

To: The Hon Sussan Ley MP, Minister for the Environment

Proposed Decision Brief (Secretary's Recommendation Report) – Turtle Cove Haven Retirement Village, River Heads, Queensland (EPBC 2013/7038)

Timing: As soon as possible –the statutory timeframe for this decision (2 October 2018) has passed.

Recommendations:

1. Consider the Secretary's Recommendation Report and attachments prepared under section 100(1) of the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) at **Attachment A**.
Considered / please discuss
2. Consider the final PER at **Attachment B**.
Considered / please discuss
3. That you agree with the Department's recommendation that you have enough information to make an informed decision under section 133 of the EPBC Act.
Agreed / Not agreed
4. Agree that the recommended decision on page one of the Recommendation Report (**Attachment A**), and summarised in the table below, reflects your proposed decision.
Agreed / Not agreed
5. If you agree with the recommended decision in the Secretary's Recommendation Report and propose to refuse to approve the taking of the action for the purposes of each of the relevant controlling provisions, the Department recommends that you:
 - a) Agree that the proposed decision notice at **Attachment D** reflects your proposed decision; and
Agreed / Not Agreed
 - b) Sign the letter at **Attachment C1** to provide the proponent with a copy of the decision you propose to make and the Secretary's Recommendation Report and invite them to comment on your proposed decision as required by section 131AA(1) and (2) of the EPBC Act; and
Signed / Not signed
 - c) Consult with the Queensland Government as identified in paragraph 32 of the Department's advice in this brief under section 131 of the EPBC Act.
Agreed / Not Agreed
6. Sign the letters at **Attachment C2-C3** to consult with Commonwealth and State Ministers on your proposed decision.
Signed / Not signed
7. Agree to **not** publish the proposed decision at **Attachment D** on the internet for public comment.
Agreed / Not agreed

Summary of recommendations on each controlling provision:		
Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
Wetlands of international importance (Sections 16 and 17B)		Refuse to Approve
Listed threatened species and communities (Sections 18 and 18A)		Refuse to Approve
Listed migratory species (Sections 20 and 20A)		Refuse to Approve
 5/3/20 The Hon Sussan Ley MP Date: Minister for the Environment		
Comments:		

Key Points

1. The purpose of this brief is for you to indicate whether or not you propose to refuse approval for the construction and operation of a retirement and aged care village, associated infrastructure and facilities, 6.5 hectare (ha) solar power station and 10 ha open space at River Heads in Queensland.
2. In the Secretary's Recommendation Report (**Attachment A**), the Secretary recommends that the taking of the proposed action should not be approved under Part 9 of the EPBC Act.
3. The proposed development is adjacent to a declared wetland of international importance, the Great Sandy Strait Ramsar site (GSS Ramsar site). Given the proximity of the proposed action to the GSS Ramsar site, the Department concludes the proposed action will have unacceptable impacts on the ecological character of the GSS Ramsar site associated with changes to hydrological regime and water quality, degradation of wetland habitats, and disturbance to fauna dependent on the GSS Ramsar site during construction and operation of the development.
4. The proposed development is near important habitat for five marine turtle species and the Dugong (*Dugong dugon*). Given the proximity of the proposed action to this important habitat, the Department concludes the proposed action will have unacceptable impacts on marine turtles and the Dugong associated with habitat degradation due to changes to hydrological regime and water quality and disturbance during construction and operation of the development.
5. The proposed development is directly adjacent to one of the most important sites for migratory shorebirds in Australia, which is utilised by an ecologically significant proportion of the population of the Eastern Curlew (*Numenius madagascariensis*) and the Bar-tailed

Godwit (*Limosa lapponica baueri*). Given the proximity of the proposed action to this important site, the Department concludes the proposed action will have unacceptable impacts on migratory shorebird species associated with habitat degradation due to changes to hydrological regime and water quality and disturbance during construction and operation of the development.

Background

6. The proposed action is located at River Heads, approximately 18 km south of Hervey Bay, Queensland. To the east of the site is the Great Sandy Strait (including Great Sandy Strait, Tin Can Bay and Tin Can Inlet) Ramsar site (GSS Ramsar site). To the south is the mouth of the Mary River and to the west is the mouth of Susan River (a tributary of the Mary River).
7. The proposed action site is 114.97 ha and comprises two adjoining parcels of land (part of Lot 996 and Lot 214). As a result of historic survey practices, 47.41 ha of Lot 996 is located within the GSS Ramsar site and is inundated at high tide.
8. Anscape Pty Limited (the proponent) is proposing to construct and operate a retirement and aged care village, associated infrastructure and facilities, 6.5 ha solar power station and 10 ha open space at the proposed action site.
9. On 29 November 2013, the proposed action was determined to be a controlled action under the EPBC Act due to likely significant impacts to wetlands of international importance (Sections 16 and 17B); listed threatened species and communities (Sections 18 and 18A); and listed migratory species (Sections 20 and 20A). On the same date, it was determined that the proposal would be assessed by public environment report (PER).
10. Following two requests to vary the action and a series of revisions to the PER due to inconsistencies and inadequate information provided in each version of the report, the proponent submitted the final PER to the Department on 27 July 2018. The final PER was published for information from 7 August 2018 for a period of 20 business days (**Attachment B**). A summary of this process is provided in the Secretary's Recommendation Report at **Attachment A**.

Issues/Sensitivities

11. The proposed action is close to the GSS Ramsar site, important habitat for marine turtles and the Dugong, and internationally important habitat for migratory shorebirds. The proposed action is likely to have unacceptable impacts on the ecological character of the GSS Ramsar site and on nationally protected threatened species and migratory species.
12. The proposal is locally contentious, and a petition was submitted to the Commonwealth Petitions Committee in February 2018. The petition requested that the House of Representatives fund the acquisition of Lot 996 SP129069 and Lot 124 SP156870 by the Crown for the long-term protection of the Great Sandy Strait wetlands and the Great Barrier Reef. The petition was presented to the House of Representatives in May 2018.

Considerations relating to decision-making under Part 9 of the EPBC Act

13. We set out below a brief summary of the requirements under the EPBC Act that relate to your decision about whether or not to propose to approve the taking of the action. The Secretary's Recommendation Report (**Attachment A**) addresses each of these considerations in turn at paragraph 46 onwards.
14. Section 136(5) of the EPBC Act provides that, in deciding whether to approve the taking of an action, and what conditions to attach to an approval, you must not consider any matters that you are not required or permitted to consider.

Mandatory considerations

15. In making the proposed decision on whether or not to approve the proposed action, and what conditions to attach (if any), you are required to consider:

- matters relevant to matters protected by the controlling provisions for the proposed action; and
- economic and social matters.

Factors to be taken into account

16. You must take into account:

- a. the factors set out in section 136 of the EPBC Act, the principles of ecologically sustainable development (section 3A, and section 136(2)(a)) and the precautionary principle (section 3A(b), and section 391(1)) – these are addressed in the Secretary's Recommendation Report at paragraphs 379 to 381 and any relevant bioregional plan (section 176);
- b. the final Public Environment Report and any other documents provided by the proponent under section 99 (section 136(2)(c)(i)), which is **Attachment B**;
- c. the Secretary's Recommendation Report (section 136(2)(c)(ii)) (at **Attachment A**);
- d. any other information on the relevant impacts of the action (section 136(2)(e)) – this is addressed in the Secretary's Recommendation Report at paragraphs 384-394;
- e. any relevant comments that are received in accordance with invitations under sections 131, 131AA or 131A (136(2)(f) and 131AA(6)) – see further below at paragraphs 30-33 of this brief (invitations to comment will be given after you indicate your proposed decision, and any comments received will be addressed in the final decision brief); and

17. In considering those matters, you are required:

- i. not to act inconsistently with Australia's obligations under the Ramsar Convention in deciding whether or not to approve the taking of an action for the purposes of sections 16 and 17B (s 138);
- ii. not to act inconsistently with the Biodiversity Convention, the Apia Convention, CITES or a recovery plan or threat abatement plan in deciding whether or not to approve the taking of an action for the purposes of sections 18 and 18A (s 139);
- iii. not to act inconsistently with the Bonn Convention, CAMBA, JAMBA or ROKAMBA in deciding whether or not to approve the taking of an action for the purposes of sections 20 and 20A (s 140).

18. A detailed analysis of your mandatory considerations is set out in the Secretary's Recommendation Report at **Attachment A**.

19. The Department considers, and recommends that you agree, that you have enough information to make an informed decision on whether or not to make a proposed decision to refuse to approve the taking of the action for the purposes of each of the controlling provisions.

20. The Department's analysis of the likely impacts to protected matters is set out in the Secretary's Recommendation Report at **Attachment A**.

21. The Department considers that impacts on the ecological character of the GSS Ramsar site, listed threatened species, and listed migratory species as a result of the proposed action will arise from:
- Altered hydrological regime and decline in water quality as a result of stormwater runoff, on-site treatment and re-use of effluent, and runoff of sediments and other pollutants and contaminants;
 - Degradation or loss of important wetland habitats as a result of these changes to hydrological regime and water quality; and
 - Noise interference, light pollution, marine debris, human and dog interactions and boat traffic as a result of construction and operation.
22. The proponent has proposed measures to avoid, mitigate and manage potential impacts of the proposed action on protected matters. Having considered the proposed measures, the Department considers that the impacts are unable to be avoided, mitigated or offset.
23. The Department concludes that the proposed action will have unacceptable impacts on the ecological character of a declared wetlands of international importance, the GSS Ramsar site, and on listed threatened marine turtles and listed migratory Eastern Curlew, Bar-tailed Godwit and Dugong.
24. The Department has considered social and economic matters relevant to the proposed action and concludes that any social and economic benefits that would result from the proposed action if approved, would not make the impacts on matters of national environmental significance acceptable.
25. Further, the Department considers that approval of the proposed action would be inconsistent with:
- (a) Australia's obligations under the Ramsar Convention (section 138);
 - (b) Australia's obligations under the Biodiversity Convention and the *Recovery Plan for Marine Turtles in Australia (2017)* (section 139);
 - (c) Australia's obligations under the Bonn Convention, CAMBA, JAMBA and ROKAMBA (section 140); and
 - (d) The responsibilities of the Commonwealth and each Commonwealth agency under section 334 of the EPBC Act.
26. Having considered all matters required to be considered under the EPBC Act, the Department recommends the proposed action be refused approval.
27. The Secretary's Recommendation Report at **Attachment A**, prepared in accordance with section 100(1) of the EPBC Act, concludes that the proposed action should not be approved under sections 130 and 133 of the EPBC Act (see proposed approval decision notice at **Attachment D**). This conclusion was reached by having regard to the likely impact of the proposed action for the purposes of each controlling provision and the relevant social and economic considerations under section 136 of the EPBC Act.

Public submissions on assessment documents

Number For Against Not specified

28. Twenty-four submissions were received on the draft assessment documentation. All submissions opposed the proposed action. The following environmental, social and economic concerns were raised:

- Impacts to EPBC listed threatened and migratory species through disturbance from light, noise, habitat degradation and inadequate buffers to protect species;
- Impacts to the ecological character of the GSS Ramsar site through water quality impacts associated with the proposed sewage treatment plant and from the proposed use of insecticides for the treatment of biting insects;
- Increased population size and traffic;
- Emergency management;
- Lack of supporting infrastructure and services;
- Limited demand for aged care facilities in the region; and
- Prevalence of biting insects in the proposed development area as a health risk to prospective residents.

29. Public submissions on the proponent's assessment documentation are discussed in the Secretary's Recommendation Report at **Attachment A** and attached at **Attachment E**.

Consultation on your proposed decision

30. Before you make your decision on whether or not to approve the proposed action, you are required under sections 131(1) and 131AA(1) of the EPBC Act to:

- a. inform the proponent and any other Commonwealth Minister(s) whom you believe has administrative responsibilities relating to the proposed action, of the decision that you propose to make; and
- b. invite the proponent and the Commonwealth Minister(s) to comment on your proposed decision within 10 business days.

31. If you propose not to approve the taking of the action, before you make your decision you are required under section 131AA(2) to provide the proponent with the Secretary's Recommendation Report, any information on economic and social matters and on the proponent's history in relation to environmental matters which you have considered, and a copy of any document containing any other information on the relevant impacts that is not in the public domain.

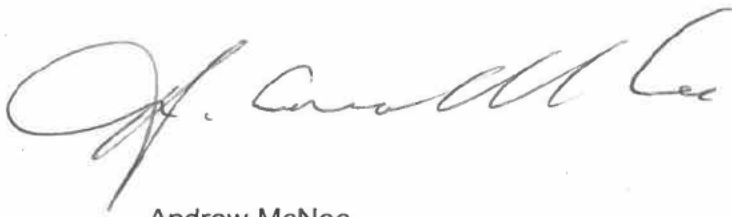
32. You are required to consult with the proponent on your proposed decision. The Department recommends you inform and invite comment from the Commonwealth Minister for Infrastructure, Transport and Regional Development and the Queensland Department of Environment and Science. Letters for your signature are at **Attachment C1-C3**.

33. The Department does not recommend that public comment be sought on the proposed decision under section 131A of the EPBC Act. The public has already been provided with the opportunity to comment on the proposed action on whether the proposed action was a controlled action under section 75, and the public environment report has also been the subject of an invitation to comment under section 98. The Department considers that

publishing your proposed decision for further public comment is unlikely to elicit views or information that have not already been thoroughly considered.

Consultation

34. On 30 January 2020, you met with the proponent on site at River Heads in Queensland to familiarise yourself with the context of the proposal. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting that includes a comprehensive account of the matters raised and discussed and is attached at **Attachment L1**.
35. On 30 January 2020, you met with a representative of the Fraser Coast Regional Council to seek the council's views on the proposed action. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting that includes a comprehensive account of the matters raised and discussed and is attached at **Attachment L3**.
36. On 31 January 2020, you met with migratory shorebird expert Professor Richard Fuller of the University of Queensland to seek Professor Fuller's views on the proposed action. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting that includes a comprehensive account of the matters raised and discussed and is attached at **Attachment L4**.
37. The Department's Office of Compliance advised that there is no indication that Anscape Pty Limited has an adverse environmental history.
38. The Department's Protected Species and Communities Branch have been consulted to ensure all approved Conversation Advices, Recovery Plans and Threat Abatement Plans relevant to the proposed action have been considered and included (listed at **Attachment F**). All approved Conversation Advices, Recovery Plans and Threat Abatement Plans relevant to the proposed action are at **Attachment G**.
39. The decision brief, including the Secretary's Recommendation Report and other attachments, have been prepared in consultation with General Counsel Branch, Australian Government Solicitor and the Office of International Law.



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5 March 2020

ATTACHMENTS

- A: Secretary's Recommendation Report
- B1: Final Public Environment Report (PER)
- B2: PER Appendix A - PER Guidelines
- B3: PER Appendix B - Ecological report part a
- B4: PER Appendix B - Ecological report part b
- B5: PER Appendix C - FCRC overlay and QLD SDAP responses
- B6: PER Appendix D - SDAP modules
- B7: PER Appendix E - Transect data
- B8: PER Appendix F - Regional ecosystems plant listings
- B9: PER Appendix G - Construction environmental management plan
- B10: PER Appendix H - Revegetation strategy
- B11: PER Appendix I - Faunal pest management
- B12: PER Appendix J - Ramsar & Marine Park info sheets
- B13: PER Appendix K - Stormwater quality management plan
- B14: PER Appendix K1 - Stormwater quantity management plan
- B15: PER Appendix K2 - Environmental protection water policy 1997
- B16: PER Appendix L - Belldi consultancy report
- B17: PER Appendix M - Water Mouse surveys and mitigation assessment
- B18: PER Appendix N - Wader Bird MNES management plan
- B19: PER Appendix O - Biting midge report
- B20: PER Appendix P - Recycled water management plan
- B21: PER Appendix Q - Recycled water management plan WWTP specifications
- B22: PER Appendix R - Sewerage management plan
- B23: PER Appendix S - MWA peer review of reports
- B24: PER Appendix T - Terms of reference table
- B25: PER Appendix U - Ecological character description for the GSS Ramsar site
- B26: PER Appendix V - Information sheet on Ramsar wetlands
- B27: PER Appendix W - Wader bird surveys 2013-2016
- B28: PER Appendix X - Groundcover grazing management plan
- B29: PER Appendix Y - Response to public submissions
- C1: Letter to proponent
- C2: Letter to Queensland Department of Environment and Science
- C3: Letter to Minister for Infrastructure, Transport and Regional Development
- D: Proposed decision notice
- E: Public submissions on the draft PER
- F: Statutory documents report (dated 2 March 2020)

- G1: Department of the Environment and Resource Management (2010). *National Recovery Plan for the water mouse (false water rat) Xeromys myoides*. Report to Department of Sustainability, Environment, Water, Population and Communities, Canberra. Department of the Environment and Resource Management, Brisbane. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-water-mouse-false-water-rat-xeromys-myoides>. In effect under the EPBC Act from 21-Apr-2011.
- G2: Department of the Environment and Energy (2017). *Recovery Plan for Marine Turtles in Australia*. Australian Government, Canberra. Available from: <http://www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017>. In effect under the EPBC Act from 03-Jun-2017.
- G3: Department of the Environment (2015). *Threat Abatement Plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.
- G4: Department of the Environment and Energy (2017). *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>. In effect under the EPBC Act from 18-Mar-2017.
- G5: Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat Abatement Plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008.
- G6: Department of the Environment and Energy (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris-2018>. In effect under the EPBC Act from 21-Jul-2018.
- G7: Threatened Species Scientific Committee (2015). *Conservation Advice Megaptera novaeangliae humpback whale*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/38-conservation-advice-10102015.pdf>. In effect under the EPBC Act from 01-Oct-2015.
- G8: Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Dermochelys coriacea (Leatherback Turtle)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-conservation-advice.pdf>. In effect under the EPBC Act from 08-Jan-2009.
- G9: Department of the Environment (2015). *Conservation Advice Numenius madagascariensis eastern curlew*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/847-conservation-advice.pdf>. In effect under the EPBC Act from 26-May-2015.
- G10: Threatened Species Scientific Committee (2016). *Conservation Advice Limosa lapponica baueri Bar-tailed godwit (western Alaskan)*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/86380-conservation-advice-05052016.pdf>. In effect under the EPBC Act from 05-May-2016.

- H1: Departmental advice – Wetlands Section
- H2: Departmental advice – Migratory Species Section (August 2018)
- H3: Departmental advice – Migratory Species Section (June 2017)
- I1: ERT Report 5 km buffer (dated 25 October 2013)
- I2: ERT Report 5 km buffer (dated 20 February 2020)
- J1: Regional Ecosystem Mapping Consultancy (2019) *EPBC 2013/7038 PER Migratory Shorebirds Significant Impacts Addendum Turtlecove August 2019*.
- J2: Proponent's proposed conditions
- J3: Letter from proponent regarding Ramsar boundary
- J4: Emails between proponent's legal representative and the Department
- J5: Emails between proponent's legal representative and the Department
- J6: Proponent's response to advice from Professor Richard Fuller (dated 16 April 2019)
- J7: Proponent's proposed conservation covenant
- K1: Advice from Fraser Coast Regional Council
- K2: Advice from the Queensland Department of Environment and Science
- K3: Advice from Professor Richard Fuller 1 April 2019
- K4: Advice from the Commonwealth Environmental Water Office
- L1: Meeting note: Minister's site visit
- L2: Briefing from Anscape Pty Ltd for the Minister's site visit
- L3: Meeting note: Minister's meeting with Fraser Coast Regional Council
- L4: Meeting note: Minister's meeting with Professor Richard Fuller
- M1: Information Sheet on Ramsar wetlands
- M2: Clemens R (2014) *Expert Report – Prepared for T4 PAC Meeting – 26 August 2014*.
- M3: Glover HK, Weston MA, Maguire GS, Miller KK, Christie BA (2011) *Towards ecologically meaningful and socially acceptable buffers: Response distances of shorebirds in Victoria, Australia, to human disturbance*.
- M4: Harding S, Milton D and Cross L (2005) *Great Sandy Strait shorebird roost mapping project - Final report*. Queensland Wader Study Group, Unpublished data, Queensland, Australia.
- M5: Weimerskirch H, Shaffer SA, Mabile G, Martin J, Boutard O, Rouanet JL (2002) *Heart rate and energy expenditure of incubating wandering albatrosses: basal levels, natural variation, and the effects of human disturbance*. *Journal of Experimental Biology*. 205(4):475-83.
- M6: *National Light Pollution Guidelines for Wildlife*, Commonwealth of Australia 2020
- N: Public submissions outside the public comment period

RECOMMENDATION REPORT

Turtle Cove Haven Retirement Village (EPBC 2013/7038)

Recommendation

1. The Department recommends that the proposed action, to construct and operate a retirement and aged care village, associated infrastructure and facilities, 6.5 ha solar power station and 10 ha open space at River Heads in Queensland, be refused approval.

Background

Description of the project and location

2. The proposed action is to construct and operate a retirement and aged care village, associated infrastructure and facilities, 6.5 ha solar power station and 10 ha open space at River Heads in Queensland (see Figure 6 of the PER at Attachment B1).
3. The proposed action includes the construction of:
 - Village town square with a medical precinct and commercial space;
 - High care facility for up to 80 residents;
 - Hotel for visitors and tourists;
 - Up to 500 independent living units consisting of 1-, 2- and 3-bedroom relocatable homes;
 - Solar power station;
 - Long term storage for boats, caravans and recreational vehicles;
 - Standalone sewage treatment plant; and
 - Public recreation area.
4. River Heads is located 18 km south of Hervey Bay, Queensland. To the east is the Great Sandy Strait (including Great Sandy Strait, Tin Can Bay and Tin Can Inlet) Ramsar site (GSS Ramsar site). To the south is the mouth of the Mary River and to the west is the mouth of the Susan River (a tributary of the Mary River) (see Figure 4 of the PER at Attachment B1).
5. The proposed action site comprises two adjoining parcels of land (part of Lot 996 and Lot 214). Lot 996 is 112.8 ha and Lot 214 is 2.2 ha.
6. The land above the highest astronomical tide (HAT) was historically utilised for pineapple production. This ceased in the 1970s and the site was used for grazing until the then Hervey Bay City Council (now the Fraser Coast Regional Council) rezoned the area precluding grazing. The proposed development area is mostly cleared with scattered individual trees and vegetated patches associated with drainage lines.
7. The land below HAT is claypan (see Figure 1 below), known as the Mangrove Point South claypan (sometimes referred to in the PER as the Turtle Cove claypan). This land is located within the GSS Ramsar site as a result of a change to the boundary of Lot 996.
8. The proponent has stated in a number of letters to the Department its view that Lot 996 is not within the GSS Ramsar site (e.g. Attachment J3). This view is based on the fact that Lot 996 is currently freehold land, and the description of the GSS Ramsar site in the Information Sheet on Ramsar wetlands (hereafter referred to as 'the RIS'; Attachment M1) states that freehold land does not form part of the Ramsar site.
9. Advice from the Department's Wetlands Section (Attachment K4) states that:

- In 1997, the boundary of Lot 996 was to the highest water mark (that is, it excluded the claypan area);
 - In 1999, the boundary of the GSS Ramsar site was set, and it was up to the highest water mark and included the claypan area (which was not, at the time, freehold land);
 - The boundary of the GSS Ramsar site has not changed since it was set in 1999;
 - In 2000, Lot 996 was resurveyed which extended Lot 996 to include the claypan area and therefore the claypan area subsequently became freehold land. Because this change occurred after 1999, which is when the Great Sandy Straight was listed as a Ramsar site, then it can be concluded that the claypan area is within the Ramsar site.
 - Lot 996, including the claypan area, is currently freehold land. The proponent considers that it does not form part of the GSS Ramsar site because the boundary description of the Ramsar Information Sheet states that freehold land does not form part of the Ramsar site. However, both the Department's mapping and QLD Wetland's Program mapping suggests that the claypan in Lot 996 does form part of the Ramsar site (as it was not freehold at the time of listing). It is important to note that the written boundary description is the legal description and the map provides assistance.
10. Having considered the advice received, the Department is of the view is that the claypan area of the project site below HAT is within the GSS Ramsar site.
11. In any case, because of the proximity of the proposed action to the GSS Ramsar site, the Department considers that the proposed action is likely to have an unacceptable impact on the ecological character of the GSS Ramsar site, regardless of whether the legal boundary of the GSS Ramsar site is at the HAT (which is the Department's conclusion) or the eastern boundary of Lot 996 (which is the proponent's view) (see discussion at paragraphs 47 to 113).

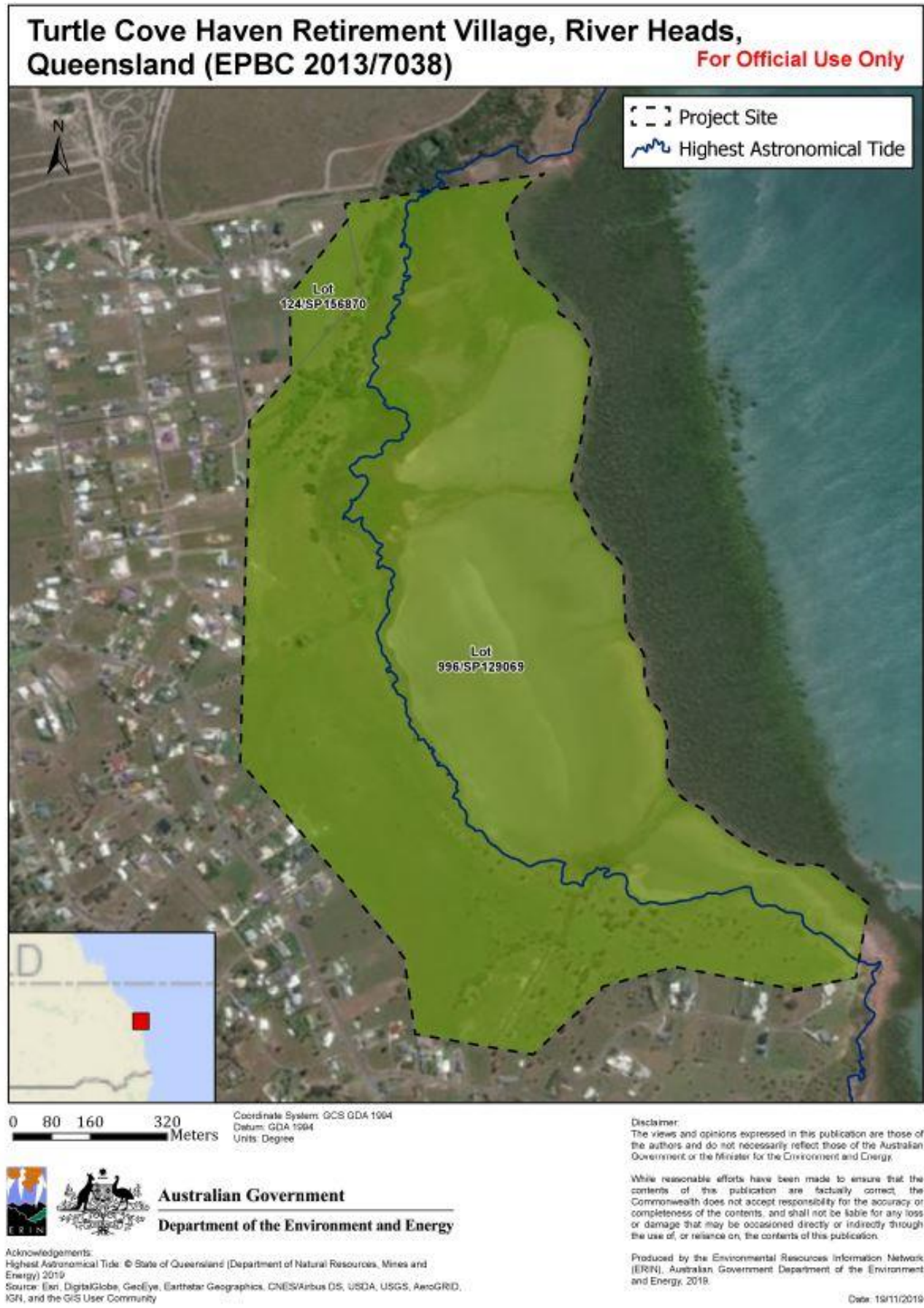


Figure 1. Project site for the proposed Turtle Cove Haven Retirement Village site.

