Aboriginal cultural values, and measures for their mitigation and management. Where relevant, specify monitoring and reporting activities for various proposal stages.</p> <p>Demonstrate that monitoring and reporting activities align with best practice, and are consistent with advice from Aboriginal stakeholders <u>(given during consultations described in section 2.3.1)</u> and relevant government advisory agencies.</p> <p>Where monitoring and reporting activities form part of the adaptive management approach, refer to any relevant sections and content of an updated adaptive management plan.</p>
Residual impact	<p>Explain how the NT EPA’s objective to protect culture and heritage will be met.</p> <p>Identify any significant <u>(or cumulative moderate and low)</u> residual impact of the proposal to Aboriginal cultural values.</p>

### 3. Public consultation requirements

The public consultation requirements for the draft EIS are outlined in Part 5 Division 6 of the EP Regulations. Additional specific details are provided below.

#### 3.1. Submission period

The submission period under the EP Act during which feedback can be given on the draft EIS is between 30 and 60 business days. The duration of the period will be confirmed during the draft EIS pre-lodgement phase.

#### 3.2. Manner in which to publish

The draft EIS must be provided as:

- accessible PDF files that do not exceed 20MB
- nine-ten (910) printed copies for display at the locations in section 4.4 below.

The draft EIS must:

- be divided into parts:
  - a main report (with executive summary available as separate document)
  - include a plain English, diagrammatic summary version
  - appendices to the main report
- have a navigable table of contents
- present information in format that is easy to follow
- use hyperlinks to assist with navigation through the document
- generally conform with the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA and material relevant to creating accessible documents on the [NT Government website](#).

### 3.3. Advertising

An advertisement must be placed in the NT News indicating that the draft EIS is available for comment, the locations where it can be inspected and obtained, the period in which comments/submissions can be made and where they can be made, and contact details for obtaining further information.

### 3.4. Public consultation locations

The draft EIS should be provided to and be made available for public consultation at:

- Mirnirri Store, 5 Jungarrayi Street, Ali Curung, NT 0872
- Tennant Creek Public Library, Barkly Regional Council, 41 Peko Road, Tennant Creek NT 0860
- Central Land Council, 27 Stuart Highway, Alice Springs NT 0870
- Central Land Council, 63 Paterson Street, Tennant Creek NT 0860
- Alice Springs Public Library, Gregory Terrace, Alice Springs NT 0870
- Arid Lands Environment Centre, 90 Gap Road, The Gap, NT 0870
- Northern Territory Library, Parliament House, Darwin, NT 0800
- Primary Industries office, Arid Zone Research Institute (AZRI) Main Building, 519 South Stuart Highway, Alice Springs NT 0870
- Primary Industries office, Ground Floor, John England Building, 29 Makagon Road, Berrimah Farm Science Precinct, Berrimah NT 0828
- NT EPA, Level 1, Arnhemica House, 16 Parap Road, Parap, NT 0820

## Appendix A – List of relevant guidance material

The following guidance material is considered relevant to the TOR. This list is not exhaustive, but captures key guidance used in the preparation of these TOR and to inform the preparation of the EIS. The proponent must draw on further relevant industry and best practice guidance as part of developing the EIS.