Controlling provisions, assessment approach and public consultation

12. A referral (EPBC 2013/7038) was received on 25 October 2013 for the construction of a retirement village and golf course with associated infrastructure and facilities (known as Turtle Cove Haven Retirement Village), on the River Heads Peninsular, Queensland. The action was referred by Mr Brian Clarke on behalf of Anscape Pty Limited.
13. On 29 November 2013 the proposed action was determined to be a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to likely significant impacts to:
 - Wetlands of international importance (sections 16 and 17B);
 - Listed threatened species and communities (sections 18 and 18A); and
 - Listed migratory species (sections 20 and 20A).

On the same date it was determined that the proposal would be assessed by public environment report (PER).

14. On 23 December 2013 the Department sent PER guidelines to the proponent to enable an adequate assessment of the above matters to be undertaken.
15. On 4 April 2016 the proponent submitted a draft PER. Due to inconsistencies within the report, and the lack of information provided, the proponent was asked to resubmit the report.
16. On 11 January 2017 the proponent submitted a request for a variation to the proposal. The variation involved the removal of the proposal to construct and operate a 9-hole golf course and fenced boardwalk, and the inclusion of a proposal to construct and operate a 10 Megawatt solar power station on 16.5 ha of the proposal site. The requested variation was accepted by the delegate on 23 February 2017.
17. On 28 March 2017 the proponent submitted the second version of the draft PER. On 10 May 2017 the Department advised the proponent that the second draft PER was not adequate to be published and provided comments to assist with revisions.
18. On 22 May 2017 the proponent submitted a second request to vary the action, which involved a reduction in the size of the solar power station from 16.5 ha to 6.5 ha and the inclusion of 10 ha of open space. The second variation was accepted by the delegate on 1 June 2017.
19. On 25 May 2017 the proponent submitted a third version of the draft PER, and then a fourth version of the draft PER on 10 June 2017 following the acceptance of the second request to vary the proposed action. The Department advised the proponent that the fourth draft PER was not adequate to be published because it still did not meet the PER guidelines and still referred to the project prior to the variation and provided comments to assist with revisions.
20. On 27 July 2017 the proponent submitted a fifth version of the draft PER. On 17 August 2017 the Department advised the proponent that the fifth draft PER was not adequate to be published and provided comments to assist with revisions.
21. On 23 August 2017 the Department received a letter from the proponent requesting justification for the delay of the project approval and warning of legal action and calls to the Minister. The Department responded on 5 September 2017 advising that the delay in the process was because the draft PER did not meet the PER guidelines, and therefore was not adequate to be published for public comment. The Department stated that when the Department received a PER that adequately addressed the requirements, the proponent would be directed to publish the report for public consultation, and provided comments to assist with revisions to the draft PER. The key ongoing issues were that the PER provided to the Department did not address the information requested in the PER Guidelines

completely and did not effectively present the information provided to the extent that the public or the Department could independently assess the environmental impacts of the proposed action.

22. On 6 October 2017, the proponent submitted a sixth version of the draft PER. On 10 November the Department advised the proponent that the sixth draft PER was not adequate to be published and provided comments to assist with revisions.
23. On 17 November 2017, the proponent submitted a seventh version of the draft PER. On 13 December 2017, the seventh version of the draft PER was published and public comment was invited until 25 January 2018 under section 95A(3) of the EPBC Act.

Public and ministerial comments

24. The public comment period was open for 34 business days between 13 December 2017 and 25 January 2018 to allow enough time for public comments and appropriate consideration due to the comment period falling across the Christmas and New Year holiday periods.
25. Following the publication period, the proponent notified the Department that 24 public submissions had been received from community members, NGOs and representatives from state and local governments ([Attachment E](#)). All submissions opposed the proposed action. The following environmental, social and economic concerns were raised:
 - Impacts to EPBC listed threatened and migratory species through disturbance from light, noise, habitat degradation and inadequate buffers to protect species;
 - Impacts to the ecological character of the GSS Ramsar site through water quality impacts associated with the proposed sewage treatment plant and from the proposed use of insecticides for the treatment of biting insects;
 - Increased population size and traffic;
 - Emergency management;
 - Lack of supporting infrastructure and services;
 - Limited demand for aged care facilities in the region; and
 - Prevalence of biting insects in the proposed development area as a health risk to prospective residents.
26. The submissions made on the draft PER and the proponent's response have been considered during the assessment of the proposed action and are discussed in this recommendation report.
27. Additional public submissions were received throughout the referral decision period and assessment period. These submissions raised the same key concerns outlined above.
28. No comments on the proponent's assessment documentation were received from State and Commonwealth Ministers.
29. The proponent submitted the final PER to the Department on 27 July 2018. The final PER was published for information from 7 August 2018 for a period of 20 business days ([Attachment B1-B29](#)).
30. A decision on whether or not to approve the proposed action was due on 2 October 2018.

State Assessment and Approval

31. The project has been granted preliminary approval for a material change of use under section 242 of the *Sustainable Planning Act 2009* through the Queensland Government (approval number SDA-1117-041475).

32. The relevant local council, the Fraser Coast Regional Council, is yet to make a decision on whether or not to approve the proposal.

Minister's visit to the project site

33. On 30 January 2020, the Minister met with the proponent on site at River Heads in Queensland to familiarise herself with the context of the proposal.

34. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting and was instructed to include in that note a comprehensive account of the matters raised and discussed ([Attachment L1](#)).

35. The proponent's legal representative provided to the Minister a brief including information relating to the proposed action ([Attachment L2](#)).

36. The brief provided to the Minister ([Attachment L2](#)) included a development plan of the proposal that differed from that provided in the PER. Following the site visit, the Department wrote to the proponent's legal representative to confirm that the Department was assessing the varied referred action as described in the PER ([Attachment J5](#)).

37. Information provided to the Minister at the site visit (the majority of which had already been received by the Department) has been considered in preparing this recommendation report.

Minister's meeting with Fraser Coast Regional Council

38. On 30 January 2020, the Minister met with a representative of the Fraser Coast Regional Council to consider the council's views on the proposed action.

39. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting and was instructed to include in that note a comprehensive account of the matters raised and discussed ([Attachment L3](#)).

40. Information provided to the Minister at the meeting, as set out in the meeting notes at [Attachment L3](#), has been considered by the Department in preparing this recommendation report.

Minister's meeting with Professor Richard Fuller

41. On 31 January 2020, the Minister met with migratory shorebird expert Professor Richard Fuller of the University of Queensland to seek Professor Fuller's views on the proposed action.

42. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting and was instructed to include in that note a comprehensive account of the matters raised and discussed ([Attachment L4](#)).

43. Information provided to the Minister at the meeting, as set out in the meeting notes at [Attachment L4](#), has been considered by the Department in preparing this recommendation report.

Information available to the Department

Site specific

44. To inform the Department's consideration of the impacts of the proposed action, the Department has relied upon and sought site-specific advice from several relevant experts. In addition, the proponent provided site-specific reports to the Department. The reports and advice available to the Department include:

- Public Environment Report and appendices ([Attachment B1-29](#)).
- Regional Ecosystem Mapping Consultancy (2019) *EPBC 2013/7038 PER Migratory Shorebirds Significant Impacts Addendum Turtlecove August 2019*. ([Attachment J1](#)).

- The Department's Wetlands Section provided advice ([Attachment H1](#)).
- The Department's Migratory Species Section provided advice ([Attachment H2-H3](#)).
- Information Sheet on Ramsar wetlands ([Attachment M1](#)).
- The Fraser Coast Regional Council provided advice ([Attachment K1](#)).
- The Queensland Department of Environment and Science's Wetlands Section provided advice ([Attachment K2](#)).
- Professor Richard Fuller, University of Queensland, provided advice ([Attachment K3](#)).

General

45. To inform the Department's consideration of the impacts of the proposed action, the Department has relied upon the following documents/sources of information:

- Department of the Environment and Resource Management (2010). *National Recovery Plan for the water mouse (false water rat) Xeromys myoides*. Report to Department of Sustainability, Environment, Water, Population and Communities, Canberra. Department of the Environment and Resource Management, Brisbane. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-water-mouse-false-water-rat-xeromys-myoides>. In effect under the EPBC Act from 21-Apr-2011. ([Attachment G1](#)).
- Department of the Environment and Energy (2017). *Recovery Plan for Marine Turtles in Australia*. Australian Government, Canberra. Available from: <http://www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017>. In effect under the EPBC Act from 03-Jun-2017. ([Attachment G2](#)).
- Department of the Environment (2015). *Threat Abatement Plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015. ([Attachment G3](#)).
- Department of the Environment and Energy (2017). *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>. In effect under the EPBC Act from 18-Mar-2017. ([Attachment G4](#)).
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat Abatement Plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008. ([Attachment G5](#)).
- Department of the Environment and Energy (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris-2018>. In effect under the EPBC Act from 21-Jul-2018. ([Attachment G6](#)).
- Threatened Species Scientific Committee (2015). *Conservation Advice Megaptera novaeangliae humpback whale*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/38->

[conservation-advice-10102015.pdf](#). In effect under the EPBC Act from 01-Oct-2015. (Attachment G7).

- Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Dermochelys coriacea (Leatherback Turtle)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-conservation-advice.pdf>. In effect under the EPBC Act from 08-Jan-2009. (Attachment G8).
- Department of the Environment (2015). *Conservation Advice Numenius madagascariensis eastern curlew*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/847-conservation-advice.pdf>. In effect under the EPBC Act from 26-May-2015. (Attachment G9)
- Threatened Species Scientific Committee (2016). *Conservation Advice Limosa lapponica baueri Bar-tailed godwit (western Alaskan)*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/86380-conservation-advice-05052016.pdf>. In effect under the EPBC Act from 05-May-2016. (Attachment G10).
- Clemens R (2014) *Expert Report – Prepared for T4 PAC Meeting – 26 August 2014*. (Attachment M2).
- Glover HK, Weston MA, Maguire GS, Miller KK, Christie BA (2011) *Towards ecologically meaningful and socially acceptable buffers: Response distances of shorebirds in Victoria, Australia, to human disturbance*. (Attachment M3).
- Harding S, Milton D and Cross L (2005) *Great Sandy Strait shorebird roost mapping project - Final report*. Queensland Wader Study Group, Unpublished data, Queensland, Australia. (Attachment M4).
- Weimerskirch H, Shaffer SA, Mabile G, Martin J, Boutard O, Rouanet JL (2002) *Heart rate and energy expenditure of incubating wandering albatrosses: basal levels, natural variation, and the effects of human disturbance*. Journal of Experimental Biology. 205(4):475-83. (Attachment M5).
- *National Light Pollution Guidelines for Wildlife, Commonwealth of Australia 2020* (Attachment M6).

Assessment

Mandatory Considerations – section 136(1)(a) Part 3 controlling provisions

46. The proposal was determined a controlled action under the following controlling provisions of the EPBC Act:
- Wetlands of international importance (sections 16 and 17B);
 - Listed threatened species and communities (sections 18 and 18A); and
 - Listed migratory species (sections 20 and 20A).

These controlling provisions are discussed below.

Wetlands of international importance (sections 16 and 17B)Great Sandy Strait (including Great Sandy Strait, Tin Can Bay and Tin Can Inlet) Ramsar site (GSS Ramsar site)*Description*

47. The GSS Ramsar site is a sand passage estuary covering an area of 93,160 ha between mainland Australia and the World Heritage-listed Fraser Island. It was declared a wetland of international importance under the Ramsar Convention in 1999.
48. The RIS (Attachment M1) states that the GSS Ramsar site is the largest area of tidal swamps within the South East Queensland bioregion. It includes intertidal sand and mudflats, extended seagrass beds, mangrove forests, salt flats and saltmarshes, and is often contiguous with freshwater *Melaleuca* wetlands and coastal wallum swamps.
49. The RIS (Attachment M1) states that it is an exceptionally important roosting and foraging ground for migratory shorebirds and is important for a wide range of other shorebirds, waterfowl and seabirds, marine fish, crustaceans, oysters, marine turtles, Dugong (*Dugong dugon*), dolphins and whales.

Listing criteria

50. The GSS Ramsar site meets six of the nine criteria for listing under the Ramsar convention (as agreed by the Conference of the Contracting Parties to the Ramsar Convention (Ramsar COP) in various Recommendations and Resolutions). These criteria and values are described below as per the RIS (Attachment M1).

Criterion 1: *A wetland should be considered internationally important if it contains a representative, biogeographic region.*

51. Great Sandy Strait is an outstanding example of a sand passage estuary and is in a relatively undisturbed state. Large, well developed expanses of sand and mudflats, salt flats, mangroves and seagrass beds are widespread along the Strait. Such passages are rare in Queensland, but less spectacular passages occur elsewhere in the South East Queensland bioregion. Great Sandy Strait contains excellent examples of intertidal wetlands that are found along the coast of Queensland. This aggregation of intertidal wetlands is representative of southern species and communities but is more extensive and less disturbed. The rare and globally important patterned fen complexes of the Great Sandy Strait are the only known sub-tropical example of this wetland type.

Criterion 2: *A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.*

52. Wetlands along Great Sandy Strait support an appreciable number of Dugong, marine turtles, Illidge's Ant Blue Butterfly (*Acrodipsas illidgei*) and yearling Eastern Curlews (*Numenius madagascariensis*) which do not migrate in their first winter. All of these species are listed as rare, vulnerable or endangered under the *Nature Conservation Act 1992* (Queensland), the *Endangered Species Protection Act 1992* (Commonwealth) [now repealed and replaced by the EPBC Act,] or the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn, 1979) [Bonn Convention].

Criterion 3: *A wetland should be considered internationally important if it supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.*

53. Great Sandy Strait represents an area of biogeographic significance with respect to the large area of subtropical mangrove communities near their northern limit. The mangrove communities within the Strait represent a transition between essentially temperate and

tropical flora. It is the transition between the southern and northern species composition of mangrove wetlands.

54. The GSS Ramsar site supports substantial numbers of migratory shorebird species with greater than four per cent of state totals being recorded at wetlands in the GSS Ramsar site for 17 shorebird species. Maximum numbers recorded include Grey-tailed Tattler (*Tringa brevipes*) (7681 – 42%), Eastern Curlew (6018 – 33%), Bar-tailed Godwit (*Limosa lapponica baueri*) (13,359 – 27%), Greenshank (*Tringa nebularia*) (1069 – 24%) and Terek Sandpiper (*Xenus cinereus*) (2494 – 21%).

Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds.

55. Wetlands along Great Sandy Strait regularly support in excess of 20,000 migratory shorebirds. Counts of between 30,000 and 40,000 shorebirds have been recorded in recent years.

Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

56. Wetlands along Great Sandy Strait regularly support more than 1% the total flyway (or world) population of the following species: Eastern Curlew (19.6%), Grey-tailed Tattler (16.2%), Lesser Sand Plover (*Charadrius mongolis*) (5.5%), Terek Sandpiper (5.0%), Whimbrel (*Numenius phaeops*) (3.8%), Bar-tailed Godwit (3.7%), Pied Oystercatcher (*Haematopus longirostris*) (3.2%), Greenshank (2.6%) and Grey Plover (*Pluvialis squatarola*) (1.6%).

Criterion 8: A wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

57. The Great Sandy Strait tidal wetlands are extremely important for protection of and as a source of food for juvenile and adult fish, prawns and other crustaceans. It is highly valued for commercial and recreational fishing. An important offshore prawn fishery is dependent on the migration of prawn stocks out of the strait.

Ecological character of the declared Ramsar wetlands

58. The protected matter for the controlling provisions relating to declared Ramsar wetlands (sections 16 and 17B) is the ecological character of the declared Ramsar wetland (section 34). For the purposes of the EPBC Act, 'ecological character' has the same meaning as in the Ramsar Convention (section 16(3)): 'the combination of the ecosystem components, processes and benefits/services that characterise the wetland at a given point in time' (see Annex A of Resolution IX.1 of the Ramsar COP, paragraph 15, and Articles 3(2) and 6(2) of the Ramsar Convention).
59. The conceptual framework for the wise use of wetlands and the maintenance of their ecological character (Annex A of Resolution IX.1 of the Ramsar COP, paragraph 6) defines:
- Ecosystem components as the complex of living communities (including human communities) and the non-living environment;
 - Ecosystem processes as the way in which these components interact; and
 - Ecosystems services as the benefits such processes provide to people (e.g. clean water, storm surge protection).
60. Each declared Ramsar wetland has an 'Ecological Character Description'. Guidance from the Ramsar Convention indicates that ecological character description should be made for

the state of the wetland at the time of its listing as a Ramsar site, and that change in ecological character should be assessed against the baseline status at the time of listing.

61. Since the GSS Ramsar site was listed, a formal ecological character description has not been published, nor is there a Ramsar management plan for the site. Given this, the ecological character of the GSS Ramsar site is that described in the RIS ([Attachment M1](#)).
62. Advice from the Department's Wetlands Section ([Attachment H1](#)) notes that the ecological character description cited in the PER (Appendix U of the PER at [Attachment B25](#)) was a draft that was never finalised and therefore should not be relied upon.
63. The RIS ([Attachment M1](#)) describes the physical features, hydrological values, general ecological features, noteworthy flora and fauna, and social and cultural values that form the ecological character of the GSS Ramsar site. The Department considers that the RIS contains the most relevant description of the ecological character of the GSS Ramsar site for the purposes of this report.

Impact assessment

64. The Department's Significant Impact Guidelines 1.1: MNES states that an action is likely to have a significant impact on the ecological character of a declared Ramsar wetland if there is a real chance or possibility that it will result in:
 - Areas of the wetland being destroyed or substantially modified;
 - A substantial and measurable change in the hydrological regime of the wetland, for example, a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland;
 - The habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected;
 - A substantial and measurable change in the water quality of the wetland – for example, a substantial change in the level of salinity, pollutants, or nutrients in the wetland, or water temperature which may adversely impact on biodiversity, ecological integrity, social amenity or human health; or
 - An invasive species that is harmful to the ecological character of the wetland being established (or an existing invasive species being spread) in the wetland.
65. The proposed development footprint is directly adjacent to the GSS Ramsar site. The Department considers that the proposed action is likely to impact on the claypan (i.e. the Mangrove Point South claypan), the mangroves adjacent to this claypan, and the nearby seagrass meadows. These wetlands contribute to the ecological character of the Ramsar site as described in the RIS ([Attachment M1](#)).
66. The GSS Ramsar site is habitat for a variety of flora and fauna species that contribute to the ecological character of the GSS Ramsar site as described in the RIS ([Attachment M1](#)), including a number of listed threatened and listed migratory species ([Attachment H1](#)). Impacts on listed threatened and listed migratory species are discussed further in the listed threatened species and listed migratory species sections. The Department considers that significant impacts to these species are also relevant under the provisions for declared Ramsar wetlands.
67. The PER states that the proposal will not impact on the ecological character of the GSS Ramsar site.
68. The Department considers that impacts on the ecological character of the GSS Ramsar site as a result of the proposed action will arise from:
 - Altered hydrological regime and decline in water quality;

- Degradation or loss of wetland habitats as a result of the changes to hydrology and water quality; and
- Noise interference, light pollution, marine debris, human and dog interactions and boat traffic as a result of construction and operation.

Altered hydrological regime and decline in water quality

69. The Department considers that the proposed action will lead to a substantial increase in the volume, frequency and duration of water flowing from the project site into the GSS Ramsar site. The Department considers that this water will carry sediment, nutrients and other pollutants/contaminants into the GSS Ramsar site, which will cause a change in the water quality of the GSS Ramsar site. These may include:
- Sediment from disturbed and exposed soil during construction and from soil erosion during operation;
 - Sheep manure, fertiliser and herbicides from the proposed groundcover management measures (Appendix X of the PER at [Attachment B28](#));
 - Insecticides from the proposed biting midge management measures (Appendix O of the PER at [Attachment B19](#));
 - Other pollutants/contaminants including pharmaceuticals in effluent; and
 - Acid and released metals from disturbance of acid sulphate soils (ASS).
70. The PER states that the current quality of storm water entering the claypan is impacting on the water quality of the GSS Ramsar site.
71. The Fraser Coast Regional Council states that the project site is currently 100% pervious and estimates that the proposed action will result in 24 ha of impervious surface area and an additional 31 ha with reduced perviousness (approximately 80% pervious) ([Attachment K1](#)). The Department considers that this increased impervious surface area as well as other hydrological modifications across the site (e.g. altered drainage flows) as a result of the proposed action will lead to increases in the volume of stormwater flowing into the GSS Ramsar site.
72. In addition to increased stormwater runoff, the Department considers that sewage treatment, storage and reuse of treated water on-site will lead to surface flow or groundwater seepage of substantial volumes of treated water into the GSS Ramsar site, which will cause changes to the volume, timing, duration and frequency of water flows to and within the wetlands.
73. The PER states that sewage will be treated on-site using a standalone sewage treatment plant and the treated water will be used as irrigation on-site. The preliminary sewerage supply report (Appendix R of the PER at [Attachment B22](#)) estimates approximately 200,000 L of effluent will be produced daily during operation of the proposed development.
74. Based on average household water consumption, the Fraser Coast Regional Council estimates that the proposed action will produce up to 300,000 L of effluent daily from sewage treatment for the residential units alone ([Attachment K1](#)). This estimate does not include water produced by commercial operations proposed as part of the development. As such, the Department considers that the volume of effluent produced during operation of the proposed action is likely to be much greater than that considered in the PER.
75. Appendix P of the PER ([Attachment B20](#)) identifies that effluent may contain metals, pesticides and pharmaceuticals and that these potential hazards will need to be monitored and managed. However, the section of the report detailing management and monitoring is incomplete (see paragraphs 100-104).

76. Appendix X of the PER (Attachment B28) states that groundcover around the proposed solar power station will be managed using grazing by sheep, slashing and/or spraying. The Department considers this will introduce additional pollutants/contaminants (fertiliser, sheep manure, herbicides) into runoff and that grazing will increase soil erosion contributing to sediment runoff.
77. Erosion and sedimentation may also be exacerbated by flood events on the project site. Fraser Coast Regional Council storm surge maps (<http://www.frasercoast.qld.gov.au/storm-surges>) indicate that the majority of the project site is in the highest risk category for risk of flooding from a cyclone storm tide (i.e. may experience flooding with storm surges up to 1 m above HAT), and that the remainder of the project site is in the high or moderate risk category (i.e. may experience flooding with storm surges up to 2 m and 2-4 m above HAT respectively).
78. The PER states that potential public health issues associated with the abundance of biting midges in the proposed action area will be controlled using insecticides. The biting midge report (Appendix O of the PER at Attachment B19) states that insecticide treatments will be repeated at approximately six-week intervals. The Department considers that use of insecticides across the proposed development area at regular intervals for the duration of the operation of the proposed action may lead to runoff of insecticides, which may have negative effects on fauna species dependent on the wetlands by reducing availability of invertebrate food sources.
79. The Department considers that runoff is likely to contain other pollutants/contaminants such as fertilisers, herbicides and pesticides from landscaping and resident gardens throughout the development, household chemicals and pharmaceuticals.
80. The PER states that soil testing has detected the presence of potential acid sulphate soils (PASS) within the proposed excavation areas and identifies that untreated ASS may lead to impacts on water quality. ASS are soils containing iron sulphides, which, when exposed to air, can react with oxygen to create sulphuric acid making metals in the soil more soluble, which may then be released in toxic amounts into the environment. The RIS (Attachment M1) states that ineffective management of ASS may result in fish kills, destruction of fish habitats and life-cycles, corrode infrastructure and lead to infestation of acid-tolerant plants in the GSS Ramsar site.
81. The RIS (Attachment M1) states that pollution and contamination from herbicides, pesticides, fertilisers and sewage/stormwater effluent currently pose a moderate threat to the GSS Ramsar site. The Department considers that the increase in volume and frequency of fresh water, sediment and other pollutants/contaminants flowing into the GSS Ramsar site as a result of the proposed action will add to these pressures.
82. Given the above discussion, the Department considers that the proposed action will result in a substantial change in the hydrological regime of the GSS Ramsar site and a substantial decline in the water quality of the GSS Ramsar site.

Degradation or loss of wetland habitats as a result of altered hydrology and water quality

83. The Department considers the changes to hydrology and water quality in the GSS Ramsar site discussed above will lead to areas of the wetlands being destroyed or substantially modified, as:
- Influxes of fresh water degrade mangroves and seagrasses;
 - Sediment runoff smothers mangroves and seagrasses;

- Nutrient runoff causes eutrophication (i.e. the enrichment of water by nutrients that may cause increases in growth of algae and aquatic plants and declines in animal species utilising the water body);
 - Pollution may reduce the availability of food for migratory shorebird species;
 - Altered hydrology (i.e. stormwater outlets discharging water directly onto the claypan) may lead to gouging of the claypan.
84. The RIS ([Attachment M1](#)) states that the GSS Ramsar site represents an area of biogeographic significance with respect to the large area (15,000 ha) of subtropical mangrove communities near their northern limit. These mangroves also support large communities of mangrove invertebrates and fish, and several stands of mangroves support populations of the Illidge's Ant Blue Butterfly.
85. The RIS ([Attachment M1](#)) states that seagrass meadows are one of the most important habitat components for maintenance of the present ecological health and diversity exhibited by the GSS Ramsar site. Seagrass meadows in the GSS Ramsar site act as nursery and feeding grounds for prawns and fish, and feeding grounds for marine turtles and the Dugong. These species are highly dependent on the quality and quantity of seagrass in the GSS Ramsar site, and any changes to water quality which lead to the degradation of this habitat are likely to result in impacts to these species.
86. The Mangrove Point South claypan is internationally important habitat for migratory shorebirds including the Eastern Curlew and Bar-tailed Godwit ([Attachment H1-H2](#)). Advice from the Department's Wetlands Section ([Attachment H1](#)) states that runoff, stormwater and pollution from the proposed action will likely lead to degradation or loss of this habitat.
87. Given the above discussion, the Department considers the proposed action will result in areas of the wetland being destroyed or substantially modified and the habitat or lifecycle of species that depend on the GSS Ramsar site being seriously affected.

Increases in light pollution, noise interference, marine debris, human and dog interactions and boat traffic

88. Advice from the Department's Wetlands Section ([Attachment H1](#)) states that disturbance from lighting is likely to impact on species utilising the GSS Ramsar site, including marine turtles, Dugong and migratory shorebirds. These impacts are discussed further in the threatened species and migratory species sections below.
89. The interaction between marine species and marine debris is listed as a key threatening process under the EPBC Act ([Attachment G6](#)). Marine debris of human origin includes plastic garbage such as bags, bottles, ropes, derelict fishing gear and non-biodegradable floating materials lost or disposed of at sea. The Department considers that the increased human population associated with the proposed action may lead to increased marine debris of human origin entering the GSS Ramsar site, which may lead to increased incidences of marine species becoming entangled or ingesting marine debris. These impacts are discussed further in the threatened species and migratory species sections below.
90. The Department considers the location of the development within 300 m of shorebird habitat and the increased number and frequency of humans and dogs traversing areas in line of sight of the habitat as a result of the proposed action will lead to frequent and ongoing disturbance to shorebirds utilising the claypan, impacting negatively on migratory shorebird species. These impacts are discussed further in relation to the Eastern Curlew in the migratory species section below.
91. The number and frequency of boats using the waterways of the GSS Ramsar site are likely to increase with an increased human population as a result of the proposed action. The Department considers this may lead to increased disturbance and boat strike of species

using the GSS Ramsar site, including Humpback Whales (*Megaptera novaeangliae*), marine turtles, Dugongs and Australian Humpback Dolphins (*Sousa sahulensis*). These impacts are discussed further in the threatened species and migratory species sections below.

92. Given the above discussion, the Department considers that the proposed action will seriously affect the habitat or lifecycle of native species dependent upon the wetland.

Avoidance and mitigation measures

Altered hydrological regime and decline in water quality

93. To manage potential impacts of altered hydrological regime and decline in water quality on the ecological character of the GSS Ramsar site, the proponent has provided the following documents with the PER:
- Construction environment management plan (Appendix G of the PER at [Attachment B9](#));
 - Stormwater quality management plan (Appendix K of the PER at [Attachment B13](#));
 - Stormwater quantity management plan (Appendix K1 of the PER at [Attachment B14](#));
 - Sewerage management plan (Appendix R of the PER at [Attachment B22](#));
 - Recycled water management plan (Appendix P of the PER at [Attachment B20-B21](#));
 - Revegetation strategy (Appendix H of the PER at [Attachment B10](#));
 - Biting midge report (Appendix O of the PER at [Attachment B19](#));
94. These documents describe management objectives and the proposed avoidance and mitigation measures, including:
- Management measures for the construction phase including erosion and sediment control and options for the management of PASS;
 - Water sensitive urban design in conjunction with appropriate on-site sewage treatment;
 - Bioretention wetlands to improve water quality by slowing water flow and natural filtration of sediment and nutrients;
 - Revegetation of the foreshore landscape with appropriately selected native species, which will form a visual barrier and slow water flow;
 - Revegetated drainage lines with appropriately selected native species to improve waterway stability
 - Management guidelines for treatment of biting midge, including timing insecticide applications to allow drying time prior to rain and an objective that no product will be allowed to enter waterways.
95. The proponent engaged a third party to review the management plans relevant to managing water quality and quantity (Appendix S of the PER at [Attachment B23](#)). The review concludes that the proposal can be constructed and operated to satisfactorily manage water quality. The Department notes that this review was conducted by a consultant that contributed to producing several of the management plans, and hence does not consider the review to be independent.
96. The Department notes that a number of these management plans are preliminary or incomplete, and were prepared prior to the variation of the proposed action, which has changed several aspects of the development proposal. The Department considers that this

does not provide certainty as to the measures that will be implemented or how successful they will be.

97. The stormwater quantity management plan (Appendix K1 of the PER at [Attachment B14](#)) addresses existing stormwater flow through the project site from the upstream catchment, and presents management measures to minimise impacts of the proposed action on existing stormwater flow through the project site from the upstream catchment. The Department notes this plan does not address the likely increases in stormwater flow from the project site as a result of increased impervious surface area discussed in paragraph 70.
98. The PER states that sewage will be managed on-site using a standalone sewage treatment plant. The PER states that the sewage treatment plant will have a 1500 equivalent persons capacity and will produce "Class A" water for reuse as irrigation on-site.
99. The appendix labelled as a sewerage management plan (Appendix R of the PER at [Attachment B22](#)) is actually a sewerage supply report which provides an estimate of sewage production by the proposed action. The report states that the proposed development can be suitably serviced by a sewage treatment plant but does not present specific management measures or the level of detail that would be required for a management plan. The Department also notes that this report is based on the original development proposal and is self-described as preliminary.
100. Information regarding possible designs and management of a sewage treatment plant are provided in a recycled water management plan (Appendix P-Q of the PER at [Attachment B20-B21](#)).
101. The Department notes that the recycled water management plan does not present a final design for the sewage treatment plant and that several sections of the recycled water management plan that the Department considers to be relevant to the management of impacts on water quality in the GSS Ramsar site are incomplete, stating that they will be formalised and described at a later stage. For example, section 5 of the recycled water management plan is incomplete. The plan states that this section documents the procedures for ensuring system processes and activities occur effectively and correctly to produce recycled water of acceptable quality.
102. The recycled water management plan identifies hazards and provides a risk assessment for the on-site treatment of sewage. The plan states that it focuses on both public health risks and environmental risk. The Department notes that the hazards and risks identified and the water quality standards used generally relate to public health, and considers the plan does not include adequate consideration of hazards and risks relevant to the GSS Ramsar site.
103. The Department notes that there are environmental risks that are not identified in the plan. For example, the report does not consider the risk of failure of the sewage treatment plant or treated water storage facility. The Department therefore considers that, in the event of a failure of the sewage treatment plant, the design has no option but for sewage to be discharged directly onto the claypan. Release of untreated sewage would carry pollutants and contaminants into the GSS Ramsar site, impacting on water quality.
104. The PER states that treated water will be used to irrigate groundcover around the proposed solar power station. The recycled water management plan states that there will be no irrigation of buffer zones within 50 m of the HAT, but does not consider the risk that use of treated water elsewhere on-site will lead to surface flow or groundwater seepage into the GSS Ramsar site. The Department considers it is likely that frequent or continuous irrigation will be required in order to manage the volume of water likely to be produced by operation of the proposed action (discussed in paragraphs 72-76). The Department considers this will lead to frequent or continuous flow of water into the GSS Ramsar site due to surface flow or seepage of water. The Department notes that in this region the ground is saturated with

rainwater for long periods during the wet season, which the Department considers will exacerbate the flow of treated water from the project site to the GSS Ramsar site.

105. The Department considers the reports and management plans provided do not provide evidence that the proposed action will not alter the hydrological regime or water quality of the GSS Ramsar site. In addition, the Department considers changes to hydrology and water quality will lead to areas of the wetlands being destroyed or substantially modified and the habitat or lifecycle of species that depend on the GSS Ramsar site being seriously affected.
106. Given these risks, the Department considers that the PER and attached management plans do not demonstrate adequate avoidance or mitigation of potential impacts on the ecological character of the GSS Ramsar site related to hydrological regime and water quality.

Increases in light pollution, noise interference, marine debris, human and dog interactions and boat traffic

107. To manage potential impacts of in light pollution, noise interference, marine debris, human and dog interactions and boat traffic on the ecological character of the GSS Ramsar site, the proponent has provided the following documents with the PER:

- Revegetation strategy (Appendix H of the PER at [Attachment B10](#));
- Faunal pest management (Appendix I of the PER at [Attachment B11](#)); and
- Wader bird MNES management plan (Appendix N of the PER at [Attachment B18](#)).

108. These documents describe management objectives and the proposed avoidance and mitigation measures, including:

- Revegetation of the foreshore landscape with appropriately selected native species, which will form a visual barrier and slow water flow;
- Buffer of 50 m from the highest astronomical tide (HAT) into the terrestrial land area, with a fence on the terrestrial edge of the buffer to restrict public access; and
- Location of all infrastructure a minimum of 100 m from the areas identified in the PER as foreshore roosting areas (see Figure 6 of the PER at [Attachment B1](#)).

109. Avoidance and mitigation measures to reduce impacts of light, noise, marine debris, human and dog interactions and vessel disturbance and strike on species that depend on the GSS Ramsar site are discussed in detail throughout the threatened species and migratory species sections below. The Department's considers that the proposed measures are unlikely to adequately avoid and mitigate these potential impacts. The Department concludes that the proposed action is likely to have significant impacts on the habitat or lifecycle of four species of marine turtles, the Eastern Curlew, the Bar-tailed Godwit and the Dugong, and that these impacts will be unacceptable.

110. In addition to listed threatened and migratory species, the Department considers that the proposed action will seriously affect the habitat or lifecycle of other native species listed in the RIS ([Attachment M1](#)) that are dependent on the wetlands of the GSS Ramsar site.

111. While the proponent has proposed avoidance and mitigation measures that may help reduce some of the potential impacts to the ecological character of the GSS Ramsar site, the Department considers that substantial risks associated with the proposed action remain.

Conclusion

112. Based on information about the nature and scale of the impacts of the proposed action, information about the GSS Ramsar site, and having considered the proposed avoidance, mitigation and management measures, the Department considers that the proposed action

is likely to have a significant impact on the ecological character of the GSS Ramsar site as it will lead to:

- Areas of the wetland being destroyed or substantially modified;
- A substantial and measurable change in the hydrological regime of the wetland;
- The habitat or lifecycle of native species dependent upon the wetland being seriously affected; and
- A substantial and measurable change in the water quality of the wetland which may adversely impact on biodiversity, ecological integrity, social amenity or human health.

113. Given these significant impacts and the uncertainty and risks associated with the proposed avoidance and mitigation measures, the Department concludes that the proposed action is likely to have an unacceptable impact on the ecological character of the GSS Ramsar site.

Listed threatened species and ecological communities (sections 18 and 18A)

114. The Department's Environmental Reporting Tool (ERT) (see ERT report generated on 25 October 2013 at [Attachment I1](#)) identifies 51 listed threatened species and one ecological community which may occur within five kilometres of the proposed action.

115. The Department notes that since the controlled action decision for the proposed action was made, a number of EPBC listing changes relevant to species that may occur within five kilometres of the proposed action have been made (see ERT report generated on 20 February 2020 at [Attachment I2](#)). New listings and up-listings made since the controlled action decision are not considered in this recommendation report, but any down-listings of EPBC listed threatened species have been taken into consideration.

116. An additional listed threatened ecological community (Subtropical and Temperate Coastal Saltmarsh) was identified in the referral as likely to occur within the proposed action area. In accordance with s 158A, the potential impacts on this threatened ecological community are not assessed in this recommendation report.

117. Based on the nature, scale and location of the proposed action, habitat present in the area of the proposed action and the nature of the species, the Department considers that the proposed action may have significant impacts on:

- Flatback Turtle (*Natator depressus*) – Vulnerable (also a listed migratory species)
- Green Turtle (*Chelonia mydas*) – Vulnerable (also a listed migratory species)
- Hawksbill Turtle (*Eretmochelys imbricata*) – Vulnerable (also a listed migratory species)
- Leatherback Turtle (*Dermochelys coriacea*) – Endangered (also a listed migratory species)
- Loggerhead Turtle (*Caretta caretta*) – Endangered (also a listed migratory species)
- Olive Ridley Turtle (*Lepidochelys olivacea*) – Endangered (also a listed migratory species)
- Water Mouse (*Xeromys myoides*) – Vulnerable
- Humpback Whale (*Megaptera novaeangliae*) – Vulnerable (also a listed migratory species)

118. All information on the above species have been sourced from the Department's Species Profile and Threats (SPRAT) database, unless otherwise stated. The information in SPRAT

includes Conservation Advices and Recovery Plans, as well as Threat Abatement Plans where relevant.

Marine turtles: Flatback Turtle (*Natator depressus*) – Vulnerable; Green Turtle (*Chelonia mydas*) – Vulnerable; Hawksbill Turtle (*Eretmochelys imbricata*) – Vulnerable; Leatherback Turtle (*Dermochelys coriacea*) – Endangered; Loggerhead Turtle (*Caretta caretta*) – Endangered; Olive Ridley Turtle (*Lepidochelys olivacea*) – Endangered

Description

119. A description of the characteristics and range of the Flatback Turtle can be found in SPRAT: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59257
120. A description of the characteristics and range of the Green Turtle can be found in SPRAT: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1765
121. A description of the characteristics and range of the Hawksbill Turtle can be found in SPRAT: https://www.environment.gov.au/cgi-in/sprat/public/publicspecies.pl?taxon_id=1766
122. A description of the characteristics and range of the Leatherback Turtle can be found in SPRAT: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1768
123. A description of the characteristics and range of the Loggerhead Turtle can be found in SPRAT: https://www.environment.gov.au/cgi-in/sprat/public/publicspecies.pl?taxon_id=1763
124. A description of the characteristics and range of the Olive Ridley Turtle can be found in SPRAT: https://www.environment.gov.au/cgi-in/sprat/public/publicspecies.pl?taxon_id=1767
125. The *Recovery Plan for Marine Turtles (2017)* ([Attachment G2](#)) identifies the following threats to these species: commercial and recreational fishing, coastal infrastructure and development (including industrial, residential and tourism development), Indigenous harvest, feral animal predation, climate change and light pollution.

Presence and habitat assessment

126. The Department's ERT indicates that breeding of the Flatback Turtle, Green Turtle and Loggerhead Turtle is known to occur within five kilometres of the proposed action.
127. The Department's ERT indicates that foraging, feeding or related behaviour of the Hawksbill Turtle and Olive Ridley Turtle is known to occur within five kilometres of the proposed action.
128. The RIS ([Attachment M1](#)) states that the GSS Ramsar site is an exceptionally important feeding ground for the Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Turtle, which are highly dependent on the quality and quantity of seagrass beds in the GSS Ramsar site. The Olive Ridley Turtle and Leatherback Turtle have been recorded as occasional visitors.
129. The PER states that the Booral seagrass wetlands, 5 km north of the project site, are a well-known foraging ground for several marine turtle species.
130. The PER states that surveys undertaken (marine values survey; Appendix L of the PER [Attachment B16](#)) did not detect these marine turtle species utilising the project site and that there is no suitable nesting habitat on the project site for these species. The marine values survey report states that Flatback Turtles, Green Turtles, Hawksbill Turtles, Loggerhead Turtles and Olive Ridley Turtles are known to occur in the Great Sandy Strait and may occur in the waters adjacent to the proposed action site. The report also notes that Loggerhead Turtles and Green Turtles are known to nest on beaches to the north of the proposed action site.

131. The Department notes that the marine values survey report (Appendix L of the PER Attachment B16) does not present empirical survey results and that the conclusions in the report are based on desktop analysis. However, having considered other information available to the Department, including advice from the Department's Migratory Species Section (Attachment H2), the Department agrees with the proponent's assessment of the available habitat on the project site, and considers that marine turtles are unlikely to utilise the project site itself.

Impact assessment

132. Appendix L of the PER (Attachment B16) identifies the potential impacts of the proposed action on marine turtles to be habitat degradation from a decline in water quality, increased boat strike, by-catch and entanglement in fishing gear and death or injury from human and pet interactions.

133. The Department considers that while development is not proposed within areas of marine turtle habitat, given the proximity of the proposed action to known marine turtle habitat, potential impacts to these species could result from:

- Compromised health, increased vulnerability to stressors and habitat degradation, due to altered hydrological regime and decline in water quality;
- Light pollution during construction and operation;
- Noise interference during construction and operation;
- Entanglement in and ingestion of marine debris;
- Terrestrial predation; and
- Vessel disturbance and strike from increased boat traffic.

134. The Recovery Plan (Attachment G2) states that anthropogenic contaminants can make their way into the marine environment from a range of agricultural, industrial and domestic sources, and can have direct impacts on marine turtles and their habitats. While not always fatal, long-term exposure can compromise health and increase vulnerability to other stressors. Runoff of nutrients and sediment from land-based agriculture, urban development and coastal aquaculture can impact water quality, causing changes in light and salinity over coral reefs and seagrass meadows, disease outbreaks, and exposure to biotoxins associated with algal blooms.

135. The likelihood that the proposed action will result in changes in hydrological regime and decline in water quality in the GSS Ramsar site are discussed in the wetlands of international importance section above. The Department concludes that the PER does not provide sufficient evidence that the proposed measures will adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action. The Department therefore considers that the proposed action may lead to compromised health and increased vulnerability of marine turtles

136. As discussed in relation to the wetlands of international importance above, the changes to hydrology and water quality will cause degradation of important habitat for the Green Turtle, Loggerhead Turtle, Hawksbill Turtle and Flatback Turtle.

137. The Recovery Plan (Attachment G2) states that artificial light (direct and sky glow) poses a threat to marine turtles because it disrupts critical behaviours such as nesting, hatchling orientation, sea finding and dispersal behaviours. Marine turtles nesting on beaches in Western Australia and south-east Queensland have been identified as being at highest risk from the effects of light pollution from urban and industrial development. As hatchlings orient towards the lowest light horizon rather than being directly attracted to bright lights, lights of

any wavelength can affect behaviour and light glow can disrupt marine turtles when it out-competes natural light sources.

138. The Department's *National Light Pollution Guidelines for Wildlife 2020* ([Attachment M6](#)) states that the impact of artificial light on wildlife will often be the result of the effect of all light sources in the region combined. As the number and intensity of artificial lights in an area increases there will be a visible, cumulative increase in sky glow. Light can impact turtles within 20 km of the light source.
139. The Department's Migratory Species section advised that, given the proximity of the proposed action site to a biologically important inter-nesting area for the Loggerhead Turtle, the proposed action may impact on the nesting behaviour of this species ([Attachment H2](#)). The Recovery Plan ([Attachment G2](#)) states that inter-nesting is the period between each successive clutch during which turtles remain close to the nesting beach or rookery. Impacts on this important habitat may impact on the breeding success of marine turtle species.
140. The Recovery Plan ([Attachment G2](#)) states that vibrations and noise from underwater blasting, seismic surveys, pile driving, dredging, vessel movement, live firing exercises and underwater demolitions can create substantial noise pollution in marine turtle habitats. Acute noise, or temporary exposure to loud noise, may result in avoidance of important habitats and in some situations physical damage to turtles. Acute noise is generated by activities such as pile driving, seismic activity, some forms of dredging, explosions, blasting and sonar. Exposure to chronic (continuous) loud noise in the marine environment may lead to avoidance of important habitat. Sources of chronic noise include port facilities, shipping channels and the operation of some oil and gas infrastructure.
141. The Recovery Plan ([Attachment G2](#)) states that very little is known of the impact of noise on marine turtles. However, the Department considers that it is unlikely that the proposed action will have noise-related impacts on marine turtles, given the noise sources likely to be associated with the construction and operation of the proposed action are unlikely to include those described above.
142. The interaction between marine species and marine debris is listed as a key threatening process under the EPBC Act ([Attachment G6](#)). Marine debris of human origin includes plastic garbage such as bags, bottles, ropes, derelict fishing gear and non-biodegradable floating materials lost or disposed of at sea.
143. The Recovery Plan ([Attachment G2](#)) states that marine debris can pose a threat to marine turtles at all life stages through entanglement and ingestion. Entanglement in marine debris can lead to restricted mobility, starvation, infection, amputation, and drowning. Marine turtles can ingest non-organic material unintentionally. Ingestion of marine debris can cause internal wounds or suffocation. It can prevent feeding, leading to starvation and can create intestinal blockages that increase buoyancy and stop a turtle from diving. In addition, toxins from ingested plastics may accumulate in marine turtle tissue with possible health implications. Ingestion of marine debris is particularly likely for marine turtles foraging in coastal waters.
144. The Department considers that the proposed action may lead to increased marine debris of human origin entering the GSS Ramsar site, which may lead to increased incidences of marine turtles becoming entangled or ingesting marine debris.
145. The Recovery Plan ([Attachment G2](#)) states that marine turtles, their eggs, hatchlings and habitat can be impacted by introduced and native terrestrial predators, such as pigs, foxes, cats, dogs, dingoes, crocodiles, monitors and goannas, silver gulls or nankeen night herons, bandicoots, water rats, ghost crabs, tropical fire ants (also known as ginger ants or tramp ants) and hermit crabs.

146. The Department considers that the proposed action may lead to increased numbers of cats and dogs traversing the shoreline and mangroves adjacent to the proposed development area, and that this may lead to predation events on marine turtles using these areas. The Department notes that the PER includes proposed measures to manage feral pests.
147. The Recovery Plan ([Attachment G2](#)) states that increased commercial and recreational boat traffic results in increased turtle/vessel interactions and disruption to important benthic feeding and inter-nesting behaviours. Impact from vessels can cause serious injury and/or death to individual marine turtles. This is particularly an issue in shallow coastal foraging habitats and inter-nesting areas where there are high numbers of recreational and commercial craft and in areas of marine development.
148. The PER states that impacts of vessel strike will be limited because:
- Additional boat traffic using the River Heads boat ramp or Urangan Harbour will be dispersed throughout the whole area, so there will not be any additional concentration of boat traffic that would cause an increase in boat strike;
 - The adjacent go-slow zone will not change as a result of the development; and
 - The development will be occupied by retirees, who are more cognisant and appreciative of the key marine species that utilise the area.
149. The Recovery Plan ([Attachment G2](#)) states that although the outcome can be fatal for individual turtles, boat strike has not been shown to cause stock level declines. However, in considering the cumulative impacts of threats on small or vulnerable stocks, it is likely to be a contributor to a stock level decline.
150. The Department notes that the GSS Ramsar site is already heavily used by recreational and tourist vessels, and there is a formal 'go-slow' zone. However, the Department considers that increased boat traffic associated with the proposed action may lead to increased disturbance and vessel strike of these species.
151. The Department considers that the cumulative impacts of the threats discussed above are likely to have significant impacts on marine turtle species. The Department considers that the proposed action will lead to degradation of important marine turtle habitat caused by changes to hydrology and decline in water quality, disturbance from light and increase in entanglement, ingestion of marine debris, and vessel disturbance and strike.

Avoidance and mitigation measures

152. The PER proposes the following measures to mitigate impacts to marine turtles:
- A sewage treatment plant to manage potential impacts to water quality;
 - A community engagement programme to inform residents how best to protect marine species from accidental boat strike;
 - No access from the development to the Mangrove Point South claypan, mangrove forest or waters to the east of the proposed action site.
153. The Department considers that the proposed avoidance and mitigation measures relating to hydrological regime and water quality are relevant to the marine turtles. The Department's consideration of these proposed measures is discussed in the wetlands of international importance section above. The Department considers that the proposed measures are unlikely to adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that the proposed action may therefore cause degradation of important habitat for the Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Turtle and may lead to compromised health and increased vulnerability of these species.

154. The Department considers the proposed measures to control of fox, dogs and cats through the implementation of a faunal pest management plan (Attachment B11) are relevant to marine turtles.
155. The Recovery Plan (Attachment G2) states that to manage the impacts of direct light and sky glow, urban, industrial and commercial developments should be separated from nearby nesting habitat by a buffer that is appropriate to the topography, presence of vegetation and the amount of light emitted from the project.
156. The Department notes that the PER does not include avoidance or mitigation measures to manage impacts of direct light or sky glow on marine turtles. The Department considers that the 50 m vegetated buffer and shaded and downward focuses external lighting proposed in the PER in relation to migratory shorebirds is relevant to these impacts.
157. The Department notes that these measures are in line with best practice lighting design outlined in the Department's *National Light Pollution Guidelines for Wildlife 2020* (Attachment M6), and therefore may mitigate impacts of direct light on marine turtles. However, the Department considers that the PER does not provide enough detail to demonstrate how the proposed measures will be implemented or that they will be effective. In addition, the Department notes that the PER does not include consideration of the potential impacts of sky glow.
158. The Department therefore that the proposed action may lead to increased sky glow which, given the proximity of the proposed action to habitat important for reproduction of marine turtles, may disrupt critical behaviours such as adult nesting and hatchling orientation, sea finding and dispersal, and may reduce the reproductive viability of marine turtle populations.
159. In particular, given the advice from the Department's Migratory Species Section (Attachment H2) that the proposed action is in close proximity to a known inter-nesting site for the Loggerhead Turtle, the Department considers the proposed action may disrupt the breeding cycle of the Loggerhead Turtle.
160. The Department notes that the PER does not include avoidance and mitigation measures that will be implemented to manage marine debris or vessel strike, and therefore that the proposed action may lead to increased incidences of marine turtles becoming entangled or ingesting marine debris and increased disturbance and mortality due to vessel strike.

Conservation Advice, Recovery and Threat Abatement Plans

161. The approved Conservation Advice for the Leatherback Turtle, at Attachment G8, is:
- Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Dermochelys coriacea (Leatherback Turtle)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-conservation-advice.pdf>. In effect under the EPBC Act from 08-Jan-2009.
162. The Recovery Plan for these species, at Attachment G2, is:
- Department of the Environment and Energy (2017). *Recovery Plan for Marine Turtles in Australia*. Australian Government, Canberra. Available from: <http://www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017>. In effect under the EPBC Act from 03-Jun-2017.
163. The Threat Abatement Plans relevant to these species, at Attachment G3-G6, are:
- Department of the Environment (2015). *Threat Abatement Plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available

from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.

- Department of the Environment and Energy (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris-2018>. In effect under the EPBC Act from 21-Jul-2018.
- Department of the Environment and Energy (2017). *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>. In effect under the EPBC Act from 18-Mar-2017.
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat Abatement Plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008.

164. The Department's consideration of these Threat Abatement Plans is discussed in paragraphs 447 to 454.

Conclusion

165. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation and management measures, the Department considers that the proposed action is likely to have a significant impact on the Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Turtle as it is likely that it will:

- Adversely affect habitat critical to the survival of the species.

166. Further, the Department considers that for the Loggerhead Turtle, the proposed action is likely to:

- Disrupt the breeding cycle of a population.

167. The Department considers that the proposed action is unlikely to have significant impacts on the Leatherback Turtle and the Olive Ridley Turtle.

168. Given these significant impacts and the uncertainty and risks associated with the proposed avoidance and mitigation measures, the Department concludes that the proposed action is likely to have an unacceptable impact on the Flatback Turtle, the Green Turtle, the Hawksbill Turtle and the Loggerhead Turtle.

Water Mouse (*Xeromys myoides*) – Vulnerable

Description

169. The Water Mouse is a small rodent that occurs in coastal areas of the Northern Territory, central south Queensland and south-east Queensland in Australia. The species requires habitat comprising mangroves and associated saltmarsh, sedgeland, claypans, heathlands and freshwater wetlands. It is patchily distributed across its range and not particularly abundant anywhere within its range.

170. The *National Recovery Plan for the water mouse (false water rat) Xeromys myoides* (2010) ([Attachment G1](#)) identifies the following threats to the species: habitat loss through clearing and fragmentation, habitat degradation due to altered hydrological regime, saltwater intrusion and by changes in soil chemistry due to disturbance of acid sulphate soils and

pesticide applications, impacts from recreational vehicles, spread of exotic pasture grasses, impacts of feral animals and livestock, and predation by feral cats.

171. Further information on the Water Mouse can be found in SPRAT:

http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66

Presence and habitat assessment

172. The Department's ERT indicates that the Water Mouse or its habitat is known to occur within five kilometres of the proposed action.

173. The PER states that the Water Mouse is known to occur in the intertidal and freshwater wetlands in the GSS Ramsar site, particularly in southern areas, and that the mangrove areas around the Mary River and Susan River inlet play an important role in supporting the Water Mouse. Appendix M of the PER (Attachment B17) states that there are five records of the Water Mouse within four kilometres of the project site.

174. The proponent undertook a habitat assessment and targeted surveys for the Water Mouse within the project area (see Appendix M of the PER at Attachment B17). Surveys were conducted over a five-day period using diurnal searches of habitat and 210 trap nights. No individuals or nests of the species were found during surveys. The PER notes that previous survey efforts in potentially suitable habitat nearby have also failed to detect Water Mouse presence. The survey also confirmed the presence of foxes and dogs in areas of suitable Water Mouse habitat.

175. The Department considers that the survey methods used generally align with the Department's *Survey guidelines for Australia's threatened mammals* (2011).

176. Appendix M of the PER (Attachment B17) states that based on desktop analysis, 24 ha of potentially suitable Water Mouse habitat is present within the project area, but that following on-ground habitat assessment this was refined to 6 ha of suitable habitat and 13 ha of limited suitability habitat. Five hectares of potential habitat within the project area that was polluted by oil at the time of the survey was considered unsuitable as habitat for the Water Mouse. Potential habitat areas identified were in areas of saltmarsh and mangroves.

177. Appendix M of the PER (Attachment B17) states that the Water Mouse is either unlikely to be present at the site or is present at a low density due to low habitat quality, pollution and predation pressures. Despite this, the PER states that the site has the potential to support the species, if appropriate protection and management measures are implemented.

Impact assessment

178. The PER states that no impact to Water Mouse habitat is expected as all suitable habitat present within the project site is not within the development footprint and is protected within the proposed the buffer zone. However, the PER identifies that there is the potential for impacts on water quality in the GSS Ramsar site as a result of the proposed action, which the Department considers to be relevant to the species given the known threats include habitat degradation due to decline in water quality.

179. The Department considers that while development is not proposed within areas of Water Mouse habitat, given the proximity of the proposed action to potential Water Mouse habitat, potential impacts to the species could result from:

- Habitat degradation due to altered hydrological regime and decline in water quality; and
- Increased predation pressure from cats and dogs due to increased human population as a result of the development.

180. The likelihood that the proposed action will result in changes in hydrological regime and decline in water quality in the GSS Ramsar site are discussed in the wetlands of international importance section above. The Department concludes that the PER does not provide sufficient evidence that the proposed measures will adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action. The Department therefore considers that the proposed action may lead to degradation of potential Water Mouse habitat.
181. The Recovery Plan ([Attachment G1](#)) states that predation pressures from feral and domestic dogs, foxes and feral and domestic cats are likely to pose significant threats to populations of the water mouse, particularly those located close to urban environments in parts of coastal Queensland.

Avoidance and mitigation measures

182. The PER proposes the following avoidance and mitigation measures for the Water Mouse:
- Revegetation of the foreshore landscape to enhance ecological value and restore connectivity to adjacent areas;
 - Conservation of the 47.41 ha below HAT as environmental open space for MNES species and habitat, including the Water Mouse;
 - Signage to aid in community education and awareness; and
 - Faunal pest management plan to manage predation.
183. The Department considers that the proposed avoidance and mitigation measures relating to hydrological regime and water quality are relevant to the Water Mouse. The Department's consideration of these proposed measures is discussed in the wetlands of international importance section above. The Department considers that the proposed measures are unlikely to adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that the proposed action may therefore cause degradation of habitat for the Water Mouse.
184. The Department notes that the proponent provided an advisory note in March 2018 regarding a proposed conservation covenant over 63 ha of tidal land on the project site ([Attachment J7](#)). However, the Department considers that impacts on the tidal land of the project site may still occur through changes to the hydrological regime and decline in water quality as a result of the proposed action.