- ANZECC & ARMCANZ 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. <https://www.waterquality.gov.au/anz-guidelines>
- Barnett B, Townley LR, Post V, Evans RE, Hunt RJ, Peeters L, Richardson S, Werner AD, Knapton A and Boronkay A, 2012, Australian groundwater modelling guidelines, Waterlines report, National Water Commission, Canberra
- Connor, et al, 2022. Review of the Singleton Horticulture Project's Water Entitlement Provision Costs, Benefits and Employment Impacts. Appendix N of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral. <https://www.clc.org.au/submission-to-the-northern-territoryenvironmental-protection-agencysingleton-horticulture-projectreferral-of-proposed-action-submitted-by-fortune-agribusinessfunds-management-pty-ltd-andpublished-by-t/>
- Connor, et al, 2023. Singleton Project Economic Impact Analysis Review in reference to the Connor et al (2022) Critical Review. Appendix O of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral. <https://www.clc.org.au/submission-to-the-northern-territoryenvironmental-protection-agencysingleton-horticulture-projectreferral-of-proposed-action-submitted-by-fortune-agribusinessfunds-management-pty-ltd-andpublished-by-t/>
- DENR 2000. Northern Territory Water Allocation Planning Framework. Northern Territory Government. [https://depws.nt.gov.au/data/assets/pdf\\_file/0011/476669/nt-water-allocation-planning-framework.pdf](https://depws.nt.gov.au/data/assets/pdf_file/0011/476669/nt-water-allocation-planning-framework.pdf)
- DENR, 2020. Land clearing guidelines. Department of Environment and Natural Resources: <https://nt.gov.au/property/land-clearing>
- DENR, 2020. Northern Territory Climate Change Response: Towards 2050. Department of Environment and Natural Resources: [https://depws.nt.gov.au/data/assets/pdf\\_file/0005/904775/northern-territory-climate-change-response-towards-2050.pdf](https://depws.nt.gov.au/data/assets/pdf_file/0005/904775/northern-territory-climate-change-response-towards-2050.pdf)
- DEPWS, 2021. Northern Territory Offsets Framework. <https://depws.nt.gov.au/environment-information/northern-territory-offsets-framework/northern-territory-offsets-framework>
- DEPWS, 2023. Biodiversity Offsets Policy. [https://depws.nt.gov.au/data/assets/pdf\\_file/0003/1182450/biodiversity-offsets-policy.pdf](https://depws.nt.gov.au/data/assets/pdf_file/0003/1182450/biodiversity-offsets-policy.pdf)
- Donaldson, S.D. 2021. Singleton water licence Aboriginal cultural values assessment – public report. Appendix L of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral. <https://www.clc.org.au/submission-to-the-northern-territoryenvironmental-protection-agencysingleton-horticulture-projectreferral-of-proposed-action-submitted-by-fortune-agribusinessfunds-management-pty-ltd-andpublished-by-t/>
- Donaldson, S.D. 2023. Addendum: Aboriginal cultural values impact assessment – Singleton water licence drawdown area. Appendix M of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral. <https://www.clc.org.au/submission-to-the-northern-territoryenvironmental-protection-agencysingleton-horticulture-projectreferral-of-proposed-action-submitted-by-fortune-agribusinessfunds-management-pty-ltd-andpublished-by-t/>

- [Grafton, Q \(2022\). Peer review of Connor et al \(2022\) Economic Analysis Report of the Singleton Horticulture Project. Appendix O of the Central Land Council submission to the NT EPA on the Singleton Horticulture Project referral. https://www.clc.org.au/submission-to-the-northern-territoryenvironmental-protection-agencysingleton-horticulture-projectreferral-of-proposed-action-submitted-by-fortune-agribusinessfunds-management-pty-ltd-andpublished-by-t/](https://www.clc.org.au/submission-to-the-northern-territoryenvironmental-protection-agencysingleton-horticulture-projectreferral-of-proposed-action-submitted-by-fortune-agribusinessfunds-management-pty-ltd-andpublished-by-t/)
- [International Council on Monuments and Sites \(ICOMOS\) 1999 Burra Charter: The Australian ICOMOS Charter for the conservation of places of cultural significance](#)
- [International Council on Monuments and Sites \(ICOMOS\) 2017 The Australian Burra Charter Practise Note on Intangible cultural heritage and place](#)
- NESP Earth Systems and Climate Change Hub, 2020. Climate change in the Northern Territory: state of the science and climate change impacts. National Environment Science Programme, Earth Systems and Climate Change Hub: <http://nespclimate.com.au/building-understanding-of-climate-change-in-the-northern-territory/>
- Northern Territory Government, 2017. Preventing weed spread guide, Weed Management Branch: <https://nt.gov.au/environment/weeds/how-to-manage-weeds/prevent-weed-spread-industry-and-recreation>
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The proponent must not rely on the *Guideline: Limits of acceptable change to groundwater dependent vegetation in the Western Davenport Water Control District* to inform or prepare its EIS.

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[Annexure B will need to be updated once the terms of reference are set.]

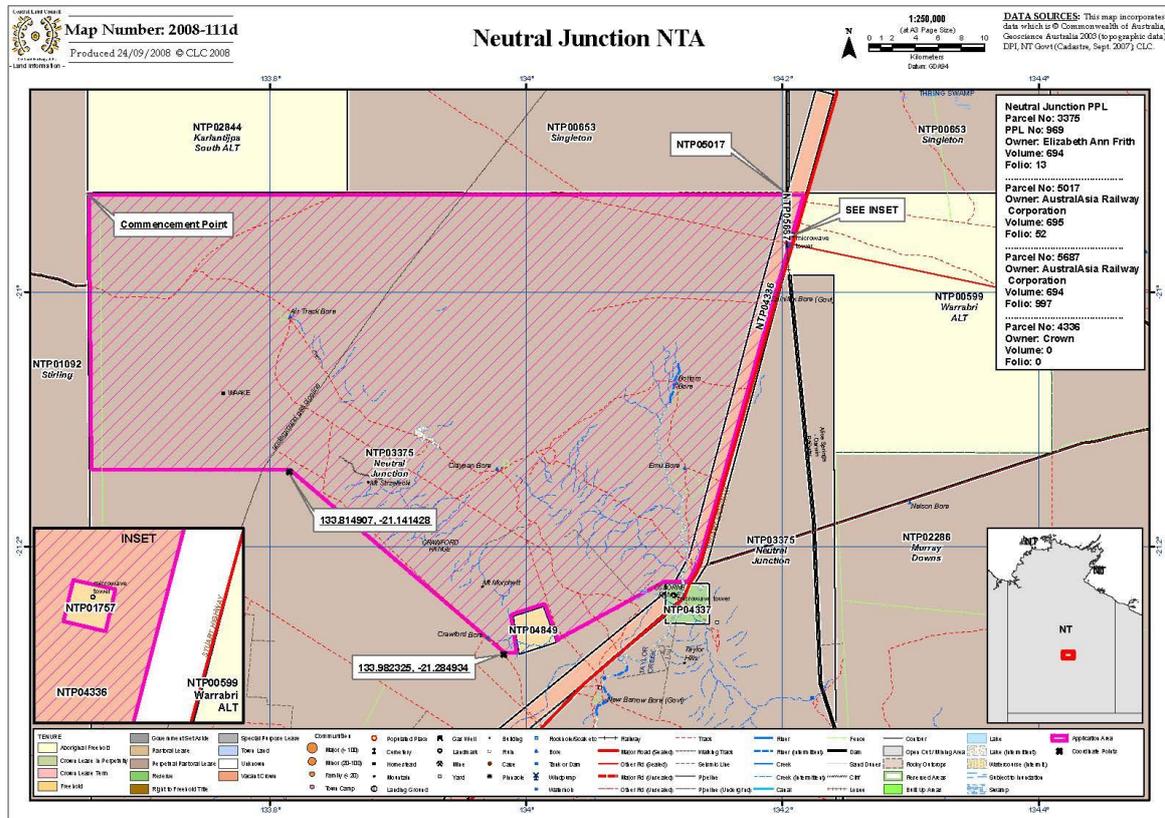


**CENTRAL LAND COUNCIL**

**ANNEXURE B**



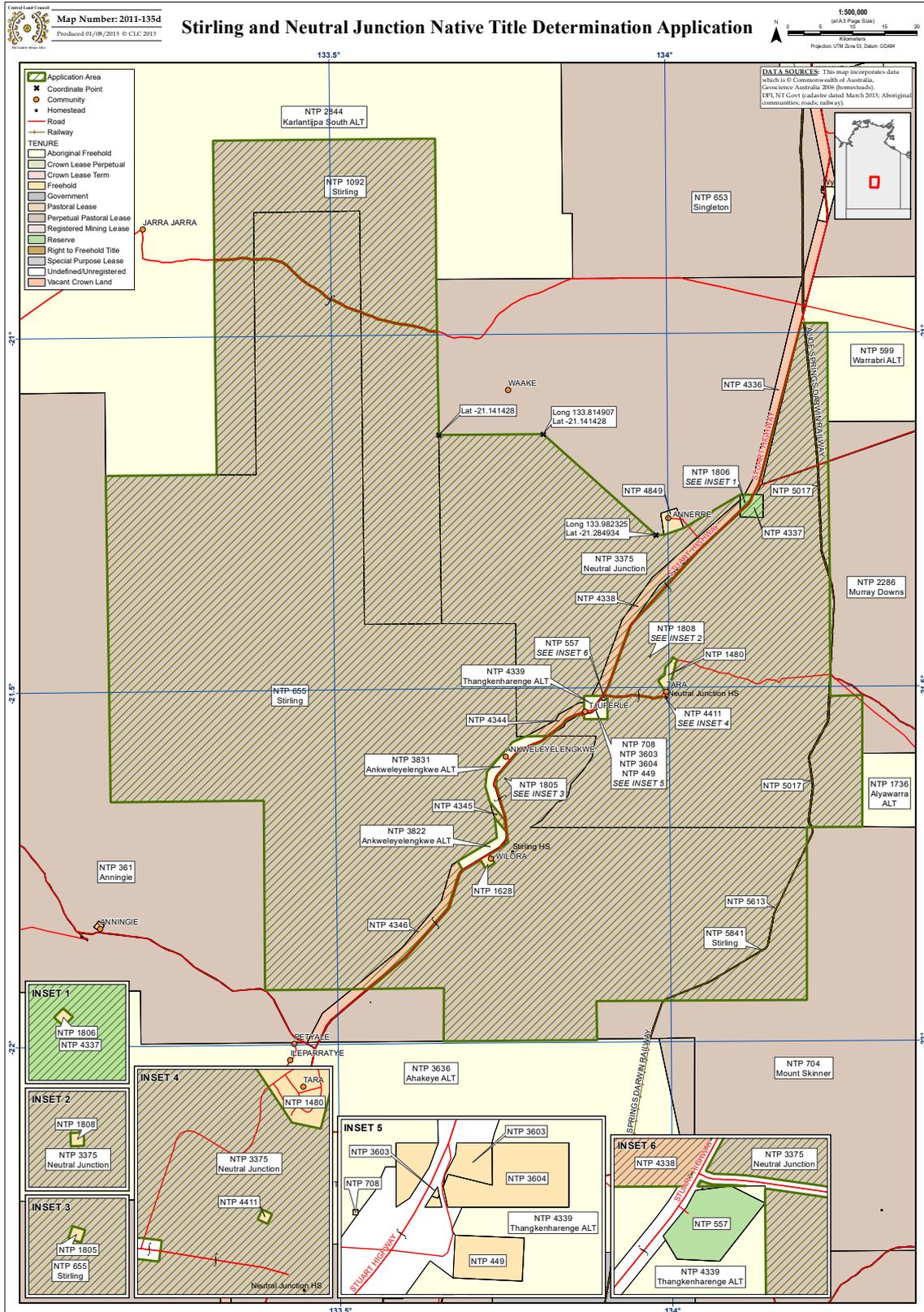
**Schedule B – Map of the Determination Area**



*Arnerre, Wake-Akwerlpe, Errene and Ileyarne Landholding Groups v Northern Territory of Australia* [2011] FCA 765