Conservation Advice, Recovery and Threat Abatement Plans

185. There is no approved Conservation Advice for this species.
186. The Recovery Plan for this species, at [Attachment G1](#), is:
- Department of the Environment and Resource Management (2010). *National Recovery Plan for the water mouse (false water rat) Xeromys myoides*. Report to Department of Sustainability, Environment, Water, Population and Communities, Canberra. Department of the Environment and Resource Management, Brisbane. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-water-mouse-false-water-rat-xeromys-myoides>. In effect under the EPBC Act from 21-Apr-2011.
187. Specific objectives of the Recovery Plan include identifying and managing threats to the species' survival, rehabilitating habitat to expand extant populations and increasing public awareness of, and involvement in, Water Mouse conservation.
188. The Department considers that the proposed avoidance and mitigation measures are not inconsistent with the objectives of the Recovery Plan for this species.

189. The Threat Abatement Plans relevant to this species, at Attachment G3-G5, are:

- Department of the Environment (2015). *Threat Abatement Plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.
- Department of the Environment and Energy (2017). *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>. In effect under the EPBC Act from 18-Mar-2017.
- Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat Abatement Plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008.

190. The Department's consideration of these Threat Abatement Plans is discussed in paragraphs 447 to 454.

Conclusions

191. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation and management measures, the Department considers that while the proposed action may lead to degradation of potential Water Mouse habitat, this is unlikely to have a significant impact on the species as it is unlikely that it will:

- Lead to a long-term decrease in the size of an important population of the species;
- Reduce the area of occupancy of an important population;
- Fragment an existing important population into two or more populations;
- Adversely affect habitat critical to the survival of the species;
- Disrupt the breeding cycle of an important population;
- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- Result in invasive species that are harmful to the vulnerable species becoming established in the vulnerable species' habitat;
- Introduce disease that may cause the species to decline; or
- Interfere substantially with the recovery of the species.

192. Given the proposed action is unlikely to have a significant impact on the species, the Department concludes that the proposed action is unlikely to have an unacceptable impact on the Water Mouse.

Humpback Whale (*Megaptera novaeangliae*) – Vulnerable

Description

193. The Humpback Whale is a moderately large baleen whale with a near global distribution which is characterised by high latitude feeding areas and low latitude breeding and calving areas with annual migrations between them.

194. Two populations of humpback whales calve in Australian waters and migrate along the east and west coasts from May to November each year. Both the east coast and west coast Australian populations make their annual migrations between breeding areas in tropical waters along the east and west coast of Australia and feeding areas in the Antarctic. The migratory habitat for the humpback whale around mainland Australia is primarily coastal waters less than 200 m in depth and generally within 20 km of the coast.
195. The *Conservation Advice Megaptera novaeangliae humpback whale* (2015) ([Attachment G7](#)) identifies the following threats to the Humpback Whale: whaling, climate and oceanographic variability and change, overharvesting of prey, noise interference, habitat degradation including coastal development and port expansion, entanglement and vessel disturbance and strike.
196. The Humpback Whale is also listed as migratory and under Appendix I of the Bonn Convention. The Department's consideration of Australia's obligations under this convention relevant to the recommendation in this report is discussed in paragraphs 457 to 494.
197. Further information on the Humpback Whale can be found in SPRAT:
http://apps.internal.environment.gov.au/cgi-bin/sprat/intranet/showspecies.pl?taxon_id=38
- Presence and habitat assessment*
198. The Department's ERT indicates that congregation or aggregation of the Humpback Whale is known to occur within five kilometres of the proposed action.
199. Appendix L of the PER ([Attachment B16](#)) states that surveys undertaken did not record the Humpback Whale in the project site.
200. Appendix L of the PER ([Attachment B16](#)) states that Humpback Whales cannot access the area directly adjacent to the project site due to the shallowness of the water and that the nearest locality that may be deep enough for access is the channel close to Fraser Island. The PER states that during their northern and southern migrations the species is known to migrate along the oceanic side of Fraser Island and aggregate to the north of the project site in Hervey Bay.
201. The Conservation Advice ([Attachment G7](#)) identifies Hervey Bay and the Great Sandy Strait as an important resting area for the Humpback Whale. On the southward migration, as many as 30% of the eastern Australian population may use Hervey Bay as a resting area. Resting areas are used by cow-calf pairs and attendant males during the southern migration. These whales appear to use sheltered bays to opportunistically rest during migration to the feeding grounds.

Impact assessment

202. The PER does not identify any potential impacts of the proposed action on the Humpback Whale. However, the PER identifies that there is the potential for impacts on water quality in the GSS Ramsar site as a result of the proposed action, which the Department considers to be relevant to the species given the known threats include habitat degradation.
203. The Department considers that while development is not proposed within areas of Humpback Whale habitat, given the proximity of the proposed action to known Humpback Whale habitat, potential impacts to the species could result from:
- Habitat degradation due to altered hydrological regime and decline in water quality;
 - Entanglement in and ingestion of marine debris;
 - Noise interference during construction and operation; and
 - Vessel disturbance and strike from increased boat traffic.

204. The Conservation Advice ([Attachment G2](#)) states that coastal development may impact the Humpback Whale in the short term through sedimentation or pollution during construction, and in the long term through degradation of habitat suitability or availability. Habitat degradation and modification to the coastal region in areas of importance to Humpback Whales may result in reduced occupancy, compromised reproductive success and even mortality.
205. The likelihood that the proposed action will result in changes in hydrological regime and decline in water quality in the GSS Ramsar site are discussed in the wetlands of international importance section above. The Department concludes that the PER does not provide sufficient evidence that the proposed measures will adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action. The Department therefore considers that the proposed action may lead to degradation of Humpback Whale habitat.
206. The Conservation Advice ([Attachment G2](#)) states that Australian populations of Humpback Whales using Australian waters are increasing at, or close to, the maximum biological rate, suggesting that to date habitat degradation has not had a negative impact on population or species recovery. Given this, the Department considers that it is unlikely that habitat degradation resulting from the proposed action will have significant impacts on the Humpback Whale.
207. The interaction between marine species and marine debris is listed as a key threatening process under the EPBC Act ([Attachment G6](#)). Marine debris of human origin includes plastic garbage such as bags, bottles, ropes, derelict fishing gear and non-biodegradable floating materials lost or disposed of at sea.
208. The Conservation Advice ([Attachment G2](#)) states that an entanglement occurs when a whale is caught in fishing equipment, shark nets, or marine debris and is unable to free itself. Entanglements can cause serious injury and distress to whales, and in some cases lead to the death of the animal. Marine debris has the potential to cause negative impacts through entanglement or ingestion.
209. The Department considers that the proposed action may lead to increased marine debris of human origin entering the GSS Ramsar site, which may lead to increased incidences of Humpback Whales becoming entangled or ingesting marine debris. However, given the Conservation Advice ([Attachment G2](#)) states that the impacts of entanglement may be minor in terms of overall species recovery, the Department considers this is unlikely to have a significant impact on the species.
210. The Conservation Advice ([Attachment G2](#)) states that the impacts of anthropogenic noise sources on marine mammals is an area of increasing concern. Anthropogenic noise sources identified as potential problems include seismic exploration, industrial noise (pile driving, some forms of dredging, and use of explosives, blasting and drilling), shipping noise, and sonar systems. The potential impacts of increasing anthropogenic ocean noise can include hearing impairment, organ damage or mortality, masking of vocalisations, change in call frequency or amplitude and behavioural disturbance. Underwater noise can act as a stressor to marine mammals, which may impact on individual health, and population viability. The extent to which behaviour is impacted may depend on a number of factors such as distance from the source, prior exposure (habituation), behavioural state, health, gender and age.
211. The Department considers that it is unlikely that the proposed action will have noise-related impacts on Humpback Whales, given the noise sources likely to be associated with the construction and operation of the proposed action and the distance of the proposed action from areas likely to be used by the species.

212. The Conservation Advice (Attachment G2) states that collisions with vessels are one of the main (known) causes of mortality to baleen whales. There has been a significant increase in the number of commercial, industrial and recreational vessels in coastal waters. Thus, the threat of ship strikes to whales may also increase. Humpback Whales are one of the most frequently reported whale species involved in vessel strikes worldwide. The increase in vessel numbers is not only a threat to Humpback Whales in relation to vessel strikes but also in disturbance and displacement from key habitats.
213. The Department notes that the GSS Ramsar site is already heavily used by recreational and tourist vessels, and there is a formal 'go-slow' zone. However, the Department considers that increased boat traffic associated with the proposed action may lead to increased vessel strike of the Humpback Whale.

Avoidance and mitigation measures

214. The PER does not propose any avoidance or mitigation measures for the Humpback Whale.
215. The Department considers that the proposed avoidance and mitigation measures relating to hydrological regime and water quality are relevant to the Humpback Whale. The Department's consideration of these proposed measures is discussed in the wetlands of international importance section above. The Department considers that the proposed measures are unlikely to adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that the proposed action may therefore cause degradation of habitat for the Humpback Whale.
216. The Department notes that the PER does not include avoidance and mitigation measures that will be implemented to manage marine debris or vessel strike, and therefore that the proposed action may lead to increased incidences of Humpback Whales becoming entangled or ingesting marine debris and increased disturbance and mortality due to vessel strike.

Conservation Advice, Recovery and Threat Abatement Plans

217. The approved Conservation Advice for this species, at Attachment G7, is:
- Threatened Species Scientific Committee (2015). *Conservation Advice Megaptera novaeangliae humpback whale*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/38-conservation-advice-10102015.pdf>. In effect under the EPBC Act from 01-Oct-2015.
218. There is no adopted or made Recovery Plan for this species.
219. The Threat Abatement Plan relevant to this species, at Attachment G6, is:
- Department of the Environment and Energy (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans* (2018). Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris-2018>. In effect under the EPBC Act from 21-Jul-2018.
220. The Department's consideration of this Threat Abatement Plan is discussed in paragraphs 447 to 454.

Conclusions

221. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation and management measures, the Department considers that while the proposed action may lead to degradation of Humpback Whale habitat, entanglement in or ingestion of marine

debris and vessel disturbance and strike, this is unlikely to have a significant impact on the species as it is unlikely that it will:

- Lead to a long-term decrease in the size of an important population of the species;
- Reduce the area of occupancy of an important population;
- Fragment an existing important population into two or more populations;
- Adversely affect habitat critical to the survival of the species;
- Disrupt the breeding cycle of an important population;
- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- Result in invasive species that are harmful to the vulnerable species becoming established in the vulnerable species' habitat;
- Introduce disease that may cause the species to decline; or
- Interfere substantially with the recovery of the species.

222. Given the proposed action is unlikely to have a significant impact on the species, the Department concludes that the proposed action is unlikely to have an unacceptable impact on the Humpback Whale.

Other threatened species and communities

223. The Department's ERT identifies an additional 43 listed threatened species and one threatened ecological community that may occur within five kilometres of the proposed action ([Attachment I1](#)). The Department considers that the impacts discussed above may also be relevant to these species, but that it is unlikely that the proposed action will significantly impact on other threatened species and communities. Accordingly, the Department has not assess the impacts on these species further.

Conclusion – listed threatened species and communities

224. Based on the nature, scale and location of the proposed action, the likely impacts on listed threatened species, and having considered the proposed measures to mitigate and manage these impacts, the Department concludes the proposed action will have an unacceptable impact on listed threatened species and communities (sections 18 and 18A of the EPBC Act).

Listed migratory species (sections 20 and 20A)

225. The Department's ERT (see ERT report dated 25 October 2013 at [Attachment I1](#)) identifies 63 listed migratory species which may occur within five kilometres of the proposed action.

226. The Department notes that since the controlled action decision for the proposed action was made, an additional nine listed migratory species that may occur within five kilometres of the proposed action have been listed under the EPBC Act (see ERT report generated on 20 February 2020 at [Attachment I2](#)). New listings made since the controlled action decision are not considered in this recommendation report.

227. Based on the nature, scale and location of the proposed action, habitat present in the area of the proposed action and the nature of the species, the Department considers that the proposed action may have significant impacts on:

- Eastern Curlew (*Numenius madagascariensis*)
- Bar-tailed Godwit (*Limosa lapponica*)
- Dugong (*Dugong dugon*)

- Australian Humpback Dolphin (*Sousa sahalensis*)

228. All information on the above species have been sourced from the Department's Species Profile and Threats (SPRAT) database, unless otherwise stated. The information in SPRAT includes Conservation Advices and Recovery Plans, as well as Threat Abatement Plans where relevant.

Eastern Curlew (*Numenius madagascariensis*)

Description

229. The Eastern Curlew was listed as Critically Endangered under the EPBC Act in 2015. This listing was made after the controlled action decision for this proposal, and thus the species is not considered as a listed threatened species for the purpose of this recommendation report. As such, in assessing potential impacts, the Department has considered the Eastern Curlew as a listed migratory species, as well as being part of the ecological character of the GSS Ramsar site (see wetlands of international importance section above).
230. The Eastern Curlew is the largest migratory shorebird in the world. The species is endemic to the East Asian-Australasian flyway, breeding in Russia and spending the non-breeding season in various locations in the Asia-Pacific region. Twenty five percent are thought to winter in the Philippines, Indonesia and Papua New Guinea, but most (73%) spend the non-breeding season in Australia.
231. In Australia, Eastern Curlews are recorded with a continuous distribution from Barrow Island and Dampier Archipelago in Western Australia, through the Kimberley and along the Northern Territory, Queensland, and NSW coasts and the islands of Torres Strait. The majority of the population in Australia during the non-breeding season are found at a few sites on the east and south coasts and in north-western Australia. Population numbers are stable at most sites between November or December and February, indicating little movement during this period. During this period, Eastern Curlews move locally between high tide roost-sites and intertidal feeding zones.
232. The Eastern Curlew forages during the non-breeding season on soft, sheltered intertidal sandflats or mudflats (claypans), open and either without vegetation or covered with seagrass, often near mangroves, on saltflats and in saltmarsh, rockpools and among rubble on coral reefs, and on ocean beaches near the tideline. The eastern curlew is carnivorous during the non-breeding season, eating crustaceans, small molluscs and some insects.
233. The Eastern Curlew roosts during high tide periods on sandy spits, sandbars and islets, especially on beach sand near the high-water mark, and among coastal vegetation including low saltmarsh or mangroves. They occasionally roost on reef-flats, in the shallow water of lagoons and other near-coastal wetlands. In some conditions, shorebirds may choose roost sites where a damp substrate lowers the local temperature. This may have important conservation implications where these sites are heavily disturbed beaches.
234. Threats to the Eastern Curlew in Australia include ongoing human disturbance, habitat loss and habitat degradation caused by land reclamation, industrial use and urban expansion, pollution, changes to water regimes and invasive plants.
235. The Eastern Curlew declined by over 80% between approximately 1980 and 2010, and continues to decline, largely due to disturbances from coastal developments and recreational activities at crucial breeding and overwintering sites worldwide (Attachment G9).
236. The primary conservation objectives for the Eastern Curlew are to achieve a stable or increasing population, maintain and enhance important habitat and reduce disturbance at key roosting and feeding sites (Attachment G9).

237. The Eastern Curlew is one of twenty species of birds identified for priority conservation in *Australia's Threatened Species Strategy Action Plan 2015-16 – 20 birds by 2020* (available at: <http://www.environment.gov.au/biodiversity/threatened/publications/threatened-species-strategy-action-plan-2015-16-20-birds-2020>).
238. The Eastern Curlew is listed under the Bonn Convention (Appendix I), the China-Australia Migratory Bird Agreement (CAMBA), the Japan-Australia Migratory Bird Agreement (JAMBA) and the Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA). The Department's consideration of Australia's obligations under this convention and these agreements relevant to the recommendation in this report is discussed in paragraphs 457 to 494.
239. Further information on the Eastern Curlew can be found in SPRAT: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=847

Presence and habitat assessment

240. The Department's ERT indicates that the Eastern Curlew or its habitat is known to occur within five kilometres of the proposed action.
241. The Atlas of Living Australia (a reputable database of Australian biodiversity data which is supported by the Australian Government; <https://www.ala.org.au/>) contains records of Eastern Curlews at the Mangrove Point South claypan, which is directly adjacent to the proposed development site.
242. A desktop review undertaken by the proponent identified 36 species of listed migratory shorebirds that may utilise the Mangrove Point South claypan ([Attachment B27](#)). Field surveys undertaken by the proponent between 2013 and 2016 recorded 13 species of listed migratory shorebirds at the claypan, including the Eastern Curlew ([Attachment B27](#)). Counts of up to 489 Eastern Curlews were recorded during these field surveys.
243. The PER states that the Queensland Wader Study Group reported daily counts of up to 1,182 Eastern Curlews in 2005 and up to 611 Eastern Curlews in 2009 at the Mangrove Point South claypan ([Attachment B27](#)).
244. The Department's Significant Impact Guidelines 1.1: MNES state that wetland habitat should be considered internationally important if it regularly supports 1% of the individuals in a population of one species of waterbird or a total abundance of at least 20,000 waterbirds.
245. Expert advice from Professor Richard Fuller from the University of Queensland ([Attachment K3](#)) states that monitoring data from the Queensland Wader Study Group show that the Mangrove Point South claypan is the most numerically important high tide roost site for Eastern Curlew within the Great Sandy Strait, which itself is one of the most important areas in the world for the species. The advice states that since 1995 when the Queensland Wader Study Group began monitoring the claypan for shorebird numbers, the average count of Eastern Curlew occupying the claypan is 553, corresponding to 1.6% of the global population. As such, the Mangrove Point South claypan alone consistently meets the numerical criterion for international importance (1% of the flyway population) and far exceeds the criterion for a site of national importance (0.1% of the flyway population).
246. Advice received from the Department's Wetlands Section ([Attachment H1](#)) and Migratory Species Section ([Attachment H2](#)) also identifies the Mangrove Point South claypan as one of the most important sites in Australia for the Eastern Curlew, stating that the site regularly hosts 1% of the flyway population of the species.
247. A submission from Birdlife Australia notes that the Mangrove Point South claypan provides roosting and foraging habitat at times when high tides elsewhere in the regional network of

feeding and roosting habitat make those sites unavailable, increasing the importance and significance of this particular site for the species ([Attachment N](#)).

248. The RIS states that the GSS Ramsar site is of critical importance for yearling Eastern Curlews that do not return to the northern hemisphere for the breeding season, but instead stay at the site year-round for up to three years ([Attachment M1](#)).
249. Field surveys undertaken by the proponent were only conducted during the migratory period (October to March) so do not provide evidence as to whether or not Eastern Curlews use the Mangrove Point South claypan outside the migratory period ([Attachment B27](#)).
250. However, the Atlas of Living Australia contains records of Eastern Curlews at the Mangrove Point South claypan throughout the year. In addition, the Wetlands Section of the Queensland Department of Environment and Science advised the Department that nearby roost sites within the Great Sandy Strait have had Eastern Curlews recorded by the Queensland Wader Study Group outside the migratory period and, given this, it is highly likely that the Mangrove Point South claypan is also used by Eastern Curlews outside of the migratory period ([Attachment K2](#)).
251. On 21 November 2019 the proponent's lawyer responded to an email from the Department of 7 November 2019 which listed some of the sources of information used by the Department to inform the assessment (both emails at [Attachment J4](#)). The email from the proponent's lawyer states that the information sources listed in the Department's email do not provide detail to support a conclusion that yearlings roost on this particular site for longer periods in material numbers than older birds. The Department notes that the list of information sources was provided for general information and was not intended to support an argument that the site is used by yearling Eastern Curlews.
252. The PER states that shorebirds occupy the centre of the Mangrove Point South claypan during low tides, moving closer to the shoreline as tides rise. The proponent's field survey report ([Attachment B27](#)) and wader bird management plan ([Attachment B18](#)) include photographs that show Eastern Curlews and other shorebird species using different areas of the Mangrove Point South claypan under different tidal conditions.
253. A submission from Birdlife Australia contains information indicating that the entire claypan up to the HAT and the adjoining mangrove areas are important roosting and foraging habitat for shorebirds ([Attachment N](#)). The Department notes that descriptions and photographs provided in other public submissions on the PER ([Attachment E](#)) and outside of the public comment period ([Attachment N](#)) demonstrate that migratory shorebirds, including the Eastern Curlew, use the entire claypan.
254. Advice from the Wetlands Section of the Queensland Department of Environment and Science suggests that because the shoreline is the only area of the claypan that is not inundated during high tide, it is of critical importance for the Eastern Curlew ([Attachment K2](#)).
255. Given the above discussion, the Department considers that there is sufficient evidence to demonstrate that the entirety of the claypan adjacent to the proposed development up to the HAT (see Figure 2) is important habitat for the Eastern Curlew.

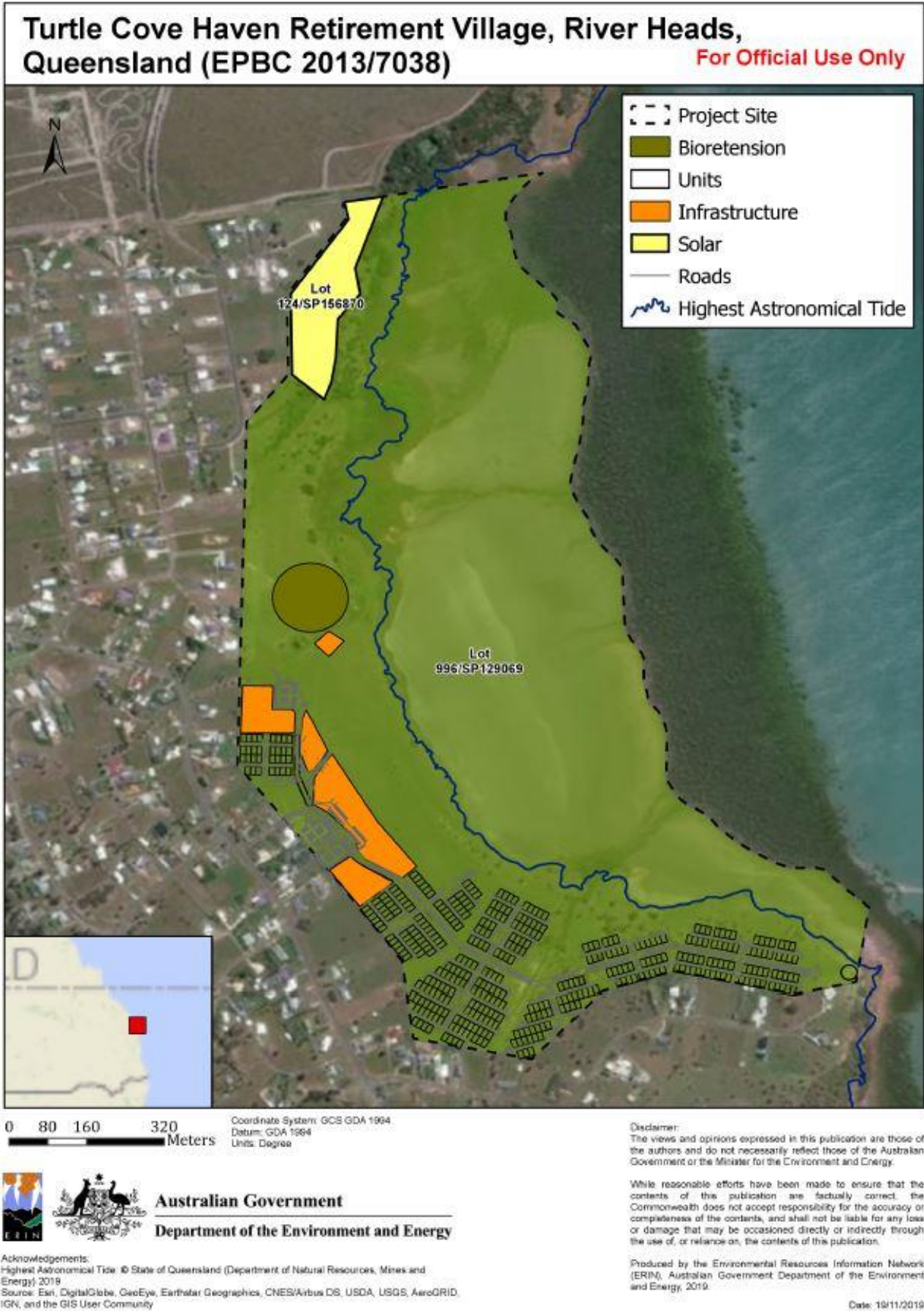


Figure 2. The highest astronomical tide (HAT) in relation to the project site for the Turtle Cove Haven Retirement Village.

Impact assessment

256. The PER identifies the potential impacts of the proposed action on shorebirds to be disturbance to shorebirds from uncontrolled public access and unrestrained dogs entering the claypan, and construction noise in close proximity to roosting sites. The PER also identifies predation as a significant threat to shorebirds.
257. Advice from the Department's Migratory Species Section identifies potential impacts to migratory shorebirds to be habitat degradation and loss, including from changes to the hydrology of the claypan and surrounding areas, and human disturbance ([Attachment H2](#)).
258. The Department considers that while development is not proposed directly within areas of Eastern Curlew habitat, given the proximity of the proposed action to known Eastern Curlew habitat and the known threats to the species, potential impacts to the species could result from:
- Habitat degradation due to altered hydrological regime and decline in water quality; and
 - Disturbance during construction and operation from the visibility of the development, light, noise and as a result of human and dog interactions.
259. The likelihood that the proposed action will result in changes to hydrological regime and decline in water quality in the Mangrove Point South claypan are discussed in the wetlands of international importance section above. The Department concludes that the PER does not provide sufficient evidence that the proposed measures will adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that this may lead to degradation of the Mangrove Point South claypan.
260. In addition, the Department considers proposed action may have negative effects on Eastern Curlew physiology from ingestion or exposure of contaminants that enter the claypan from the proposed development.
261. Expert advice regarding impacts on migratory shorebirds of a proposed development at Kooragang Island (EPBC 2006/2987) ([Attachment M2](#)) recommended that for the protection of migratory shorebirds, water quality, tidal flow patterns, and sedimentation processes should not be altered.
262. Given the importance of the claypan as habitat for the Eastern Curlew, the Department considers that it is likely that habitat degradation resulting from the proposed action will have a significant impact on the species.
263. Disturbance can cause shorebirds to interrupt their feeding or roosting or take flight to avoid the disturbance and may influence the area of otherwise suitable habitat that is used ([Attachment G9](#)). Disturbance to pre-migratory Eastern Curlews may adversely affect their capacity to migrate because their time spent foraging is reduced so they may not undertake adequate feeding prior to migration, and their energy reserves are used to avoid disturbance rather than for migration. Migrating in poor condition impacts survivorship during migration and may impact on reproduction during the breeding season.
264. The Eastern Curlew is extremely wary and will take flight at the first sign of danger, long before other nearby shorebirds. Eastern Curlews take flight when humans approach to within up to 250 m away ([Attachment G9](#)). The flight initiation distance (FID) of shorebirds varies depending on the type of disturbance (walking, jogging, walking a dog), and increases with larger shorebird group sizes ([Attachment M3](#)). The Department considers that because of the multiple simultaneous disturbances associated with the proposed action and considering the large group sizes of Eastern Curlews that have been recorded at the

claypan, the FID of birds at this site is likely to be at the high end of the range of FIDs for the species.

265. Expert advice from Professor Fuller ([Attachment K3](#)) states that disturbance has physiological impacts on shorebirds long before birds actually take flight. The stress of disturbance causes birds to have increased energy expenditure even if they don't take flight ([Attachment M5](#)). Increased energy expenditure may lead to reduced condition, and thus impact on migration and reproduction as discussed above. Given this, the distance at which disturbances have negative impacts on Eastern Curlews is likely to be greater than the FID.
266. The Department considers that the proposed action is likely to cause disturbance to Eastern Curlews using the Mangrove Point South claypan through:
- Visual, noise and light disturbances during construction;
 - Visual, noise and light disturbances during operation from the development itself; and
 - Disturbance from increased number of humans and dogs traversing the and areas in line of sight of the claypan during operation.
267. The entire proposed development site is located within approximately 400 m of the HAT, with the majority of the development located within 250 m, and many of the residential buildings located within 100 m (see Figure 2). The Department considers that not only would this create a constant visual disturbance to Eastern Curlews from the buildings themselves, but also that any humans using the development (e.g. walking between buildings) will cause disturbance.
268. Given the increased human population associated with the proposed action, the number and frequency of humans and dogs traversing the Mangrove Point South claypan or areas in line of sight of the claypan are likely to increase.
269. In addition to the above visual disturbances, the Department considers that noise and light spillage into the Mangrove Point South claypan and adjacent mangrove areas during construction and operation of the proposed action will cause additional disturbance to Eastern Curlews.
270. The PER states that loud sustained noises from construction can lead to disturbance of wader species, ongoing loud construction noised during roosting time can lead to abandonment of the site, which can lead to elevated stress for the species. Appendix N of the PER ([Attachment B18](#)) states that 'based on observations in the field it is reasonable to expect that waders would become accustomed to the noise of general construction as they have for four decades of other anthropogenic sources of noise'. Advice from the Department's Migratory Species Section ([Attachment H3](#)) states that in the absence of more detailed information and data of shorebird numbers and behaviour over the last four decades, these kinds of assumptions are not appropriate.
271. The PER states that shorebirds are unlikely to be disturbed by noise types associated with human occupation such as traffic, music and barking dogs. The Department considers that the PER does not provide substantive evidence to support these assumptions.
272. The PER states that excessive light spilling onto night roosts can disturb shorebirds during construction and operation. The impact of night lighting for prolonged periods can lead to shorebirds abandoning a preferred site for sites without anthropogenic lighting, which in turn can lead to competition at those sites. Appendix N of the PER ([Attachment B18](#)) states that given that there is no nocturnal utilisation of the roosting habitat, lighting impacts generated from the surrounding urban landscape would not be a significant issue due to an average distance from HAT to the nearest street/house lighting of > 400 m.

273. The Department notes that nocturnal field surveys were not conducted by the proponent (Attachment B27), and therefore considers that the PER does not provide substantive evidence to support the statement that there is no nocturnal utilisation of areas within the vicinity of the proposal. The Department also notes that the distance from the HAT to the proposed development is substantially less than 400 m.
274. The Department considers that Eastern Curlews will be impacted by disturbances throughout the migratory period (October to March) and may be impacted by disturbances throughout the year if Eastern Curlews that do not migrate continue to use the site.
275. The Department considers that there is sufficient scientific evidence to demonstrate that disturbance during both construction and operation of the proposed action are likely to lead to frequent and substantial disturbance to Eastern Curlews at the Mangrove Point South claypan. Further, the proposed development is likely to cause numerous simultaneous disturbances, increasing the likelihood that birds will spend excessive amounts of time and energy monitoring threats and taking flight to avoid perceived threats.



Figure 3. The proponent's analysis of Eastern Curlew roosting areas within the project site (Figure K of the PER).

Avoidance and mitigation measures

276. The PER outlines mitigation measures to reduce impacts on migratory shorebirds, including:
- Vegetated buffers from the HAT to 50 m into the terrestrial land area to provide a barrier to disturbances from light, noise and visibility;
 - Fencing on the terrestrial side of a revegetated buffer to restrict public access to the foreshore;
 - Location of all infrastructure at a minimum of 100 m from the foreshore roost zones;
 - Use of temporary screening during the period when the HAT is greater than 3.8 m and the foreshore roost zone is utilised, to further mitigate visual disturbance;
 - Community education signage and educational material to advise residents/visitors of the nearby presence of shorebirds and that increased or sudden loud noises can disturb foraging shorebirds; and
 - Control of fox, dogs and cats through implementation of the faunal pest management plan (Attachment B11).

277. These measures are described in a 'wader bird MNES management plan' ([Attachment B18](#)), however the Department is of the view that this management plan does not provide enough detail to demonstrate how the proposed measures will be implemented or that they will be effective.
278. On 10 May 2019, the proponent provided the Department with a set of proposed conditions to manage impacts on shorebirds ([Attachment J2](#)), which include:
- A 50 m buffer from the HAT along the entire shoreline of the project site;
 - Revegetation of the foreshore (within the buffer) to create a visual barrier;
 - A conservation covenant or designation as a 'Special Wildlife Reserve' for the tidal area and terrestrial buffer;
 - Monitoring of the foreshore roosting sites during construction within the migratory roosting season, with a provision to halt any construction activities deemed to be disturbing roosting species during this period;
 - Annual monitoring of shorebirds;
 - No infrastructure to be placed within the buffer, with the exception of a bird hide;
 - Placement of interpretive signage along the edge of the buffer and community engagement workshops concerning the importance of the Mangrove Point South claypan as habitat for listed migratory shorebird species;
 - Biannual water quality monitoring reporting to the Department;
 - Engagement with Fraser Coast Regional Council to manage fauna pest species.
279. The PER states that the 50 m buffer will effectively form a 350 m buffer from the part of the claypan most used by the Eastern Curlew and other shorebird species ('central claypan roosting' in Figure 3). The PER justifies this based on the analysis that Eastern Curlews use the centre of the claypan 96.7% of the time and use the shoreline 3.3% of the time (during high tides; 'foreshore roosting' in Figure 3).
280. The Wetlands Section of the Queensland Department of Environment and Science advised that any buffers for this proposal should be from the HAT, as the high tide roost areas are of critical importance for the Eastern Curlew ([Attachment K2](#)).
281. Advice received from the Department's Wetlands Section and Migratory Species Section ([Attachment H1-H2](#)) and the Wetlands Section of the Queensland Department of Environment and Science ([Attachment K2](#)) states that 200 m from the HAT would be the minimum appropriate buffer to reduce the adverse impacts of disturbance. In addition, published scientific literature and external expert advice regarding this and other proposed developments recommend a minimum buffer of 200-250 m from the HAT and visual screening for areas adjacent to shorebird roosting and foraging habitat ([Attachment M2](#), [Attachment M4](#), [Attachment K3](#)). This recommended buffer distance is consistent with the large FID of Eastern Curlew as discussed above ([Attachment G9](#), [Attachment M3](#)).
282. On 4 April 2019, the Department provided the proponent with expert advice from Professor Richard Fuller from the University of Queensland ([Attachment K3](#)), which states that 250 m from the HAT is the minimum buffer width necessary to manage disturbance impacts of the proposed action on listed migratory shorebirds including the Eastern Curlew. Professor Fuller also notes that it is critical that, as well as no development (e.g. buildings, fences, screens) occurring within the buffer zone, no disturbance occurs (i.e. no dogs, vehicles or pedestrians are permitted). Therefore, any screening must be set at the inland edge of the buffer zone, and not within it, and must be appropriately designed to screen disturbance without itself creating an intrusive visual obstruction.

283. On 16 April 2019, the proponent responded to the advice from Professor Fuller, agreeing with the minimum buffer requirement of 250 m, but disagreeing that the buffer should be from the HAT ([Attachment J6](#)). The proponent restated their commitment to a 50 m buffer from the area of the Mangrove Point South claypan identified by the proponent as the foreshore roosting area and stated that this constitutes a 300 m buffer to the area identified by the proponent as the central claypan roosting area.
284. On 23 August 2019, the consultant wrote to the Department providing an addendum to the PER which contains information relevant to impacts on migratory shorebirds ([Attachment J1](#)). The addendum discusses the potential for the proposed action to lead to habitat loss, habitat degradation, disturbance and direct mortality of migratory shorebirds. The addendum concludes that significant impacts arising from the proposal are negligible, if not non-existent, and that the proposal provides adequate buffering (i.e. a 50 m buffer from the HAT). The addendum restates the proponent's view that a buffer should be from the centre of the claypan as that is the location where the migratory shorebirds spend most of their time when at the site.
285. Noting that the information available to the Department, including the PER, provides evidence that migratory shorebirds use the entire claypan, the Department considers the PER and addendum do not provide substantive evidence to support the claim that a buffer should be from the centre of the claypan or that a 50 m buffer from the HAT would be adequate to mitigate impacts of disturbance on migratory shorebirds.
286. Having considered the available information and expert advice, including information provided by the proponent, information on the species in the SPRAT database and Conservation Advice, and advice from the Department's Migratory Species and Wetlands Sections and other relevant experts, the Department considers that any buffer must be from the HAT and that to be adequate to mitigate impacts of disturbance to the Eastern Curlew at this particular site, the buffer would need to be a minimum of 250 m from the HAT.
287. The Department considers that the proposed avoidance and mitigation measures relating to hydrological regime and water quality are relevant to the Eastern Curlew. The Department's consideration of these proposed measures is discussed in the wetlands of international importance section above. The Department considers that the proposed measures are unlikely to adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that the proposed action may therefore cause degradation of important habitat for the Eastern Curlew.
288. The Department notes that the proponent provided an advisory note in March 2018 regarding a proposed conservation covenant over 63 ha of tidal land on the project site ([Attachment J7](#)). However, the Department considers that impacts on the tidal land of the project site may still occur through changes to the hydrological regime and decline in water quality as a result of the proposed action.
289. Advice from the Department's Migratory Species Section states that the proposed mitigation measures lack sufficient evidence for their implementation, and that their view is that adverse impacts on the Eastern Curlew and other migratory shorebirds remain likely ([Attachment H2](#)).
290. The Department considers that, while the proponent has proposed a number of mitigation measures that may reduce impacts of the proposed action on the Eastern Curlew and its habitat, these measures are insufficient to adequately avoid and mitigate the impacts, and that considerable risks associated with the proposed action remain. Further, having considered the international importance of the habitat for the species, and that an

ecologically significant proportion of the population will be impacted, the Department is of the view that the impacts of the proposed action on the Eastern Curlew cannot be offset.

Conclusion

291. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation and management measures, the Department considers that the proposed action is likely to have a significant impact on the species as it is likely that it will:

- Substantially modify an area of important habitat for the Eastern Curlew by causing changes to hydrology and water quality that will degrade the habitat; and
- Seriously disrupt the lifecycle of the Eastern Curlew by causing frequent and ongoing disturbance to the population to the extent that their capacity to migrate and breed will be reduced.

292. Given the significant impacts of the proposed action on the Eastern Curlew and that these impacts are unable to be avoided, mitigated or offset, and considering the importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department concludes that the proposed action is likely to have an unacceptable impact on the Eastern Curlew.

Bar-tailed Godwit (baueri) (*Limosa lapponica baueri*)

Description

293. The Bar-tailed Godwit was listed as Vulnerable under the EPBC Act in 2016. This listing was made after the controlled action decision for this proposal, and thus the species is not considered as a listed threatened species for the purpose of this recommendation report. As such, in assessing potential impacts, the Department has considered the Bar-tailed Godwit as a listed migratory species as well as being an important component of the ecological character of the GSS Ramsar site.

294. The Bar-tailed Godwit is a large migratory shorebird that has been recorded in the coastal areas of all Australian states. During the non-breeding period, the distribution of the Bar-tailed Godwit is predominantly in New Zealand and Australia. In Australia, the Bar-tailed Godwit mostly occurs along the north and east coasts.

295. The species occurs mainly in coastal habitats such as large intertidal sandflats, banks mudflats, estuaries, inlets, harbours, coastal lagoons and bays. The species usually forages near the edge of water or in shallow water, mainly in tidal estuaries and harbours. They prefer exposed sandy or soft mud substrates on intertidal flats, banks and beaches.

296. Threats to the Bar-tailed Godwit in Australia include ongoing human disturbance, habitat loss and habitat degradation caused by land reclamation, industrial use and urban expansion, pollution, changes to water regimes and invasive plants (Attachment G10).

297. Conservation actions for the Bar-tailed Godwit include protecting important habitat in Australia, maintaining and improving protection of roosting and feeding sites in Australia, managing invasive species and anthropogenic disturbance at important sites (Attachment G10).

298. The Bar-tailed Godwit is listed under the Bonn Convention (Appendix II), CAMBA, JAMBA and ROKAMBA. The Department's consideration of Australia's obligations under this convention and these agreements relevant to the recommendation in this report is discussed in paragraphs 457 to 494.

299. Further information on the Bar-tailed Godwit can be found in SPRAT:
http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=86380

Presence and habitat assessment

300. The Department's ERT indicates that the Bar-tailed Godwit or its habitat is known to occur within five kilometres of the proposed action.
301. The Atlas of Living Australia contains records of Bar-tailed Godwits at the Mangrove Point South claypan, which is directly adjacent to the proposed development site.
302. The Bar-tailed Godwit is one of 13 species of listed migratory shorebird recorded utilising the Mangrove Point South claypan during field surveys undertaken by the proponent during 2013 to 2016 ([Attachment B27](#)). The PER states that the Bar-tailed Godwit is the most abundant wading bird in the GSS Ramsar site. Counts of up to approximately 250 Bar-tailed Godwits were recorded during these field surveys.
303. The PER states that the Queensland Wader Study Group reported counts of up to 1,400 Bar-tailed Godwits in 2005 and up to 945 Bar-tailed Godwits in 2009 at the Mangrove Point South claypan ([Attachment B27](#)).
304. Advice from the Department's Wetlands Section ([Attachment H1](#)) and Migratory Species Section ([Attachment H2](#)) identifies the South Mangrove Point claypan as internationally important for the Bar-tailed Godwit.

Impact assessment

305. The Department considers that the impacts discussed above in relation to the Eastern Curlew are also relevant for the Bar-tailed Godwit. The Department considers impacts on the species will result from:
- Habitat degradation due to altered hydrological regime and decline in water quality; and
 - Disturbance during construction and operation from the visibility of the development, light, noise and as a result of human and dog interactions.
306. While the Bar-tailed Godwit has a shorter FID (approximately 70 m; [Attachment G9](#)) than the Eastern Curlew, the Department considers that disturbance during construction and operation are likely to impact on the species. These impacts are discussed in detail in relation to the Eastern Curlew above.

Avoidance and mitigation measures

307. The Department considers that the avoidance and mitigation measures discussed above in relation to the Eastern Curlew are also relevant for the Bar-tailed Godwit.
308. The PER includes measures to manage impacts to migratory shorebirds and their habitat, including managing water on the project site and implementing a buffer from the Mangrove Point South claypan. These avoidance and mitigation measures are discussed in detail in relation to the Eastern Curlew above.
309. The Department considers that, while the proponent has proposed a number of avoidance and mitigation measures that may reduce impacts of the proposed action on the Bar-tailed Godwit and its habitat, these measures are insufficient to adequately avoid and mitigate the impacts, and that considerable risks associated with the proposed action remain. Further, having considered the international importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department is of the view that the impacts of the proposed action on the Bar-tailed Godwit cannot be offset.

Conclusion

310. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation

and management measures, the Department considers that the proposed action is likely to have a significant impact on the species as it is likely that it will:

- Substantially modify an area of important habitat for the Bar-tailed Godwit by causing changes to hydrology and water quality that will degrade the habitat; and
- Seriously disrupt the lifecycle of the Bar-tailed Godwit by causing frequent and ongoing disturbance to the population to the extent that their capacity to migrate and breed will be reduced.

311. Given the significant impacts of the proposed action on the Bar-tailed Godwit and that these impacts are unable to be avoided, mitigated or offset, and considering the importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department concludes that the proposed action is likely to have an unacceptable impact on the Bar-tailed Godwit.

Dugong (*Dugong dugon*)

Description

312. The Dugong is a large herbivorous marine mammal which occurs in coastal and island waters from Shark Bay in Western Australia across the northern coastline to Moreton Bay in Queensland.

313. Dugongs are seagrass community specialists and the range of the species is broadly coincident with the distribution of seagrasses in the tropical and sub-tropical waters in their Australian range. In Hervey Bay, the most important Dugong habitats are located between Burrum Heads and Fraser Island and along the Great Sandy Strait, with the northernmost tip of Sandy Cape, Fraser Island also important in cooler months.

314. The *Action Plan for Australian Mammals 2012* identifies the following threats to the Dugong in Australian waters: habitat degradation including coastal development, port expansion and aquaculture, pollution, entanglement and incidental bycatch in fisheries gear, entanglement in shark netting, indigenous hunting, vessel strike, anthropogenic noise and acoustic disturbance and climate variability and change.

315. The Dugong is listed under the Bonn Convention (Appendix II). The Department's consideration of Australia's obligations under this convention relevant to the recommendation in this report is discussed in paragraphs 457 to 494.

316. Further information on the Dugong can be found in SPRAT:

http://apps.internal.environment.gov.au/cgi-bin/sprat/intranet/showspecies.pl?taxon_id=28

Presence and habitat assessment

317. The Department's ERT indicates that the Dugong or its habitat is known to occur within five kilometres of the proposed action.

318. Appendix L of the PER ([Attachment B16](#)) states that surveys undertaken did not record the Dugong in the project site.

319. Appendix L of the PER ([Attachment B16](#)) states that the Great Sandy Strait contains extensive seagrass areas that support large herds of Dugong, and that they might feed in and move through areas adjacent to the proposed action.

320. SPRAT states that the Great Sandy Strait contains important Dugong habitat.

321. The RIS ([Attachment M1](#)) states that the GSS Ramsar site is an exceptionally important feeding ground for Dugongs, which are highly dependent on the quality and quantity of seagrass beds in the GSS Ramsar site. The seagrass beds of southern Hervey Bay and Great Sandy Strait support a significant population of Dugongs.

322. The RIS (Attachment M1) states that southern Hervey Bay and Great Sandy Strait have been proposed by the Commonwealth Government as one of nine Dugong Protection Areas.

Impact assessment

323. Appendix L of the PER (Attachment B16) identifies a potential impact of the proposed action on the Dugong is a reduction in seagrass beds as a result of inappropriate runoff and stormwater either changing water conditions or through sediment runoff.

324. The Department considers that while development is not proposed within areas of Dugong habitat, given the proximity of the proposed action to known Dugong habitat and the known threats to the species, potential impacts to the species could result from:

- Habitat degradation due to altered hydrological regime and decline in water quality;
- Entanglement in and ingestion of marine debris;
- Noise interference during construction and operation; and
- Vessel disturbance and strike from increased boat traffic.

325. SPRAT states that degradation of Dugong habitat (i.e. seagrass loss) leads to reduced food resources and condition, delayed reproduction or starvation, or temporary immigration from affected regions.

326. The likelihood that the proposed action will result in changes in hydrological regime and decline in water quality in the GSS Ramsar site are discussed in the wetlands of international importance section above. The Department concludes that the PER does not provide sufficient evidence that the proposed measures will adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action. The Department therefore considers that the proposed action may lead to degradation of important Dugong habitat.

327. Given the importance of this habitat for the Dugong, the Department considers that it is likely that habitat degradation resulting from the proposed action will have a significant impact on the species.

328. The interaction between marine species and marine debris is listed as a key threatening process under the EPBC Act (Attachment G6). Marine debris of human origin includes plastic garbage such as bags, bottles, ropes, derelict fishing gear and non-biodegradable floating materials lost or disposed of at sea.

329. The Department considers that the proposed action may lead to increased marine debris of human origin entering the GSS Ramsar site, which may lead to increased incidences of Dugongs becoming entangled or ingesting marine debris.

330. SPRAT states that increasing anthropogenic noise can cause disturbance, stress, or disrupt behaviour in Dugongs.

331. The Department considers that it is unlikely that the proposed action will have noise-related impacts on Dugongs, given the noise sources likely to be associated with the construction and operation of the proposed action and the distance of the proposed action from areas likely to be used by the species.

332. SPRAT states that increased vessel movements and vessel strike can cause disturbance, stress, or disrupt behaviour in Dugongs.

333. The Department notes that the GSS Ramsar site is already heavily used by recreational and tourist vessels, and there is a formal 'go-slow' zone. However, the Department considers

that increased boat traffic associated with the proposed action may lead to increased disturbance and vessel strike of the Dugong.

334. The Department considers that without adequate mitigation measures, the proposed action will lead to increase in entanglement, ingestion of marine debris, and vessel disturbance and strike and degradation of important Dugong habitat caused by changes to hydrology and decline in water quality.

Avoidance and mitigation measures

335. Appendix L of the PER (Attachment B16) states that the proposed sewage treatment plant will be a significant constraint on potential impacts to Dugong habitat.
336. The Department considers that the proposed avoidance and mitigation measures relating to hydrological regime and water quality are relevant to the Dugong. The Department's consideration of these proposed measures is discussed in the wetlands of international importance section above. The Department considers that the proposed measures are unlikely to adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that the proposed action may therefore cause degradation of important habitat for the Dugong.
337. The Department notes that the PER does not include avoidance and mitigation measures that will be implemented to manage marine debris or vessel strike, and therefore that the proposed action may lead to increased incidences of Dugongs becoming entangled or ingesting marine debris and increased disturbance and mortality due to vessel strike.

Conclusions

338. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation and management measures, the Department considers that the proposed action is likely to have a significant impact on the species as it will:
- Substantially modify, destroy or isolate an area of important habitat for the Dugong.
339. Given these significant impacts and the uncertainty and risks associated with the proposed avoidance and mitigation measures, the Department concludes that the proposed action is likely to have an unacceptable impact on the Dugong.

Australian Humpback Dolphin (*Sousa sahalensis*)

Description

340. At the time of the controlled action decision for the proposed action, the Australian Humpback Dolphin was listed as the Indo-Pacific Humpback Dolphin (*Sousa chinensis*).
341. The Australian Humpback Dolphin is a large mammal which is found in tropical and subtropical waters of the Sahul Shelf from northern Australia to the southern waters of the island of New Guinea. In Australia, the species is thought to be widely distributed along the northern Australian coastline from approximately the Queensland–New South Wales border to western Shark Bay, Western Australia.
342. Along the Australian coast, Australian Humpback Dolphins are more likely to be found in relatively shallow and protected coastal habitats such as inlets, estuaries, major tidal rivers, shallow bays, inshore reefs and coastal archipelagos, rather than in open stretches of coastline. In Queensland and Northern Territory, the species is mainly found in water less than 20 km from the nearest river mouth, and in water less than 15–20 m deep.
343. SPRAT identifies the following threats to the Australian Humpback Dolphin: habitat loss and degradation, being caught as by-catch, water pollution, underwater noise, floods, vessel traffic, overfishing of prey resources and wildlife tourism.

344. The Australian Humpback Dolphin is listed under the Bonn Convention (Appendix II) as *Sousa chinensis*. The Department's consideration of Australia's obligations under this convention relevant to the recommendation in this report is discussed in paragraphs 457 to 494.
345. Further information on the Australian Humpback Dolphin can be found in SPRAT: http://apps.internal.environment.gov.au/cgi-bin/sprat/intranet/showspecies.pl?taxon_id=87942

Presence and habitat assessment

346. The Department's ERT indicates that breeding of the Australian Humpback Dolphin is known to occur within five kilometres of the proposed action.
347. Appendix L of the PER (Attachment B16) states that surveys undertaken did not record the Australian Humpback Dolphin in the project site.
348. Appendix L of the PER (Attachment B16) states that during low tide mud flats are exposed all the way to the channel from the shoreline eastward of the development site and the average range of water depth during high tide is only a few metres, making visits by large oceanic mammals impossible.
349. Appendix L of the PER (Attachment B16) states that dolphins may reside or migrate through the waters near the proposed action when the water is deep enough, however they are unlikely to use these areas as a critical feeding habitat due to their extensive feeding range.
350. The RIS (Attachment M1) states that Australian Humpback Dolphin have been recorded in the GSS Ramsar site.

Impact assessment

351. The PER does not identify any potential impacts of the proposed action on the Australian Humpback Dolphin. However, the PER identifies that there is the potential for impacts on water quality in the GSS Ramsar site as a result of the proposed action, which the Department considers to be relevant to the species given the known threats include habitat loss and degradation and water pollution.
352. The Department considers that while development is not proposed within areas of Australian Humpback Dolphin habitat, given the proximity of the proposed action to known Australian Humpback Dolphin habitat, potential impacts to the species could result from:
- Habitat degradation due to altered hydrological regime and decline in water quality;
 - Noise interference during construction and operation; and
 - Vessel disturbance and strike from increased boat traffic.
353. The likelihood that the proposed action will result in changes in hydrological regime and decline in water quality in the GSS Ramsar site are discussed in the wetlands of international importance section above. The Department concludes that the PER does not provide sufficient evidence that the proposed measures will adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action. The Department therefore considers that the proposed action may lead to degradation of Australian Humpback Dolphin habitat.
354. However, given the species has only been recorded occasionally in the GSS Ramsar site, the Department considers that it is unlikely that habitat degradation resulting from the proposed action will have significant impacts on the Australian Humpback Dolphin.
355. The Department considers that it is unlikely that the proposed action will have noise-related impacts on Australian Humpback Dolphins, given the noise sources likely to be associated

with the construction and operation of the proposed action and the distance of the proposed action from areas likely to be used by the species.

356. The Department notes that the GSS Ramsar site is already heavily used by recreational and tourist vessels, and there is a formal 'go-slow' zone. The Department considers that increased boat traffic associated with the proposed action may lead to increased disturbance and vessel strike of Australian Humpback Dolphins. However, given the species has only been recorded occasionally in the GSS Ramsar site, the Department considers that it is unlikely that this will have a significant impact on the species.

Avoidance and mitigation measures

357. The PER does not propose any avoidance and mitigation measures for the Australian Humpback Dolphin.
358. The Department considers that the proposed avoidance and mitigation measures relating to hydrological regime and water quality are relevant to the Australian Humpback Dolphin. The Department's consideration of these proposed measures is discussed in the wetlands of international importance section above. The Department considers that the proposed measures are unlikely to adequately avoid and mitigate the potential impacts of changes to the hydrological regime and decline in water quality as a result of the proposed action, and that the proposed action may therefore cause degradation of habitat for the Australian Humpback Dolphin.
359. The Department notes that the PER does not include avoidance and mitigation measures that will be implemented to manage noise or vessel strike, and therefore that the proposed action may lead to noise disturbance and increased disturbance and mortality due to vessel strike.

Conclusions

360. Based on information about the nature and scale of the impacts of the proposed action, information about the species, and having considered the proposed avoidance, mitigation and management measures, the Department considers that while the proposed action may lead to degradation of potential Australian Humpback Dolphin habitat, noise interference and vessel disturbance and strike, this is unlikely to have a significant impact on the species as it is unlikely that it will:

- Substantially modify, destroy or isolate an area of important habitat for the migratory species;
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species; or
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of the migratory species.

361. Given the proposed action is unlikely to have a significant impact on the species, the Department concludes that the proposed action is unlikely to have an unacceptable impact on the Australian Humpback Dolphin.

Other migratory species

362. The Department's ERT report identifies an additional 59 listed migratory species that may occur within 5 km of the proposed action, including marine, wetland and terrestrial species ([Attachment I1](#)).
363. This includes 18 migratory shorebird species additional to those discussed above, that are known to roost within 5 km of the proposed action. The Department considers that the impacts discussed above in relation to the Eastern Curlew and Bar-tailed Godwit are also

relevant to these species, and hence that the proposed action may also have significant impacts on other migratory shorebird species. However, for the purposes of this recommendation report, the Department has focussed its detailed assessment on the Eastern Curlew and Bar-tailed Godwit because of the likely significant impact on those shorebird species.

364. A number of the listed migratory species identified in the Department's ERT report are also listed as threatened, including the Humpback Whale, Flatback Turtle, Green Turtle, Hawksbill Turtle, Leatherback Turtle, Loggerhead Turtle and Olive Ridley Turtle. The Department's consideration of these species is outlined in the threatened species section above. The Department considers that significant impacts to these species are also relevant under the provisions for migratory species. In particular, the Department concludes that the proposed action is likely to have an unacceptable impact on the Flatback Turtle, the Green Turtle, the Hawksbill Turtle and the Loggerhead Turtle.

Conclusion – listed migratory species

365. Based on the nature, scale and location of the proposed action, the likely impacts on listed migratory species, and having considered the proposed measures to mitigate and manage these impacts, the Department concludes the proposed action will have an unacceptable impact on listed migratory species (sections 20 and 20A of the EPBC Act).

Considerations for Approval and Conditions

Mandatory considerations – section 136(1)(b) Economic and social matters

366. Under section 136 of the EPBC Act, in deciding whether or not to approve an action and what conditions to attach to the approval, the Minister must consider economic and social matters, so far as they are not inconsistent with any other requirements of Subdivision B, Division 1 of Part 9 of the EPBC Act.
367. The PER states that the proposed action will have social and economic benefits. The PER states that the benefits will include employment opportunities during construction and operation of the proposed action and recreational benefits.
368. The PER states that the proposed action has the potential for 224 permanent and 52 casual jobs.
369. The PER states that the proposed action site contains a midden that may be of cultural significance to the Butchulla people and proposes to incorporate the midden site into a recreational park with interpretive signage.
370. The Department notes that there is a high level of public concern regarding the proposed action, demonstrated by petitions submitted to the Fraser Coast Regional Council in September 2013 and the House of Representatives in February 2018, 12 public comments on the referral and 24 public submissions on the draft PER, all opposing the proposed action.
371. The petition submitted to the Mayor of the Fraser Coast Regional Council in September 2013 contained over 300 signatures, which is approximately 80% of the River Heads community.
372. The petition submitted to the Commonwealth Petitions Committee in February 2018 contained over 900 signatures. The petition requested that the House of Representatives fund the acquisition of Lot 996 SP129069 and Lot 124 SP156870 by the Crown for the long-term protection of the Great Sandy Strait wetlands and the Great Barrier Reef. The petition was presented to the House of Representatives in May 2018.