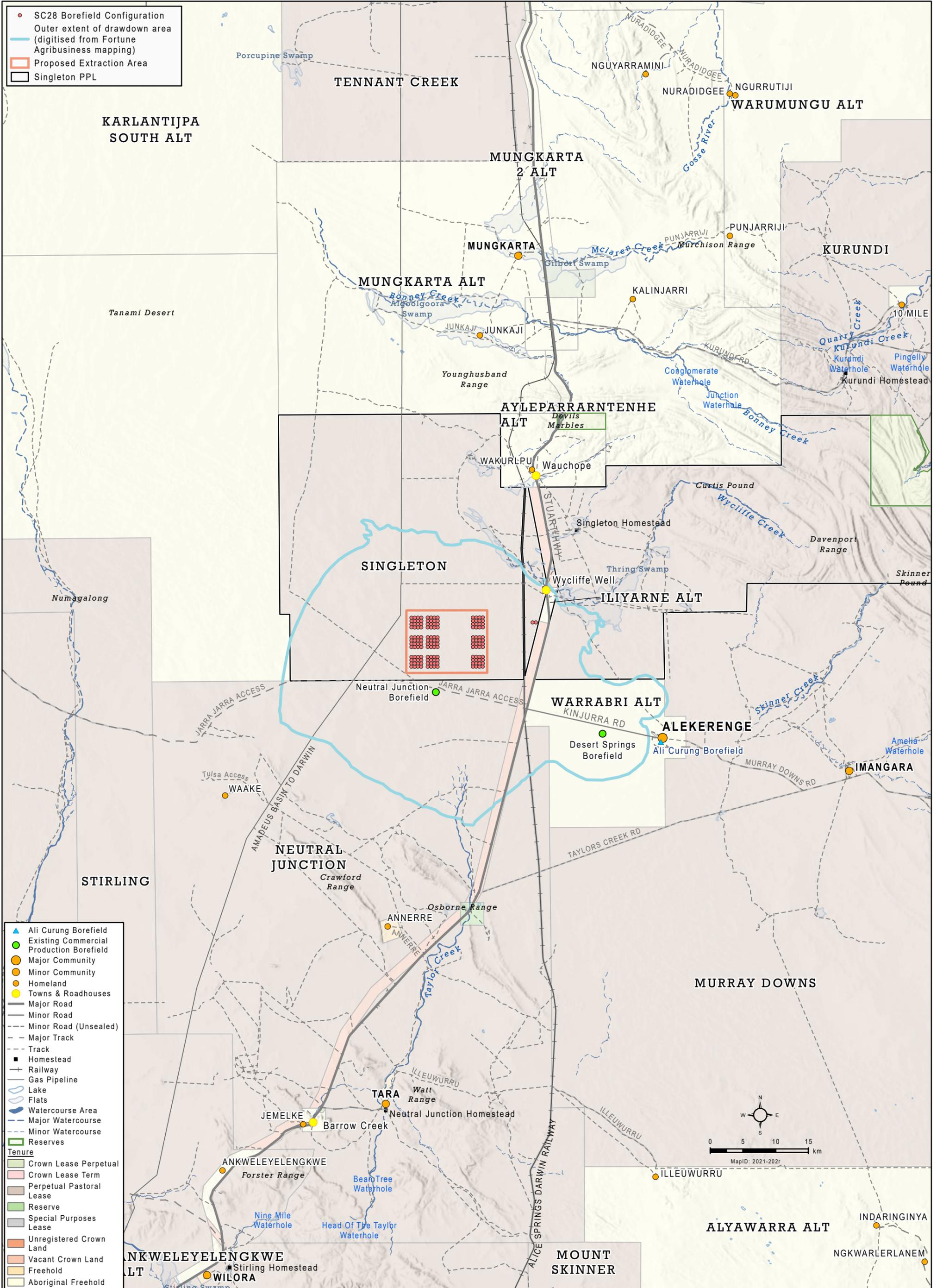
Kaytetye Tywerate Arenge Aboriginal Corporation RNTBC

## SCHEDULE B Determination Area Map



*Pwerle v Northern Territory of Australia* [2016] FCA 304

Eynewantheyne Aboriginal Corporation RNTBC



- SC28 Borefield Configuration
- Outer extent of drawdown area (digitised from Fortune Agribusiness mapping)
- Proposed Extraction Area
- Singleton PPL

- ▲ Ali Curung Borefield
- Existing Commercial Production Borefield
- Major Community
- Minor Community
- Homeland
- Towns & Roadhouses
- Major Road
- Minor Road
- - - Minor Road (Unsealed)
- - - Major Track
- - - Track
- Homestead
- + Railway
- Gas Pipeline
- Lake
- Flats
- Watercourse Area
- Major Watercourse
- - - Minor Watercourse
- Reserves
- Tenure
- Crown Lease Perpetual
- Crown Lease Term
- Perpetual Pastoral Lease
- Reserve
- Special Purposes Lease
- Unregistered Crown Land
- Vacant Crown Land
- Freehold
- Aboriginal Freehold