373. The 12 public comments received on the referral were considered at the time of the referral decision and raised the same key concerns as the comments on the draft PER outlined below.
374. The 24 public comments received on the draft PER were from local community members, NGOs and state and local governments opposing the proposed action ([Attachment E](#)). Several of the public submissions state that the majority of the River Heads community are opposed to the proposed action.
375. Public comments raised the following environmental, social and economic concerns:
- Impacts to EPBC listed threatened and migratory species through disturbance from light, noise, habitat degradation and inadequate buffers to protect species;
 - Impacts to the ecological character of the GSS Ramsar site through water quality impacts associated with the proposed sewage treatment plant and from the proposed use of insecticides for the treatment of biting insects;
 - Increased population size and traffic;
 - Emergency management;
 - Lack of supporting infrastructure and services;
 - Limited demand for aged care facilities in the region; and
 - Prevalence of biting insects in the proposed development area as a health risk to prospective residents.
376. The Department has considered economic and social matters relevant to the proposed action in making a recommendation on whether or not to approve the proposed action.
377. The Department considers that approval of the proposed action would lead to social and economic benefits by creating employment, growth and facilities for aged care. The Department also considers that given the considerable local concern regarding the proposed action and social issues raised in public submissions approval of the proposed action would lead to social and economic disbenefits by impacting on the local community as raised in public submissions discussed above and exemplified by the petitions discussed above.
378. The Department considers that any social and economic benefits that would result from the proposed action if approved, would not make the impacts on matters of national environmental significance acceptable.

Factors to be taken into account – section 136(2)(a) Principles of ecologically sustainable development

379. Sections 136(2)(a) of the EPBC Act provides that, in considering relevant environmental matters and economic and social matters under section 136(1), the Minister must take into account the principles of ecologically sustainable development (ESD). The principles of ESD, as defined in Section 3A of the EPBC Act, are:
- (a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
 - (b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (i.e. the precautionary principle).
 - (c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

(d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

(e) Improved valuation, pricing and incentive mechanisms should be promoted.

380. In addition, section 391 requires the Minister to take account of the precautionary principle in making a decision whether or not to approve the taking of an action under section 133.

381. In formulating this recommendation report, the Department has taken into account the principles of ecologically sustainable development and the precautionary principle. In particular, the Department considers:

(a) That if the proposed mitigation measures were implemented by the proponent, the likely environmental impacts of the proposed action, if approved, would not be satisfactory having regard to its long-term and short-term social and equitable benefits and disbenefits.

(b) That there is sufficient scientific information to conclude that the proposed action, if approved, is likely to result in unacceptable impacts to relevant matters of national environmental significance.

(c) That the proposed action, if approved, will not allow for the project to be delivered and operated in a sustainable way to protect matters of national environmental significance and the environment for future generations.

(d) That the importance of conserving biological diversity and ecological integrity was a fundamental consideration in deciding whether to recommend the approval of this action, having regard to its impacts on EPBC Act protected matters.

(e) That the Department has considered economic and social matters relevant to the proposed action and considers that the costs of the recommended refusal are reasonable having weighed this against the importance of conserving biological diversity and ecological integrity.

Factors to be taken into account – section 136(2)(c) – public environmental report

382. In accordance with section 136(2)(c)(i), the finalised environment public environment report relating to the action given to the Minister under section 99 is at [Attachment B1-B29](#).

383. In accordance with section 136(2)(c)(ii), this document has been taken into account in developing this recommendation report relating to the action given to the Minister under section 100.

Any other information the Minister has on the relevant impacts of the action - section 136(2)(e)

384. Section 136(2)(e) provides that in considering relevant environmental matters and economic and social matters under section 136(1), the Minister must take into account any other information she has on the relevant impacts of the action, including information in a report on the impacts of actions taken under a policy, plan or program given to the Minister under an agreement under Part 10 (about strategic assessments).

385. The Department received correspondence from the Fraser Coast Regional Council, which contains information about water quality and quantity that is the relevant impacts of the action ([Attachment K1](#)). The Department has considered the information provided in this correspondence as discussed in the Assessment section in relation to the GSS Ramsar site.

386. The Department considers that public comments received on the draft PER ([Attachment E](#)) and outside the public comment period ([Attachment N](#)) contain information about the relevant impacts of the action. The Department has considered the information provided in

these submissions as discussed in the Assessment section in relation to the Eastern Curlew.

387. The Department received advice from Professor Richard Fuller on 1 April 2019, which contains information relevant to impacts on migratory shorebirds ([Attachment K3](#)). The Department provided this advice to the proponent. On 16 April 2019, the proponent responded to the advice ([Attachment J6](#)). The Department has considered the information provided in this correspondence as discussed in the Assessment section in relation to the Eastern Curlew.
388. The proponent provided an advisory note in March 2018 proposing a conservation covenant over 63 ha of tidal land on the project site ([Attachment J7](#)). The Department has considered the information provided in the advisory note as discussed in the Assessment section above.
389. The proponent provided an addendum to the PER on 23 August 2019, which contains information relevant to impacts on migratory shorebirds ([Attachment J1](#)). The Department has considered the information provided in the addendum as discussed at paragraphs 284-285.
390. The Department received correspondence from the proponent's legal representative on 21 November 2019 in response to an email from the Department on 7 November 2019 which listed some of the sources of information used by the Department to inform the assessment (both emails at [Attachment J4](#)). The Department has considered the information provided in this correspondence as discussed at paragraph 251.
391. As discussed at paragraphs **Error! Reference source not found.-Error! Reference source not found.**, on 30 January 2020, the Minister met with the proponent at the site of the proposed action at River Heads in Queensland. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting and was instructed to include in that note a comprehensive account of the matters raised and discussed ([Attachment L1](#)). The proponent's legal representative provided to the Minister a brief including information relating to the proposed action ([Attachment L2](#)).
392. As discussed at paragraphs 38-40, the Minister met with a representative of the Fraser Coast Regional Council. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting and was instructed to include in that note a comprehensive account of the matters raised and discussed ([Attachment L3](#)).
393. As discussed at paragraphs 41-43, the Minister met with Professor Richard Fuller of the University of Queensland. The meeting was attended by a Departmental note-taker who prepared a contemporaneous note of the meeting and was instructed to include in that note a comprehensive account of the matters raised and discussed ([Attachment L4](#)).
394. The Department notes that the above information has been considered in preparing this recommendation report.

Any relevant comments given to the Minister in accordance with an invitation under section 131, 131AA or 131A (EPBC Act, s. 136(2) (f) and s. 131AA(6))

395. Letters inviting comment from the proponent, the Commonwealth Minister for Infrastructure, Transport and Regional Development and the Queensland Government Department of Environment and Science are at [Attachment C1-C3](#) for signature. Any comments received in response to these invitations will be included in the final approval decision briefing package for your consideration.

396. The above parties will be given 10 business days to comment on the proposed decision. Any comments received in response to these invitations will be included in the final decision briefing package for consideration.
397. The Department does not recommend that public comment be sought on the proposed decision under section 131A of the EPBC Act. The Department considers that the public has been provided with the opportunity to comment on the proposed action as part of the assessment process.

Any information given to the Minister in accordance with a request under section 132A (EPBC Act, s. 136(2)(g))

398. To date, the Minister has not requested a notice under section 132A of the EPBC Act.
399. The Minister may reconsider the possible application of section 132A when the final decision on whether or not to approve the taking of the proposed action is made and what conditions, if any, to attach to an approval.

Person's environmental history – section 136(4)

400. Under section 136(4) of the EPBC Act, in deciding whether or not to approve the taking of an action by a person, and what conditions to attach to the approval, the Minister may consider whether the person proposing to take the action is a suitable person to be granted an approval, having regard to:
- (a) The person's history in relation to environmental matters;
 - (b) If the person is a body corporate – the history of its executive officers in relation to environmental matters; and
 - (c) If the person is a body corporate that is a subsidiary of another body or company (the parent body) – the history in relation to environmental matters of the parent body and its executive officers.
401. The Department's Office of Compliance has advised that the Department has no record of adverse environmental history relating to Anscape Pty Limited or its parent company, or their executive officers.
402. Taking the above into consideration, the Department considers that Anscape Pty Limited is a suitable person to be granted an approval.

Requirements for decisions about Ramsar wetlands – section 138

403. Section 138 provides that, in deciding whether or not to approve, for the purposes of section 16 or 17B, the taking of an action and what conditions to attach to such an approval, the Minister must not act inconsistently with Australia's obligations under the Ramsar Convention.
404. The Ramsar Convention is available at: http://www.ramsar.org/cda/en/ramsar-home/main/ramsar/1_4000_0
405. The Ramsar Convention's broad aims are to halt, and where possible, reverse, the worldwide loss of wetlands and to conserve those that remain through wise use and management.
406. Contracting Parties to the Ramsar Convention have accepted a number of obligations as described under the Articles of the Convention. Most relevantly to the proposed action, as a Contracting Party to the Ramsar Convention, Australia has an obligation to formulate and implement planning to promote conservation of listed wetlands and as far as possible the wise use of all wetlands (Article 3(1)).

407. Recommendations and resolutions of the Ramsar COP have subsequently interpreted the obligation to formulate and implement planning to promote conservation of listed wetlands in a manner that suggests that activities which are likely to result in a change to the ecological character of a wetland, in particular a serious deterioration of that ecological character of the kind likely to be caused by the proposed action, should be refused (see Recommendation 4.2, Annex 2 and Resolution XI.9). A change in ecological character is to be understood as 'the human-induced adverse alteration of any ecosystem component, process and/or ecosystem service' (Annex A of Resolution IX.1 of the Ramsar COP).
408. Recommendations and resolutions of the Ramsar COP have defined 'wise use' in relation to wetlands to mean the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development (Annex A of Resolution IX.1 of the Ramsar COP).
409. The Department has considered Australia's obligations under the Ramsar Convention, interpreted in light of relevant Ramsar COP Recommendations and Resolutions in making a recommendation on whether or not to approve the proposed action.
410. The Department's assessment of the potential impacts of the proposed action on the ecological character of the GSS Ramsar site is discussed at paragraphs 47-113. The Department considers that the proposed action will lead to:
- Areas of the wetland being destroyed or substantially modified;
 - A substantial and measurable change in the hydrological regime of the wetland;
 - The habitat or lifecycle of native species dependent upon the wetland being seriously affected; and
 - A substantial and measurable change in the water quality of the wetland which may adversely impact on biodiversity, ecological integrity, social amenity or human health.
411. Given these significant impacts and the uncertainty and risks associated with the proposed avoidance and mitigation measures, and considering that these impacts are unable to be offset, the Department concludes that the proposed action is likely to have an unacceptable impact on the ecological character of the GSS Ramsar site.
412. The Department considers that if the Minister decided to approve the proposed action, the Minister would not be implementing planning to promote conservation of listed wetlands as required by Article 3(1) of the Ramsar Convention, given the proposed action would result in a human-induced adverse alteration of any ecosystem component, process and/or ecosystem service, and therefore have unacceptable impacts on the ecological character of the GSS Ramsar site.
413. In addition, the Department considers that if the Minister decided to approve the proposed action, the Minister would not be implementing planning to promote as far as possible the wise use of all wetlands, as required by Article 3(1) of the Ramsar Convention, as the proposed action includes activities that the Department considers will lead to the loss of biodiversity and diminish the ecological and hydrological values of the GSS Ramsar site, and therefore would not be maintaining the ecological character of the GSS Ramsar site.
414. Given these considerations, the Department considers that approval of the proposed action would be inconsistent with Australia's obligations under Article 3(1) of the Ramsar Convention to formulate and implement planning to promote conservation of listed wetlands and as far as possible the wise use of all wetlands.

415. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under the Ramsar Convention, and therefore recommends the proposed action be refused approval.

Requirements for decisions about threatened species and endangered communities – section 139

416. Section 139 of the EPBC Act provides that, in deciding whether or not to approve for the purposes of a subsection of section 18 or section 18A the taking of an action, and what conditions to attach to such an approval, the Minister must not act inconsistently with:

- (a) Australia's obligations under:
 - (i) The Biodiversity Convention; or
 - (ii) The Apia Convention; or
 - (iii) CITES; or
- (b) A Recovery Plan or Threat Abatement Plan.

417. In addition, under section 139(2) of the EPBC Act, if:

- (a) The Minister is considering whether to approve, for the purposes of a subsection of section 18 or section 18A, the taking of an action; and
- (b) The action has or will have, or is likely to have, a significant impact on a particular listed threatened species or a particular listed threatened ecological community;

then the Minister must, in deciding whether to so approve the taking of the action, have regard to any approved Conservation Advice for the species or community.

The Biodiversity Convention

418. The Biodiversity Convention is available at:

<http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1993/32.html>

419. The key objectives of the Biodiversity Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

420. The Department has considered Australia's obligations under the Biodiversity Convention in making a recommendation on whether or not to approve the proposed action. The Department considers that Article 8 of the Biodiversity Convention is relevant to this decision.

421. Article 8 of the Biodiversity Convention requires that each Contracting Party, as far as is possible and appropriate, among other things,:

- (c) Regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas with a view to ensuring their conservation and sustainable use;
- (h) Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species; and
- (l) Where a significant adverse effect on biodiversity has been determined pursuant to Article 7, regulate or manage the relevant processes and categories of activities.

422. The Department's consideration of the potential impacts of the proposed action on listed threatened species is discussed in paragraphs 114 to 224. The Department considers that

the proposed action is likely to have significant impacts on the Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Turtle as it will adversely affect habitat critical to the survival of these species. Further, the Department considers that for the Loggerhead Turtle, the proposed action is likely to disrupt the breeding cycle of a population.

423. With respect to Article 8(c), as discussed in paragraphs 69 to 82, the Department considers that the proposed action will cause a decline in water quality in areas of known marine turtle foraging habitat. The *Recovery Plan for Marine Turtles in Australia (2017)* states that reduced water quality resulting from pollutants, including sediment, entering the marine environment have the potential to affect marine turtle health directly or reduce the viability of habitats necessary for survival, which has implications for stock viability.
424. The Department notes that foraging habitat is habitat critical to the survival of a species, and considers that habitat that is critical to the survival of marine turtle species is a biological resource that is important for the conservation of these species, and hence the conservation of biological diversity.
425. Given the available information, the Department considers in relation to Article 8(c) that the proposed action will impact significantly on a biological resource that is important for the conservation of marine turtle species, ecosystems and natural habitats that support marine turtle species, and the maintenance of viable populations of marine turtle species in their natural surroundings.
426. With respect to Article 8(h), as discussed in paragraph 154, the Department notes that the proposed action includes measures to control or eradicate feral predators.
427. The Department also notes that the proposed action is located adjacent to two overlapping protected areas, the GSS Ramsar site and the Great Sandy Marine Park.
428. As discussed in paragraphs 152 to 157, the Department considers the proposed avoidance and mitigation measures are unlikely to adequately avoid and mitigate the potential significant impacts of the proposed action on marine turtle species. Given this, the Department considers that the proposed action is not an environmentally sound and sustainable development.
429. Given the above discussion, and having regard to the socio-economic context of the proposed action (see discussion at paras 366 to 378 above), the Department considers that if the Minister decided to approve the proposed action, the Minister would not, as is required by Article 8 of the Biodiversity Convention, be, as far as is possible or appropriate,:

(c) Regulating biological resources important for the conservation of biological diversity with a view to ensuring their conservation and sustainable use.

430. Further, the Department is of the view, having regard to the socio-economic context of the proposal, that it is both possible and appropriate to prevent the likely significant adverse effect on turtle species the proposed action gives rise to by refusing approval for this action (in accordance with Australia's obligation to regulate or manage categories of activities that are likely to have significant impacts on the conservation of biological diversity under Art 8(l) of the Biodiversity Convention).
431. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under Article 8 of the Biodiversity Convention, and therefore recommends the proposed action be refused approval.

Convention on the Conservation of Nature in the South Pacific (Apia Convention)

432. The Apia Convention is available at:

<http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1990/41.html>

433. The Apia Convention encourages the creation of new protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations, and regions and objects of aesthetic interest or historic, cultural or scientific value.
434. The Apia Convention was suspended with effect from 13 September 2006. While it is suspended, Australia has no international obligations under the APIA Convention.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

435. CITES, being the *Convention on International Trade in Endangered Species of Wild Fauna and Flora 1973*, which entered into force for Australia on 27 October 1976, is available at: <http://www.austlii.edu.au/au/other/dfat/treaties/ATS/1976/29.html>.
436. The objective of CITES is to regulate trade in animals or plants that are endangered or threatened with extinction to ensure that such trade does not threaten their survival.
437. Australia's key obligation under CITES is to restrict the international trade in specimens of certain animals and plants species listed in the Appendices of the Convention (CITES species). Australia has implemented this obligation largely through the enactment of Part 13A of the EPBC Act which establishes a system for the regulation and permitting of international trade in endangered species.
438. The proposed action does not involve the international trade of CITES species. Therefore, the refusal or approval of the proposed action would not affect the regulation of such trade (under Part 13A of the EPBC Act) and would not be inconsistent with Australia's obligations under CITES.

Recovery Plans

439. The Recovery Plans relevant to the proposed action and assessment are attached (Attachment G1-G2) and listed in the Statutory Document Report (Attachment F) and below:
- Department of the Environment and Resource Management (2010). *National Recovery Plan for the water mouse (false water rat) Xeromys myoides*. Report to Department of Sustainability, Environment, Water, Population and Communities, Canberra. Department of the Environment and Resource Management, Brisbane. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-water-mouse-false-water-rat-xeromys-myoides>. In effect under the EPBC Act from 21-Apr-2011. (Attachment G1).
 - Department of the Environment and Energy (2017). *Recovery Plan for Marine Turtles in Australia*. Australian Government, Canberra. Available from: <http://www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017>. In effect under the EPBC Act from 03-Jun-2017. (Attachment G2).
440. The Recovery Plans have been considered in making the recommendations for each listed threatened species listed at paragraph 117, as discussed in the Assessment section above.
441. Having considered the objectives and actions detailed in the *National Recovery Plan for the water mouse (false water rat) Xeromys myoides (2010)*, the Department considers that approval of the proposed action would not be inconsistent with this Recovery Plan.
442. The long-term recovery objective identified in the *Recovery Plan for Marine Turtles in Australia (2017)* is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. The Department considers that the key recovery action relevant to the proposed action is to minimise chemical and terrestrial discharge.

443. As discussed in paragraphs 69 to 82, the Department considers that the proposed action will lead to seepage and runoff of large volumes of water carrying sediments and other pollutants and contaminants, and that this will cause a decline in water quality in the GSS Ramsar site in areas of marine turtle habitat. The Recovery Plan states that reduced water quality resulting from pollutants, including sediment, entering the marine environment have the potential to affect marine turtle health directly or reduce the viability of habitats necessary for survival, which has implications for stock viability.
444. To address threats to marine turtles associated with chemical and terrestrial discharge, the Recovery Plan states that best practice guidelines should be implemented with all existing and new developments, and spill risk strategies and response programs should adequately include management for marine turtles and their habitats, particularly in reference to 'slow to recover habitats', e.g. nesting habitat, seagrass meadows or coral reef.
445. As discussed in paragraphs 93-106, the Department considers the proposed measures in relation to hydrology and water quality are unlikely to adequately avoid and mitigate the potential impacts, that spill risks have not been addressed, that there are substantial risks to water quality associated with the proposed action, and hence that the proposed action will result in degradation of habitat critical to the survival of marine turtles.
446. Given the above discussion, the Department concludes that the approval of the proposed action would be inconsistent with the *Recovery Plan for Marine Turtles in Australia* (2017), and therefore recommends the proposed action be refused approval.

Threat Abatement Plans

447. The Threat Abatement Plans relevant to the proposed action and assessment are attached (Attachment G3-G6) and listed in the Statutory Document Report (Attachment F) and below:
- Department of the Environment (2015). *Threat Abatement Plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015. (Attachment G3).
 - Department of the Environment and Energy (2017). *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>. In effect under the EPBC Act from 18-Mar-2017. (Attachment G4).
 - Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat Abatement Plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008. (Attachment G5).
 - Department of the Environment and Energy (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris-2018>. In effect under the EPBC Act from 21-Jul-2018. (Attachment G6).
448. The goal of the first three of the above Threat Abatement Plans is to minimise the impact of exotic species on biodiversity in Australia and its territories by protecting affected threatened species and ecological communities and preventing further species and ecological communities from becoming threatened.

449. The Department considers the objectives of the *Threat Abatement Plan for predation by feral cats (2015)* relevant to the proposed action are to:

- Effectively control feral cats in different landscapes; and
- Increase public support for feral cat management and promote responsible cat ownership.

450. The Department considers the objectives of the *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa) (2017)* are not relevant to the proposed action.

451. The Department considers the objective of the *Threat Abatement Plan for predation by the European red fox (2018)* relevant to the proposed action is to:

- Promote the maintenance and recovery of native species and ecological communities that are affected by fox predation.

452. Relevant to the above Threat Abatement Plans, the PER includes management measures to control feral pest species as a measure for reducing threats to listed threatened species.

453. The *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018)* outlines actions needed to abate the listed key threatening process, particularly actions to develop understanding about microplastic impacts and the potential role of new technologies in waste management. The objectives of this Threat Abatement Plan relevant to the proposed action are to:

- Contribute to long-term prevention of marine debris; and
- Increase public understanding of the causes and impacts of marine debris, including microplastic and hazardous chemical contaminants, to bring about behaviour change.

454. The Department has taken the goals of the above Threat Abatement Plans into account in assessing the impacts of the proposed action on listed threatened species and the proposed mitigation and management measures. The Department concludes that approval of the proposed action would not be inconsistent with the Threat Abatement Plans above.

Conservation Advice

455. The approved Conservation Advice relevant to the proposed action and assessment are attached at Attachment G7-G8 and listed in the Statutory Document Report (Attachment F) and below:

- Threatened Species Scientific Committee (2015). *Conservation Advice* Megaptera novaeangliae *humpback whale*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/38-conservation-advice-10102015.pdf>. In effect under the EPBC Act from 01-Oct-2015. (Attachment G7).
- Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Dermochelys coriacea (Leatherback Turtle)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-conservation-advice.pdf>. In effect under the EPBC Act from 08-Jan-2009. (Attachment G8).

456. The Department has had regard to the approved Conservation Advices relevant to the proposed action and has given consideration to the likely impacts of the proposed action on listed threatened species (see discussion at paragraphs 114 to 224).

Requirements for decisions about migratory species – section 140

457. Section 140 of the EPBC Act provides that, in deciding whether or not to approve for the purposes of section 20 or 20A the taking of an action relating to a listed migratory species, and what conditions to attach to such an approval, the Minister must not act inconsistently with Australia's obligations under whichever of the following conventions and agreements because of which the species is listed:

- (a) The Bonn Convention;
- (b) CAMBA;
- (c) JAMBA; and
- (d) An international agreement approved under subsection 209(4).

458. On 27 February 2007, the ROKAMBA was approved as an international agreement under subsection 209(4).

The Bonn Convention

459. The Bonn Convention is available at: <https://www.cms.int/>

460. The Bonn Convention aims to conserve migratory species and their habitats and migration routes.

461. The Department has considered Australia's obligations under the Bonn Convention in making a recommendation on whether or not to approve the proposed action. The Department considers that Article III of the Bonn Convention is relevant to this decision.

462. Article III(4) of the Bonn Convention requires that Parties that are Range States of a migratory species listed in Appendix I shall endeavour:

- (a) To conserve and, where feasible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction
- (b) To prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species; and
- (c) To the extent feasible and appropriate, to prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species.

463. The Eastern Curlew is listed under Appendix I of the Bonn Convention. The Department's consideration of the potential impacts of the proposed action on the Eastern Curlew is discussed in paragraphs 229 to 292. The Department considers that the proposed action will:

- (a) Substantially modify an area of important habitat for the Eastern Curlew by causing changes to hydrology and water quality that will degrade the habitat; and
- (b) Seriously disrupt the lifecycle of the Eastern Curlew by causing frequent and ongoing disturbance to an ecologically significant proportion of the population to the extent that their capacity to migrate and breed will be reduced.

464. Given the nature and scale of the impacts of the proposed action on the Eastern Curlew and that these impacts are unable to be avoided, mitigated or offset, and considering the importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department concludes that the impacts of the proposed action on the species are unacceptable.

465. Given this assessment, the Department considers that approval of the proposed action would be inconsistent with Australia's obligations under Article III of the Bonn Convention, as it would facilitate activities that will threaten, rather than conserve, habitat of the Eastern Curlew that is of importance in removing the species from danger of extinction (Article III(4)(a)), seriously impede or prevent the migration of the Eastern Curlew (Article III(4)(b)) and would facilitate factors that are endangering to the species (Article III(4)(c)). In the Department's view, preventing these impacts by refusing approval for this project, having regard to the socio-economic context of the proposed action, would:
- (a) Conserve and, feasibly and appropriately, restore those habitats of the species which are of importance in removing the species from danger of extinction
 - (b) Prevent, remove, compensate for or minimize, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species; and
 - (c) To the extent feasible and appropriate, prevent, reduce or control factors that are endangering or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating, already introduced exotic species.
466. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under the Bonn Convention, and therefore recommends the proposed action be refused approval.
- China-Australia Migratory Bird Agreement (CAMBA)*
467. The CAMBA can be found at: <http://www.austlii.edu.au/au/other/dfat/treaties/1988/22.html>
468. The agreement lists terrestrial, water and shorebird species which migrate between Australia and China. The majority of listed species are migratory shorebirds.
469. The agreement requires the parties to protect migratory birds by:
- (a) Limiting the circumstances under which migratory birds are taken or traded;
 - (b) Protecting and conserving important habitats;
 - (c) Exchanging information; and
 - (d) Building cooperative relationships.
470. The Department has considered Australia's obligations under the CAMBA in making a recommendation on whether or not to approve the proposed action. The Department considers that Article 4 of the CAMBA is relevant to this decision.
471. Article 4 of the CAMBA requires that each Contracting Party shall endeavour, in accordance with its laws and regulations in force, to, among other things,:
- (b) Take appropriate measures to preserve and enhance the environment of migratory birds. In particular, each Contracting Party shall:
 - (i) Seek means to prevent damage to migratory birds and their environment.
472. The Eastern Curlew and the Bar-tailed Godwit are listed under the CAMBA. The Department's consideration of the potential impacts of the proposed action on the Eastern Curlew and the Bar-tailed Godwit is discussed in paragraphs 229 to 311.
473. The Department considers that the proposed action will:
- (a) Substantially modify an area of important habitat for the Eastern Curlew and the Bar-tailed Godwit by causing changes to hydrology and water quality that will degrade the habitat; and

- (b) Seriously disrupt the lifecycle of the Eastern Curlew and the Bar-tailed Godwit by causing frequent and ongoing disturbance to an ecologically significant proportion of the population to the extent that their capacity to migrate and breed will be reduced.

474. Given the nature and scale of the impacts of the proposed action on the Eastern Curlew and the Bar-tailed Godwit and that these impacts are unable to be avoided, mitigated or offset, and considering the importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department concludes that the impacts of the proposed action on the species are unacceptable.
475. Given this assessment, the Department considers that approval of the proposed action would be inconsistent with Australia's obligations under Article 4(b)(i) of the CAMBA, as it would facilitate damage to migratory birds and their environment.
476. The Department considers that if the Minister decided to approve the proposed action, the Minister would not be taking appropriate measures to preserve and enhance the environment of the Eastern Curlew and the Bar-tailed Godwit under the EPBC Act, as is required by Article 4(b) of the CAMBA.
477. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under the CAMBA, and therefore recommends the proposed action be refused approval.

Japan-Australia Migratory Bird Agreement (JAMBA)

478. The JAMBA can be found at: <http://www.austlii.edu.au/au/other/dfat/treaties/1981/6.html>
479. The agreement lists terrestrial, water and shorebird species which migrate between Australia and Japan. The majority of listed species are migratory shorebirds.
480. The agreement requires the parties to protect migratory birds by:
- (a) Limiting the circumstances under which migratory birds are taken or traded;
 - (b) Protecting and conserving important habitats;
 - (c) Exchanging information; and
 - (d) Building cooperative relationships.
481. The Department has considered Australia's obligations under the JAMBA in making a recommendation on whether or not to approve the proposed action. The Department considers that Article 6 of the JAMBA is relevant to this decision.
482. Article 6 of the JAMBA requires that each Government shall endeavour to take appropriate measures to preserve and enhance the environment of birds protected under the provisions of this Agreement. In particular, each Government shall, among other things,:
- (a) Seek means to prevent damage to such birds and their environment.
483. The Eastern Curlew and the Bar-tailed Godwit are listed under the JAMBA. The Department's consideration of the potential impacts of the proposed action on the Eastern Curlew and the Bar-tailed Godwit is discussed in paragraphs 229 to 311.
484. The Department considers that the proposed action will:
- (a) Substantially modify an area of important habitat for the Eastern Curlew and the Bar-tailed Godwit by causing changes to hydrology and water quality that will degrade the habitat; and
 - (b) Seriously disrupt the lifecycle of the Eastern Curlew and the Bar-tailed Godwit by causing frequent and ongoing disturbance to an ecologically significant proportion of the population to the extent that their capacity to migrate and breed will be reduced.

485. Given the nature and scale of the impacts of the proposed action on the Eastern Curlew and the Bar-tailed Godwit and that these impacts are unable to be avoided, mitigated or offset, and considering the importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department concludes that the impacts of the proposed action on the species are unacceptable.
486. Given this assessment, the Department considers that approval of the proposed action would be inconsistent with Australia's obligations under Article 6(a) of the JAMBA, as it would facilitate damage to migratory birds and their environment.
487. The Department considers that if the Minister decided to approve the proposed action, the Minister would not be taking appropriate measures to preserve and enhance the environment of the Eastern Curlew and the Bar-tailed Godwit, as is required by Article 6 of the JAMBA.
488. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under the JAMBA, and therefore recommends the proposed action be refused approval.

Republic of Korea–Australia Migratory Bird Agreement (ROKAMBA)

489. The ROKAMBA can be found at:
<http://www.austlii.edu.au/au/other/dfat/treaties/2007/24.html>
490. The agreement lists terrestrial, water and shorebird species which migrate between Australia and the Republic of Korea. The majority of listed species are migratory shorebirds.
491. The agreement requires the parties to protect migratory birds by:
- (a) Limiting the circumstances under which migratory birds are taken or traded;
 - (b) Protecting and conserving important habitats;
 - (c) Exchanging information; and
 - (d) Building cooperative relationships.
492. The Department has considered Australia's obligations under the ROKAMBA in making a recommendation on whether or not to approve the proposed action. The Department considers that Article 5 of the ROKAMBA is relevant to this decision.
493. Article 5 of the ROKAMBA requires that each Party shall endeavour to take the appropriate measures to conserve and improve the environment of birds protected under Article 1 of the Agreement. In particular, each Party shall, among other things,:
- (a) Seek means to prevent damage to such birds and their environment.
494. The Eastern Curlew and the Bar-tailed Godwit are listed under Article 1 of the ROKAMBA. The Department's consideration of the potential impacts of the proposed action on the Eastern Curlew and the Bar-tailed Godwit is discussed in paragraphs 229 to 311.
495. The Department considers that the proposed action will:
- (a) substantially modify an area of important habitat for the Eastern Curlew and the Bar-tailed Godwit by causing changes to hydrology and water quality that will degrade the habitat; and
 - (b) seriously disrupt the lifecycle of the Eastern Curlew and the Bar-tailed Godwit by causing frequent and ongoing disturbance to an ecologically significant proportion of the population to the extent that their capacity to migrate and breed will be reduced.
496. Given the nature and scale of the impacts of the proposed action on the Eastern Curlew and the Bar-tailed Godwit and that these impacts are unable to be avoided, mitigated or offset,

and considering the importance of the habitat for the species, and that an ecologically significant proportion of the population will be impacted, the Department concludes that the impacts of the proposed action on the species are unacceptable.

497. Given this assessment, the Department considers that approval of the proposed action would be inconsistent with Australia's obligations under Article 5(a) of the ROKAMBA, as it would facilitate damage to the Eastern Curlew and the Bar-tailed Godwit and their environment.
498. The Department considers that if the Minister decided to approve the proposed action, the Minister would not be taking appropriate measures to conserve and improve the environment of the Eastern Curlew and the Bar-tailed Godwit, as is required by Article 5 of the ROKAMBA.
499. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under the ROKAMBA, and therefore recommends the proposed action be refused approval.

Bioregional Plans section 176(5)

500. In accordance with section 176(5), the Minister is required to have regard to a bioregional plan in making any decision under the Act to which the plan is relevant.
501. As the proposed action is not located within or near an area designated by a bioregional plan, the Department considers that there are no bioregional plans relevant to the proposed action.

Commonwealth compliance with plans – section 330

502. Section 330 provides that, in relation to listed wetlands in Commonwealth areas, the Commonwealth or a Commonwealth agency must not:
- (a) Contravene a plan made under section 328; or
 - (b) Authorise another person to do, or omit to do, anything that, if it were done or omitted to be done by the Commonwealth or the Commonwealth agency (as appropriate), would contravene such a plan.
503. If there is no plan in force under section 328 for a particular wetland described in subsection (1) of that section, the Commonwealth and each Commonwealth agency must take all reasonable steps to ensure that its acts (if any) relating to the wetland are not inconsistent with the Australian Ramsar management principles.
504. As the proposed action is not located within a Commonwealth area, the Department considers that section 330 is not relevant to this decision.

Commonwealth responsibilities – section 334

505. Section 334 provides that, in relation to a wetland that is a declared Ramsar wetland, the Commonwealth and each Commonwealth agency must take all reasonable steps to ensure it exercises its powers and performs its functions in relation to the wetland in a way that is not inconsistent with:
- (a) The Ramsar Convention; and
 - (b) The Australian Ramsar management principles; and
 - (c) If the wetland is included in the List of Wetlands of International Importance kept under the Ramsar Convention and a plan for managing the property has been prepared as described in section 333 – that plan.

The Ramsar Convention

506. The Department's consideration of the potential impacts of the proposed action on the ecological character of the GSS Ramsar site is discussed at paragraphs 47-113.
507. The Department's consideration of whether or not the approval of the proposed action would be inconsistent with Australia's obligations under the Ramsar Convention is discussed at paragraphs 403 to 409.
508. The Department concludes that approval of the proposed action would be inconsistent with Australia's obligations under the Ramsar Convention to formulate and implement planning to promote conservation of listed wetlands and as far as possible the wise use of all wetlands.
509. In recommending refusal of the proposed action, the Department considers that it has taken reasonable steps to ensure it exercises its powers and performs its functions in relation to the GSS Ramsar site in a way that is not inconsistent with the Ramsar Convention.

The Australian Ramsar management principles

510. Under Schedule 6 of the *Environment Protection and Biodiversity Conservation Regulations 2000*, general principles are outlined for the management of wetlands of international importance.
511. Relevant to this report, principle 3 of the Australian Ramsar management principles applies to the assessment of an action that is likely to have a significant impact on the ecological character of a Ramsar wetland (whether the action is to occur inside the wetland or not).
512. Principle 3.03 of the Australian Ramsar management principles stipulates that before the action is taken, the likely environmental impact of the action on the wetland's ecological character should be assessed under a statutory environmental impact assessment and approval process. The assessment process should:
- (a) Identify any part of the ecological character of the wetland that is likely to be affected by the action; and
 - (b) Examine how the ecological character of the wetland might be affected; and
 - (c) Provide adequate opportunity for public consultation.
513. The Department considers that, in undertaking an assessment of the proposed action, during which:
- (a) Parts of the ecological character of the wetland that might be affected by the action were identified,
 - (b) How the ecological character of the wetland might be affected was examined, and
 - (c) Adequate opportunities for public comment were provided,
- it has taken reasonable steps to ensure it exercises its powers and performs its functions in relation to the GSS Ramsar site in a way that is not inconsistent with the Australian Ramsar management principles.
514. Principle 3.04 of the Australian Ramsar management principles stipulates that an action should not be approved if it would be inconsistent with:
- (a) Maintaining the ecological character of the wetland; or
 - (b) Providing for the conservation and sustainable use of the wetland.
515. As discussed above, the Department's consideration of the potential impacts of the proposed action on the ecological character of the GSS Ramsar site is discussed at paragraphs 47-113. The Department concludes that the proposed action would have unacceptable impacts on the ecological character of the GSS Ramsar site.

516. Given this conclusion, the Department considers that the proposed action, if approved, would be inconsistent with maintaining the ecological character of the GSS Ramsar site and providing for the conservation and sustainable use of the wetland.
517. In recommending refusal of the proposed action, the Department considers that it has taken reasonable steps to ensure it exercises its powers and performs its functions in relation to the GSS Ramsar site in a way that is not inconsistent with the Australian Ramsar management principles.

A management plan for a Wetland of International Importance

518. The Department notes there is no management plan as described in section 333 for the GSS Ramsar site.

Minister not to consider other matters

519. In deciding whether or not to approve the taking of an action, and what conditions to attach to an approval, the Minister must not consider any matters that you are not required or permitted, by Subdivision B, Division 1, Part 9 of the EPBC Act, to consider.

Conclusion

520. The Department considers that there is sufficient scientific information to conclude that the proposed action, if approved, is likely to have unacceptable impacts on relevant matters of national environmental significance.
521. The Department has considered social and economic matters relevant to the proposed action and concludes that any social and economic benefits that would result from the proposed action if approved, would not make the impacts on matters of national environmental significance acceptable.
522. Further, the Department considers that approval of the proposed action would be inconsistent with:
- (a) Australia's obligations under the Ramsar Convention (section 138);
 - (b) Australia's obligations under the Biodiversity Convention and the *Recovery Plan for Marine Turtles in Australia* (2017) (section 139);
 - (c) Australia's obligations under the Bonn Convention, CAMBA, JAMBA and ROKAMBA (section 140); and
 - (d) The responsibilities of the Commonwealth and each Commonwealth agency under section 334 of the EPBC Act.
523. Having considered all matters required to be considered under the EPBC Act, the Department recommends the proposed action be refused approval.

Attachments

524. This recommendation report is Attachment A to the brief for the proposed decision on whether or not to approve the proposed Turtle Cove Haven Retirement Village. The attachments cited in this report are also attachments to the proposed decision brief.

- A: Recommendation report (this document)
- B1: Final Public Environment Report (PER)
- B2: PER Appendix A - PER Guidelines
- B3: PER Appendix B - Ecological report part a
- B4: PER Appendix B - Ecological report part b
- B5: PER Appendix C - FCRC overlay and QLD SDAP responses

- B6: PER Appendix D - SDAP modules
- B7: PER Appendix E - Transect data
- B8: PER Appendix F - Regional ecosystems plant listings
- B9: PER Appendix G - Construction environmental management plan
- B10: PER Appendix H - Revegetation strategy
- B11: PER Appendix I - Faunal pest management
- B12: PER Appendix J - Ramsar & Marine Park info sheets
- B13: PER Appendix K - Stormwater quality management plan
- B14: PER Appendix K1 - Stormwater quantity management plan
- B15: PER Appendix K2 - Environmental protection water policy 1997
- B16: PER Appendix L - Belldi consultancy report
- B17: PER Appendix M - Water Mouse surveys and mitigation assessment
- B18: PER Appendix N - Wader Bird MNES management plan
- B19: PER Appendix O - Biting midge report
- B20: PER Appendix P - Recycled water management plan
- B21: PER Appendix Q - Recycled water management plan WWTP specifications
- B22: PER Appendix R - Sewerage management plan
- B23: PER Appendix S - MWA peer review of reports
- B24: PER Appendix T - Terms of reference table
- B25: PER Appendix U - Ecological character description for the GSS Ramsar site
- B26: PER Appendix V - Information sheet on Ramsar wetlands
- B27: PER Appendix W - Wader bird surveys 2013-2016
- B28: PER Appendix X - Groundcover grazing management plan
- B29: PER Appendix Y - Response to public submissions
- C1: Letter to proponent
- C2: Letter to Queensland Department of Environment and Science
- C3: Letter to Minister for Infrastructure, Transport and Regional Development
- D: Proposed decision notice
- E: Public submissions on the draft PER
- F: Statutory documents report (dated 2 March 2020)
- G1: Department of the Environment and Resource Management (2010). *National Recovery Plan for the water mouse (false water rat) Xeromys myoides*. Report to Department of Sustainability, Environment, Water, Population and Communities, Canberra. Department of the Environment and Resource Management, Brisbane. Available from: <http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-water-mouse-false-water-rat-xeromys-myoides>. In effect under the EPBC Act from 21-Apr-2011.
- G2: Department of the Environment and Energy (2017). *Recovery Plan for Marine Turtles in Australia*. Australian Government, Canberra. Available

from: <http://www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017>. In effect under the EPBC Act from 03-Jun-2017.

G3: Department of the Environment (2015). *Threat Abatement Plan for predation by feral cats*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats>. In effect under the EPBC Act from 23-Jul-2015.

G4: Department of the Environment and Energy (2017). *Threat Abatement Plan for predation, habitat degradation, competition and disease transmission by feral pigs (Sus scrofa)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/feral-pig-2017>. In effect under the EPBC Act from 18-Mar-2017.

G5: Department of the Environment, Water, Heritage and the Arts (DEWHA) (2008). *Threat Abatement Plan for predation by the European red fox*. DEWHA, Canberra. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/predation-european-red-fox>. In effect under the EPBC Act from 01-Oct-2008.

G6: Department of the Environment and Energy (2018). *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (2018)*. Canberra, ACT: Commonwealth of Australia. Available from: <http://www.environment.gov.au/biodiversity/threatened/publications/tap/marine-debris-2018>. In effect under the EPBC Act from 21-Jul-2018.

G7: Threatened Species Scientific Committee (2015). *Conservation Advice Megaptera novaeangliae humpback whale*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/38-conservation-advice-10102015.pdf>. In effect under the EPBC Act from 01-Oct-2015.

G8: Department of the Environment, Water, Heritage and the Arts (2008). *Approved Conservation Advice for Dermochelys coriacea (Leatherback Turtle)*. Canberra: Department of the Environment, Water, Heritage and the Arts. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-conservation-advice.pdf>. In effect under the EPBC Act from 08-Jan-2009.

G9: Department of the Environment (2015). *Conservation Advice Numenius madagascariensis eastern curlew*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/847-conservation-advice.pdf>. In effect under the EPBC Act from 26-May-2015.

G10: Threatened Species Scientific Committee (2016). *Conservation Advice Limosa lapponica baueri Bar-tailed godwit (western Alaskan)*. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/species/pubs/86380-conservation-advice-05052016.pdf>. In effect under the EPBC Act from 05-May-2016.

H1: Departmental advice – Wetlands Section

H2: Departmental advice – Migratory Species Section (August 2018)

H3: Departmental advice – Migratory Species Section (June 2017)

I1: ERT Report 5 km buffer (dated 25 October 2013)

I2: ERT Report 5 km buffer (dated 20 February 2020)

J1: Regional Ecosystem Mapping Consultancy (2019) *EPBC 2013/7038 PER Migratory Shorebirds Significant Impacts Addendum Turtlecove August 2019*.

J2: Proponent's proposed conditions

- J3: Letter from proponent regarding Ramsar boundary
- J4: Emails between proponent's legal representative and the Department
- J5: Emails between proponent's legal representative and the Department
- J6: Proponent's response to advice from Professor Richard Fuller (dated 16 April 2019)
- J7: Proponent's proposed conservation covenant
- K1: Advice from Fraser Coast Regional Council
- K2: Advice from the Queensland Department of Environment and Science
- K3: Advice from Professor Richard Fuller 1 April 2019
- K4: Advice from the Commonwealth Environmental Water Office
- L1: Meeting note: Minister's site visit
- L2: Briefing from Anscape Pty Ltd for the Minister's site visit
- L3: Meeting note: Minister's meeting with Fraser Coast Regional Council
- L4: Meeting note: Minister's meeting with Professor Richard Fuller
- M1: Information Sheet on Ramsar wetlands
- M2: Clemens R (2014) *Expert Report – Prepared for T4 PAC Meeting – 26 August 2014.* =
- M3: Glover HK, Weston MA, Maguire GS, Miller KK, Christie BA (2011) *Towards ecologically meaningful and socially acceptable buffers: Response distances of shorebirds in Victoria, Australia, to human disturbance.*
- M4: Harding S, Milton D and Cross L (2005) *Great Sandy Strait shorebird roost mapping project - Final report.* Queensland Wader Study Group, Unpublished data, Queensland, Australia.
- M5: Weimerskirch H, Shaffer SA, Mabile G, Martin J, Boutard O, Rouanet JL (2002) *Heart rate and energy expenditure of incubating wandering albatrosses: basal levels, natural variation, and the effects of human disturbance.* Journal of Experimental Biology. 205(4):475-83.
- M6: *National Light Pollution Guidelines for Wildlife*, Commonwealth of Australia 2020
- N: Public submissions outside the public comment period

COMMONWEALTH ENVIRONMENTAL WATER OFFICE

EPBC ACT ASSESSMENT ADVICE FROM WETLANDS SECTION

ASSESSMENT ADVICE: EPBC 2013/7038

TURTLE COVE HAVEN RETIREMENT VILLAGE

Background

The Turtle Cove Haven Retirement Village was referred in 2013 for consideration under the EPBC Act and on 29 November 2013 it was determined a controlled action for significant impacts to listed threatened species, migratory species and wetlands of international importance, specifically Eastern Curlew and Great Sandy Strait Ramsar site. The proposal is being assessed by a Public Environment Report (PER).

In 2016, the Wetlands Section provided advice to ESD regarding the adequacy of the PER and whether it addressed impacts to the Great Sandy Strait Ramsar site ([see Attachment 1](#)). The proposal has gone through some changes since that time and the PER was made publically available in January 2018 as part of the assessment and approval process.

While some of the issues have been addressed, the Wetlands Section still has concerns over the direct and indirect impacts this project will have on the ecological character of the Great Sandy Strait Ramsar, particularly the Mangrove Point South Clay Pan which is recognised as one of the most important sites for Eastern Curlew.

It is important to note that the consultant that prepared the PER has sourced information from the draft Ecological Character Description which was prepared in 2008 and was never finalised. In particular, the Limits of Acceptable Change have been quoted and used as potential management triggers. As the Limits of Acceptable Change are not current and were never finalised they should not be relied upon.

Key Changes

The main difference with the current proposal is that there will no longer be a golf course as part of the proposed action. It has been replaced with a solar farm which will likely reduce impact to the clay pan as there will be less pollutants entering the Ramsar site as a result of reduced pesticide and fertiliser use.

There will no longer be an elevated board walk or pest fence. A vegetated screening buffer of 50m will be planted to provide some protection for migratory species.

Current Proposal

The proposed action comprises:

- A village town square with convenience shops and a Medical Precinct
- High care facility for 80 residents

- Hotel for visitors and tourists
 - Up to 500 independent living units consisting of 1, 2 and 3 bedroom options, these will be designed as relocatable homes in order to capitalise on the financial incentives for residents.
 - An up to 10 megawatt solar power station capable of supplying 3700 houses annual energy needs to be determined.
 - Additional commercial space to allow for a coffee shop / florist and other associated uses.
 - Long term storage for boats, caravans, recreational vehicles.
 - A stand alone sewage treatment plant with the daily peak design capacity of 1500 equivalent persons producing class A water for reuse.
-
- Water sensitive urban design capable of meeting the high ecological value of the Great Sandy Strait lower/middle estuary receiving waters.
 - A public recreation area with traditional owner recognition and engagement for cultural management of the Turtle Cove midden site.

Discussion on impacts

Mangrove Point Clay Pan / Migratory Birds

Part of the development site is located within the Great Sandy Straight Ramsar site. Lot 996 which includes the Mangrove Point South Clay Pan, is private land and forms part of the Great Sandy Straight Ramsar site. This clay pan is considered internationally important for the critically endangered Eastern Curlew and vulnerable Bat-Tailed Godwit. These species form part of the ecological character of the Ramsar site. There are also a number of other species that use this site that form part of the ecological character of the Ramsar site.

Whilst development will not occur within the clay pan there are likely to be indirect impacts including noise and lighting disturbance if not mitigated appropriately. The clay pan is also at risk from habitat loss and degradation as a result of potential runoff, stormwater, pollution and human disturbance. This needs to be managed to ensure the site does not degrade.

Marine Turtles/Dugong

Marine turtles and Dugongs which are also part of the ecological character of the Ramsar site may be indirectly impacted from the development as a result of light disturbance as well as the degradation of nearby seagrass beds from runoff of pollutants and other contaminants as a result of the urban development.

Water Mouse

The nationally threatened Water Mouse occurs in mangrove, saltmarsh and/or associated freshwater wetlands within the Great Sandy Strait Ramsar site. Whilst suitable habitat is present on-site the Water Mouse has not been located through past surveys. Despite this, the proposed action may indirectly impact this species through degradation of habitat from runoff, stormwater, contaminants and human disturbance from light, noise and domestic animals.

Potential Acid Sulfate Soils

The PER states that soil testing has discovered potential acid sulfate soils present on-site and has also stated that they are not regulated under the EPBC Act. If Acid Sulfate Soils are located on-site they will need to be managed appropriately through a management plan and under state legislation to ensure the Great Sandy Strait Ramsar site is not adversely impacted.

Proposed Mitigation Measures

The PER has identified a number of mitigation measures to reduce impacts to the Great Sandy Strait Ramsar site as well as migratory species including:

- Implementation of a wader /shorebird management plan
- Implementation of a pest flora and fauna management plan
- Revegetation/screening of the foreshore temporal roosting sites (50 m vegetation buffer),
- Minimum 100m buffer between the location of infrastructure and the roost sites utilised during highest astronomical tide and buffers of up to 400m between the location of infrastructure and the primary roost sites utilised by MNES wader species.
- Revegetation of the foreshore landscape with regional ecosystem species.
- The use of water sensitive urban design in conjunction with a 1500 people equivalent stand alone sewerage treatment plant capable of class A water reuse.
- A water quality management plan designed to meet the high ecological values of the receiving waters.
- The implementation of interpretive signage for public education on the MNES values.
- Total restriction of public access to the tidal landscape.

Discussion of Proposed Mitigation Measures

Whilst the proponent has proposed a number of mitigation measure which will help minimise impacts to the Great Sandy Strait Ramsar site, there are still some outstanding issues which will need to be addressed.

- The buffer that has been recommended in the PER to reduce impacts to migratory species is no less than 100 m, however due to the importance of the Mangrove South Clay Pan the buffer should be increased to no less than 200 m which is consistent with the advice provided by the Migratory Species Section.
- The PER has not addressed potential impacts of lighting on marine turtles and Dugongs, only shorebirds.
- The proposed management plans, in particular stormwater management should be checked to ensure they will adequately mitigate impacts to the Ramsar site.

Conclusion

The Wetlands Section stresses the importance of the Mangrove South Clay Pan as it provides roosting and foraging habitat for a number of species including the Eastern Curlew. Whilst the elevated boardwalk and the golf course are no longer part of the development, the proposed buffer zones should be increased to provide sufficient protection from increased levels of disturbance as a result of the large scale of the proposed development.

It is also important that run off, pollutants and waste are managed to ensure the clay pan does not degrade resulting in reduced habitat quality.

Please note: The Migratory Species Section has provided separate advice for this proposal.

Advice prepared by: s22 [redacted]

EACD Referral Officer: s22 [redacted]

Cleared by: ^{For} s22 [redacted] Director: Wetlands Section

Signature: ... s22 [redacted]

Date: 7/9/18

Cleared by: Mark Taylor, Assistant Secretary: Wetlands, Policy and Northern Basin Branch

Signature: ... [handwritten signature]

Date: 10 Sept. 2018.

Attachment 1: Previous advice from Wetlands Section

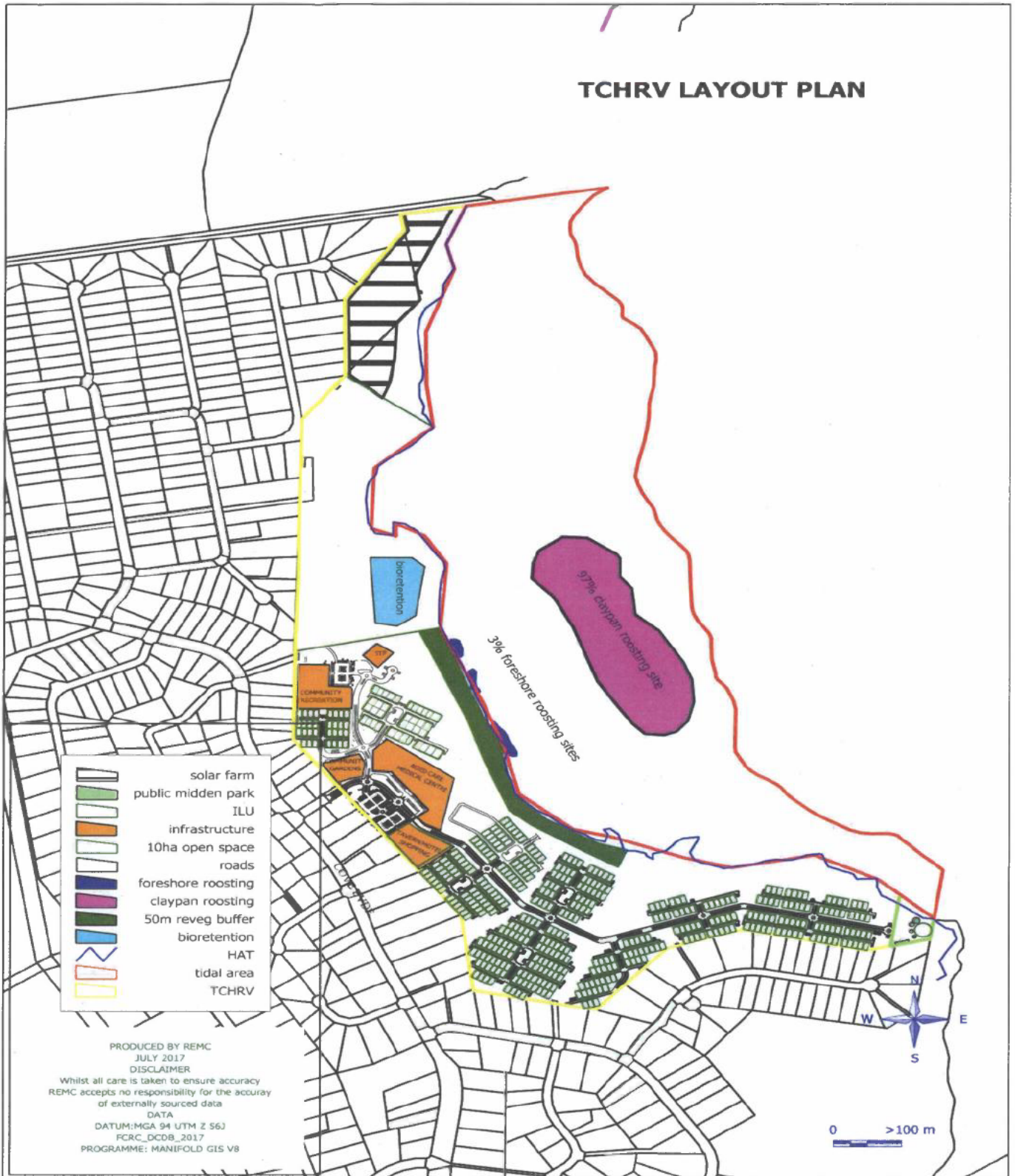
Attachment 2: Proposed development

Attachment 3: Migratory Species Section Advice

Sources:

- Draft ECD
- PER

TCHRV LAYOUT PLAN



DEPARTMENT OF THE ENVIRONMENT
COMMONWEALTH ENVIRONMENTAL WATER OFFICE
EPBC ACT ASSESSMENT ADVICE FROM WETLANDS SECTION
ASSESSMENT ADVICE: EPBC 2013/7038
TURTLE COVE AGED CARE FACILITY

Description of Proposal

The Turtle Cove Aged Care Facility is proposed to be located on the River Heads Peninsula near Hervey Bay, QLD. It includes a high care facility for 80 residents; village town square with convenience shops; medical precinct; hotel for visitors & tourists; up to 500 independent living units; long term storage for boats, caravans, RV's; elevated foreshore boardwalk with interactive biodiversity interpretive learning and a 9 hole golf course.

The proposed action is located on Lot plan 214 SP 156870 with an area of 2.170 ha and Lot plan 996 SP 129069, with an area of 112.800 ha, with 47.41 ha comprising middle estuary clay pan with some *Mangrove/sprobolus/samphire* ecosystems. It is important to note that the clay pan area is not being developed under this proposal.

The proposal was referred in 2013 for consideration under the EPBC Act and on 29 November 2013, it was determined a controlled action for significant impacts to listed threatened species, migratory species and wetlands of international importance, specifically the Great Sandy Strait Ramsar site. The proposal is being assessed by a Public Environment Report (PER).

The PER was recently submitted for consideration under the EPBC Act. Some sections of the PER are inconsistent which makes it difficult to determine the extent of impacts to the ecological character of the Great Sandy Strait Ramsar site.

Distance from the Ramsar site

The proposed action is located adjacent to the Great Sandy Strait Ramsar site. Great Sandy Strait Ramsar site is a sand passage estuary between the mainland and the World Heritage-listed Fraser Island. The site comprises large areas of tidal swamps consisting of intertidal sand and mud flats, extended seagrass beds, mangrove forests, salt flats and saltmarshes.

The coastal wetlands of Great Sandy Strait are of international significance for migratory birds, with 18 species listed under international migratory bird conservation agreements recorded within the Ramsar site. Wetlands along Great Sandy Strait regularly support in excess of 20 000 migratory shorebirds, and counts between 30 000 and 40 000 shorebirds have been recorded on several occasions. Furthermore, wetlands along the Great Sandy Strait regularly support more than 1% of the total world population of the eastern curlews, grey-tailed tattlers, lesser sand plovers, terek sandpipers, whimbrels, bar-tailed godwits, pied oystercatchers, greenshanks, and grey plovers.

Threatened species that occur in the Ramsar site include six marine turtle species, dugongs, the water mouse and Illidge's ant-blue butterfly.

Ramsar Site Boundary

Lot 996, including the clay pan area, is currently freehold land and the proponent considers that it does not form part of the Ramsar site. This is because the boundary description of the Ramsar Information Sheet (RIS) states that freehold land does not form part of the Ramsar site. However, both the Department's mapping and QLD Wetland's Program mapping indicates that the clay pan in Lot 996 does form part of the Ramsar site.

QLD Department of Environment and Heritage Protection have provided clarification and stated that in 1997, the boundary of Lot 996 was to the highest water mark (that is, it excluded the claypan area). In 2000 the site was resurveyed which extended Lot 996 to include the clay pan area and therefore it subsequently became freehold land. Because this change occurred after 1999, which is when the Great Sandy Strait was listed as a Ramsar site, then it can be concluded that the claypan is within the Ramsar site.

QLD Department of Environment and Heritage Protection have indicated that their intention is to revise the RIS so that it is clear that this parcel of land is within the Ramsar site. Please note that the timing of this is uncertain however we expect to receive it by the end of 2016.

It appears that the proponent has misinterpreted the location of the Ramsar boundary and it is actually adjacent to the proposed development. Therefore the development as it currently stands, including the proposed buffers, are not acceptable.

Discussion on impacts

Elevated Boardwalk

A large number of migratory waterbirds and shorebirds are known to roost and forage in the claypan and mangroves adjacent to the proposed action. This area is known as Mangrove Point South Clay pan and it is recognised as an important king tide roost site within the Great Sandy Strait Ramsar site. It regularly hosts 1% of the total flyaway population of the critically endangered eastern curlew. The eastern curlew is also a critical component of the ecological character of the Ramsar site. Historical surveys have identified a number of other migratory species that utilise the site, including the Caspian tern, great egret, bar-tailed godwits, common sandpiper, great egret and many other species.

The PER states that surveys undertaken during the migratory season (October to March) have found eastern curlew feeding and roosting on different parts of the clay pan depending on the tide. It states that the large central clay pan was the area most utilised for roosting behaviour but some cohorts used sections of the foreshore to roost during total inundation of the clay pan by high tides. As soon as the tide turns and drainage of the clay pan commences, these wader cohorts move back onto the clay pan, to avoid predator interaction.

Whilst the PER acknowledges the use of the shoreline by migratory birds, it assumes that the majority of waders utilise the middle claypan (approx 200m from the shoreline) and therefore this would be a sufficient buffer. However, as part of the proposed development a 1.5 km elevated boardwalk will be constructed along the foreshore which will run from the southern end of the golf course to the southern end of the proposed site, which essentially means there would be no buffer at all. The PER also suggests that a cafe will be constructed along the boardwalk however information on this has not been provided.

It is also unclear as to the exact distance of the boardwalk to the Highest Astronomical Tide (HAT). The PER is inconsistent and has stated distances of 40 m as well as 10 m. A predator proof fence will also be installed at this same location. A revegetated buffer screen will then be planted between the boardwalk and the development to provide screening from light and noise. However there will be no screening from residents and their pets using the boardwalk and the migratory bird species that inhabit the clay pan and foreshore area. This is of particular concern for the eastern curlew which is an extremely wary species and will take flight at the first sign of danger, long before other nearby shorebirds become nervous. Having a boardwalk within such close proximity to the foreshore is likely to disturb the eastern curlew which will impact their roosting and feeding. It will also reduce the amount of suitable habitat available to this species.

The current location of the elevated boardwalk is unacceptable due to its close proximity to the Great Sandy Strait Ramsar site and the impact that it will have on the eastern curlew and other shorebirds. Further expert advice on suitable buffers should be sought.

The elevated boardwalk is also likely to impact the vulnerably listed Subtropical and Temperate Coastal Saltmarsh ecological community which is present along the foreshore. It is unclear to what extent this ecological community is present as the PER is inconsistent. One reference in the PER has stated that 7 ha is present, however there is another reference in the PER that suggests 50 ha below HAT exists. This ecological community provides important habitat for a number of species including the water mouse and eastern curlew. The PER states that the elevated boardwalk will be located 10 m from HAT (different from the 40 m mentioned earlier) and therefore it will not be impacting the ecological community.

The conservation advice for this ecological community states that an appropriately sized buffer should be applied from the outer edge of the patch or area which may assist in the preservation of patches and broader areas of the coastal saltmarsh ecological community, as well as providing an opportunity for climate change adaptation, such as inland retreat.

Buffers enhance protection of a patch by avoiding or minimising potential disturbance from surrounding land uses or activities. The size of the buffer should increase with increasing intensity and likely localised impact of the threat. The conservation advice also suggests to avoid clearing native vegetation within coastal saltmarsh and its surrounds, including avoiding clearing within an appropriate buffer zone (e.g. at least 30 m from the ecological community's boundary). The conservation advice also encourages any boardwalks that will be built to be elevated.

The current location of the elevated boardwalk is unacceptable due to its close proximity to the coastal saltmarsh ecological community and the impact it will have on species that utilise this ecological community. Further investigation/mapping of the extent of this ecological community would be required to determine the level of impact.

Water Quality impact from Golf Course and Development

The water quality of marine and estuarine environments in the Great Sandy Strait is a critical component of the ecological character of the Ramsar site. Nutrient, suspended sediment, salinity and turbulence regimes are all important for supporting the site's high value habitats and food webs. Both construction and operational activities have potential to impact the water quality of both ground and surface water at the development site, and result in adverse water quality impacts within the adjacent Great Sandy Strait Ramsar site.

As part of the proposed development, a 9 hole golf course at the northern end of the development will be constructed. The PER indicates that the eastern edge of the golf course is located within very close proximity if not adjacent to the HAT, however an exact distance has not been provided. This essentially means that the golf course is located directly adjacent to the Great Sandy Strait Ramsar site.

There is a high likelihood that contaminants from the golf course, including fertiliser and pesticides, will run directly into the Ramsar site impacting species that rely on the clay pan and surrounding mangroves. The PER does not seem to adequately address this apart from the sediment retention basins that will be in place throughout the development site. In addition there does not appear to be any buffers in place between the golf course and the Ramsar site.

Turtles and dugongs are known to utilise the seagrass meadows beyond the claypan area surrounding the development. The seagrass meadows and the species that use them may also be affected if runoff from the golf course and surrounding development is not managed properly.

Further mitigation measures to ensure that runoff of contaminants from the development, in particular the golf course, to ensure that it does not impact the ecological character of the Great Sandy Strait Ramsar site are required.

Recycled water

The PER states that a condition of the proposed development is that it be sewerage treated in an on-site treatment plant. The proposed treatment plant will have a capacity to treat the effluent for a community of 1000 equivalent persons. The plant will be located at the southern end of the proposed golf course and designed to treat effluent to a quality suitable for golf course irrigation.

It is not clear as to what will happen with excess water from the treatment plant especially during wet periods as the golf course cannot be continuously watered when the ground is saturated. There is a concern that this water may be directly pumped into the Ramsar site or there will be continuous run off into the Ramsar site. This is likely to degrade the clay pan/mangrove area impacting those species that utilise this area.

Scale of the development

The scale, size and density of the development appears to be unsuitable for the location, particularly due to it being within such close proximity to the Great Sandy Strait Ramsar site including the Mangrove Point South Clay Pan, which is very important for a number of species including the critically endangered eastern curlew. It is highly likely that the Mangrove South Point Clay Pan will become degraded over time, particularly if stormwater and recycled water from the sewerage treatment plant is not managed properly. There is also a possibility that the clay pan will no longer provide suitable habitat for migratory shorebirds due to the encroachment of the proposed development.

Conclusion

The wetlands section has serious concerns regarding the Turtle Cove Aged Care Facility due to the impacts it will have on the ecological character of the Great Sandy Strait Ramsar site, in particular the Mangrove Point South Clay Pan. The Mangrove Point Clay Pan is a very important site for providing roosting and foraging habitat for a number of species including the eastern curlew. The location of the elevated boardwalk and the golf course is of particular concern as well as the scale of the proposed development as it will significantly increase number of people in the area.

Modifications to the proposed development should be considered to ensure the impacts to the ecological character of the Great Sandy Strait Ramsar site are acceptable.

Please note: The Migratory Species Section are providing separate advice for this development.

Advice prepared by: s22

EACD Referral Officer: s22

Cleared by: s22, Director: Wetlands Section

Signature: s22

Date: 1 July 2016.

Cleared by: Mark Taylor, Assistant Secretary: Wetlands, Policy and Northern Basin Branch

Signature: 

Date: 4 July 2016

Attachment 1: proposed development

Attachment 2: proposed boardwalk

Sources:

- ArcGIS
- ECD
- Environment Reporting Tool: Interactive Map - internal
- Referral Documentation
- PER

NOTE: advice cleared in the context of formal advice from the Qld Dept of EHP that the boundaries of freehold land do not affect the existing Ramsar site boundary.

Attachment 1:



Attachment 2



Turtle Cove Haven Retirement Village, QLD, EPBC 2013/7038

Migratory Species Section Comments – Final PER August 2018

- The updated PER has addressed a number of gaps identified by previous Migratory Species comments. However, Migratory Species Section maintains its concerns over the potential impacts of the action on listed threatened and migratory birds (shorebirds and seabirds), which includes the critically endangered eastern curlew, as well as the potential for indirect impacts to listed marine fauna that utilise the adjacent waters.

Migratory Species Section advice

Threatened and migratory birds:

- The adjacent claypan to the proposed development is a site of international importance for the critically endangered eastern curlew and vulnerable bar-tailed godwit. Both species are listed migratory under the EPBC Act.
- The Queensland Wader Studies Group surveys state that individual counts of 1,400 bar-tailed godwits (listed vulnerable and migratory) have been recorded and significant daily counts of 1,182 critically endangered eastern curlew. The importance of this site for eastern curlew alone cannot be underestimated.
- All efforts to protect this roost site from adverse impacts should be made. The PER must reflect the importance of this site to a critically endangered migratory shorebird, the eastern curlew.
- Potential impacts include: habitat loss and degradation, human disturbance and changes to the hydrology of the claypan and surrounding areas (i.e. runoff, stormwater and nutrient regimes).
- The buffer zone between the claypan and the development should be no less than 200m (see <http://www.avianbuffer.com/>). This is particularly important for reducing the risk of adverse impacts to eastern curlew and protects their roosting habitat. Eastern curlew are particularly vulnerable to loud sudden noises and close approach by humans, dogs and vehicles etc.
- Mitigation measures outlined in the PER are in some cases not very clear and lack sufficient evidence for their implementation. In our view, adverse impacts are still consider likely.
- Measures to mitigate against potential adverse impacts include:
 - The use of buffer zones as mentioned mentioned above.
 - The use of appropriate barriers such as fences around important habitat to restrict access to humans and domestic animals.
 - Appropriate landscape and urban design, including sympathetic lighting strategies, vegetation screening and sound attenuation.

- Increased community education through mechanisms such as interpretive signs at access points to shorebird habitats.

Marine turtles and dugong:

- The development is proposed to occur in an area adjacent to a loggerhead biologically important inter-nesting area (NCVA). Although nesting is unlikely to occur adjacent to the site, loggerheads nesting in the vicinity may be impacted by light sky glow. Currently, the PER only provides consideration of light for shorebirds. The Recovery Plan for Marine Turtles identifies light (direct and sky glow) as a threat to marine turtles as it can disrupt critical behaviours such as nesting, hatchling orientation, sea finding and dispersal behaviours. The impacts of light should be considered for EPBC Act listed endangered loggerhead turtle nesting in the region (up to 20km away, Pendoley and Kamrowski 2015) and where necessary mitigation put in place.
- Section 4.3 Risk Assessment doesn't contain an assessment of the impacts of light.
- Appendix L concludes that seagrass is not a significant component of diet for green turtles as it only made up 15% of diet (Limpus et al 2012). Green turtle diets can be ephemeral and up to 100% of diet can be seagrass (Limpus 2007).
- The PER identifies the importance of seagrass beds for green, loggerhead and hawksbill turtles and for dugong. The management of seagrass beds is reliant on the successful management of runoff from the site. Where water quality is appropriately managed there is unlikely to be a significant impact on these species.

Pendoley K and Kamrowski RL (2015) Sea-finding in marine turtle hatchlings: What is an appropriate exclusion zone to limit disruptive impacts of industrial light at night? *Journal for Nature Conservation* 30: 1-11.

Turtle Cove Haven Retirement Village, QLD, EPBC 2013/7038

- The Migratory Species Section does not believe that the information provided in the PER is sufficient to conduct an adequate assessment of the likely direct and indirect impacts to MNES. The Migratory Species Section has considerable concerns over the potential impacts of the action on listed migratory birds (shorebirds and seabirds), which includes the 'critically endangered' eastern curlew, as well as the potential for indirect impacts to listed marine fauna that utilise the adjacent waters.
- The comments below highlight the concerns that the section has, but are not considered definitive.

Migratory Species Section advice

- The PER does not provide enough detail of each development feature associated with the action. For example, the PER does not discuss the projected use and patronage of the facility, or provided details of the planned hotel.
- The figures provided of the project layout are of poor quality and difficult to interpret.
- There are inconsistencies in the PER. Sewerage treatment plant (STP) capacities are stated as 1000 or 1500, while individual living units (ILU) are stated as being 450 or up to 500.
- The PER attachments provide significant information on stormwater management and recycled water management. It is however still not clear whether the construction and ongoing operation of the facility will result in no change to the natural values of the receiving environment, or that this can be achieved under all circumstances including extreme weather events and other emergencies.
- Appendix O - Turtle Cove Biting Midge Report is mentioned, but not attached. The attachment needs to be included so any potential impacts on listed species can be considered.
- The PER does not adequately discuss the marine fauna that uses the waters immediately adjacent to the site such as, green turtle and dugong, or in the greater region, such as humpback whales. Species discussed should include all marine fauna that has the potential to be directly or indirectly impacted from the construction and operation of the facility.
- Given the size of the proposed development, its access to River Heads boat ramp, and the importance of the adjacent and greater marine area for cetaceans, dugong and marine turtle, a detailed discussion on indirect impacts is required.
- The numbers of migratory shorebirds that use the adjacent clay pan is unclear. The PER states that 11 shorebird species were recorded at Mangrove Point during Queensland Wader Group (QWSG) surveys, while later stating that that Mangrove Point is recognised as internationally important as a key roosting site for 21 shorebird species.
- The PER states no birds roosting at the site during night time hours. These assumptions regarding absence of night time roosting are erroneous. Considering the lower numbers recorded by the consultant, all survey reports need to be submitted to look at the variation in behaviour and habitat use within and between years.

- A number of terms are used to describe the survey locations including Mangrove Point, Mangrove Point South clay pan and Mathiesons Homestead. The PER needs to describe the location, extent and relation between these locations.
- The survey results provided in the PER attachments are only summary's and do not discuss survey efforts. Full QWSG and REMC survey reports should be attached to the PER.
- Targeted shorebird survey undertaken for the proponent do not meet the minimum requirements of EPBC Act Policy Statement 3.21 – *Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species*. Full survey reports should be provided including:
 - o Weather conditions at the time of the surveys;
 - o Number of observers and experience level;
 - o Level of human disturbance at time of surveys.
- The QWSG surveys state that individual counts of 1400 Bar-tailed godwits (listed migratory) have been recorded and even more significantly daily counts of **1182 critically endangered eastern curlew**. The importance of this site for eastern curlew alone cannot be underestimated. The PER must reflect the importance of this site to a critically endangered migratory shorebird, the eastern curlew.
- The PER makes the assumption that *'based on observations in the field it is reasonable to expect that waders would become accustomed to the noise of general construction as they have for four decades of other anthropogenic sources of noise'*. In the absence of more detailed information and data of shorebird numbers and behaviour over the last four decades, these kinds of assumptions are not appropriate.
- Fraser Coast Regional Council mapping (<http://www.frasercoast.qld.gov.au/storm-surges>) suggests that the areas immediately adjacent to the development is likely to experience storm tide flooding up to 1 metre above HAT. It is suggested that the proponent provide more information on the potential impacts of storm tides, risk of erosion and how this would be managed without impacting shorebird habitat.

DEPARTMENT OF AGRICULTURE, WATER AND THE ENVIRONMENT

MS20-000291

To: The Hon Sussan Ley MP, Minister for the Environment (for decision)

Refusal Decision Brief – Turtle Cove Haven Retirement Village, River Heads, Queensland (EPBC 2013/7038)

Timing: ASAP – the statutory timeframe for this decision (2 October 2018) has passed.

Recommendation/s:

1. Consider the Secretary's Recommendation Report and attachments prepared under section 100(1) of the *Environment Protection and Biodiversity Conservation Act* (EPBC Act) at Attachment A.
Considered / please discuss
2. Consider the responses to the invitation for comment on the proposed decision at Attachment B, the further advice at Attachment C and the proponent's comments on that advice at Attachment D.
Considered / please discuss
3. Agree with the recommendations summarised below about whether or not to approve, for the purposes of each controlling provision, the taking of the proposed action, with the result that your decision is not to approve the taking of the action.
Agreed / Please discuss
4. If you agree to 3, sign the notice of your decision at Attachment E.
Signed / Not signed
5. If you agree to 3, agree that the reasoning in the Statement of Reasons at Attachment F reflects the reasons for your decision.
Agreed / Please discuss
6. If you agree to 3, sign the letters at Attachment G advising the person proposing to take the action, and other relevant parties, of your decision.
Signed / Not signed
7. If you agree to 3, approve the media release at Attachment H.
Please consult with MO **Approved / Not approved**
8. Note that the Department has provided talking points regarding this decision at Attachment I.
Noted / Please discuss

Summary of recommendations on each controlling provision:

Controlling Provisions for the action	Recommendation	
	Approve	Refuse to Approve
Wetlands of international importance (ss 16, 17B)		Refuse to Approve
Listed threatened species and communities (ss 18, 18A)	Approve	
Listed migratory species (ss 20, 20A)		Refuse to Approve


The Hon Sussan Ley MP
Minister for the Environment

27th August 2020
Date:

Comments:

KEY POINTS / SUMMARY

1. On 6 March 2020, as recommended in the Proposed Decision Brief (**Attachment A**), you wrote to Anscope Pty Ltd (the **proponent**), and relevant Commonwealth and State Ministers seeking comments on your proposed decision to refuse the taking of the action.
2. Since the proponent was notified of the proposed decision, it has provided further information to the Department (**Attachment B1**). The Department has also sought advice from the Office of Water Science (**OWS; Attachment C1**) and Wetlands Section (**Attachment C2**), and the proponent has commented on this advice (**Attachment D**).
3. Having considered all of this additional information, the Department remains of the view that the proposed action would have significant and unacceptable impacts on the Eastern Curlew (*Numenius madagascariensis*) as a result of noise and visual disturbance. The Department accordingly recommends that the taking of the proposed action should not be approved for the purposes of:
 - a. sections 20 and 20A (listed migratory species), and
 - b. sections 16 and 17B (wetlands of international significance), because the Eastern Curlew is a native species which is dependent on the Great Sandy Strait (**GSS**) Ramsar site and forms part of its ecological character.
4. The Department accordingly recommends that the proposed action not be approved.
5. The Department now considers that the impacts of the proposed action on the Bar-tailed Godwit (*Limosa lapponica baueri*) could be managed by the implementation of stringent avoidance and mitigation measures.
6. Furthermore, the comments and further information received from the proponent since the Recommendation Report was finalised and following preparation of the Proposed Refusal Decision Brief have led the Department to revise its view on the adequacy of water management. The Department now considers that the quantity and quality of water that may flow from the proposed action area could be managed to ensure that there would be no unacceptable impacts on the GSS Ramsar site. As a result, the Department no longer considers that the proposed action would result in alterations to the hydrological regime of the GSS Ramsar site or a decline in water quality, and therefore would not result in degradation or loss of wetland habitats, provided that appropriate conditions were imposed.
7. In light of additional information received from the proponent, the Department now also considers that no significant impacts on matters of national environmental significance will arise from artificial lighting or marine debris. The Department also considers that potential impacts from human, dog, cat or fox interactions on listed migratory and threatened species may be managed, although these would also need to be subject to conditions to carefully manage noise and visual disturbance.
8. It follows that the Department now does not consider that the proposed action would have a significant impact on listed threatened species (namely, Flatback Turtle (*Natator depressus*); Green Turtle (*Chelonia mydas*); Hawksbill Turtle (*Eretmochelys imbricata*); Loggerhead Turtle (*Caretta caretta*) and Dugong (*Dugong dugon*)), and could be approved for the purposes of sections 20 and 20A.

CONSULTATION AND FURTHER CORRESPONDENCE WITH THE PROPONENT

9. No comments were received from the Commonwealth Ministers notified of your proposed decision.

10. On 20 March 2020, Mr Chris Loveday, delegate for the Hon Leeanne Enoch MP, Queensland Minister for Environment and the Great Barrier Reef, Minister for Science and Minister for the Arts, responded noting that the Queensland Department of Environment and Science had no comment on the proposed refusal decision (**Attachment B2**).
11. On 14 April 2020, the proponent provided a response to the proposed decision and the Recommendation Report (**Attachment B1**).
12. Following receipt of the proponent's response to the Recommendation Report, advice was sought from OWS (**Attachment C1**) and Wetlands Section (**Attachment C2**) about the proposed wastewater treatment strategy. This advice was provided to the proponent with an invitation to provide further comments on 5 June 2020. On 26 June 2020, the proponent provided further comments (**Attachment D**).
13. On 29 July 2020 (**Attachment J1**) and 17 August 2020 (**Attachment J2**), the proponent wrote to you in relation to the proposed action. You responded to the proponent on 21 August 2020 (**Attachment J3**).

SUFFICIENT INFORMATION TO MAKE AN INFORMED DECISION

14. Following the provision of the Recommendation Report, the proponent, via its legal representatives, offered to meet again with Departmental officers, its own scientific consultants and with you to discuss the proposed action. On 19 June 2020, the proponent offered to meet 'to ensure there is no misunderstanding as between us and that the Minister is able to take into account all relevant matters when making her decision' (**Attachment J4**). On 15 July 2020, the proponent sent an email to your office noting that these previous offers had been made and were not taken up by the Department, and reaffirming that the proponent would be willing to meet with the Minister or Departmental officers (**Attachment J5**).
15. In the email to your office on 15 July 2020, the proponent's representatives stated that 'there is scope to discuss further the scale of the proposed development (even though it has already been reduced), including set-backs and density, noting that the current proposal is for a development "up to" a maximum number of dwellings and therefore accommodates a range of development'. On 29 July 2020, you wrote to the proponent's representatives advising that you understood the reduction that has already been made is the proponent's confirmation that the proposed action will comprise 230 to 250, rather than 500, independent living units (**Attachment J6**). You asked that they advise whether the proponent was now proposing further changes to the proposed action. On 12 August 2020, the proponent's representative advised that the proponent does not propose a further variation, but was willing to consider further adjustments to the proposed action (**Attachment J7**).
16. The Department considers, and recommends that you agree, that you have enough information to make an informed decision on whether or not to make a proposed decision to refuse to approve the taking of the action for the purposes of each of the controlling provisions. In circumstances where there have been a number of meetings with the proponent and its legal representatives and where the proponent had been given another recent opportunity to clarify whether it wishes to further vary the action and has advised that it does not wish to, the Department does not consider that it is necessary for you or Departmental officers to meet again with the proponent to obtain any further information.

CONSIDERATIONS RELATING TO DECISION-MAKING UNDER PART 9 OF THE EPBC ACT

17. The Department sets out below the considerations under the EPBC Act that relate to your decision about whether or not to approve the taking of the action. The Secretary's Recommendation Report (**Attachment A**) addresses each of these considerations in turn at paragraph 46 onwards. Where the Department's view has changed on certain matters as a result of the further information received since the provision of the Recommendation Report, this is outlined below.
18. Section 136(5) of the EPBC Act provides that, in deciding whether to approve the taking of an action, and what conditions to attach to an approval, you must not consider any matters that you are not required or permitted to consider.

Mandatory considerations

19. In deciding whether or not to approve the proposed action, and what conditions to attach (if any), you are required to consider:
 - matters relevant to matters protected by the controlling provisions for the proposed action; and
 - economic and social matters.
20. The Department's consideration of social and economic matters in the Recommendation Report (at paragraphs 366 to 378) and as has not changed.
21. In the Recommendation Report, the Department concluded that impacts on the ecological character of the GSS Ramsar site, listed threatened species, and listed migratory species as a result of the proposed action would arise from:
 - a. altered hydrological regime and decline in water quality as a result of stormwater runoff, on-site treatment and re-use of effluent, and runoff of sediments and other pollutants and contaminants;
 - b. degradation or loss of important wetland habitats as a result of these changes to hydrological regime and water quality; and
 - c. noise interference, light pollution, marine debris, human and dog interactions and boat traffic as a result of construction and operation.
22. Having considered the further material received following the completion of the Recommendation Report, the Department now considers that, save for noise and visual disturbance to the Eastern Curlew, these impacts are adequately addressed by the further mitigation and avoidance measures proposed by the proponent, or could otherwise be adequately addressed by way of conditions expanding upon and supplementing these measures. The changes in the Department's analysis, and the reasons for these changes, are set out below by reference to these three issues.
23. The changes in the Department's analysis outlined below mean that the Department now considers that:
 - in relation to sections 16 and 17B, the proposed action will have a significant impact on the ecological character of the GSS Ramsar site because it would result in the habitat and lifestyle of native species dependent upon the wetland (specifically, the Eastern Curlew) being seriously affected – **see further at [52] below.**

- in relation to sections 18 and 18A, the proposed action will not have a significant impact on the Flatback Turtle, Green Turtle, Hawksbill Turtle, Loggerhead Turtle or the Dugong (or any other listed threatened species or ecological community).
- in relation to sections 20 and 20A, the proposed action will have a significant impact on the Eastern Curlew because of visual and noise disturbance – **see further at [45]-[49] below.**

a) Altered hydrological regime and decline in water quality

Proponent's response to the Recommendation Report

24. The proponent's response to the Recommendation Report maintained that the proposed action included measures which would effectively manage stormwater flow through the proposed action area, and provided more information about the proposed design of the sewage treatment plant and proposed recycled water management measures, entitled 'Onsite Wastewater Treatment and Reuse Strategy Proposal' (OWTRSP). The response also attached an 'Acid Sulfate Soils Management Plan'.
25. The proponent reiterated the measures that will be implemented to manage stormwater quantity and quality, including:
- a) water sensitive urban design;
 - b) bio retention wetlands to improve water quality by slowing water flow and natural filtration of sediment and nutrients;
 - c) management measures during the construction phase including erosion and sediment control and options for the management of acid sulphate soils;
 - d) revegetation of the foreshore landscape with appropriately selected native species, which will slow water flow; and
 - e) revegetated drainage lines with appropriately selected native species to improve waterway stability.
26. In its response, the proponent also made additional commitments to:
- a) avoid the use of sheep grazing for the management of groundcover around the proposed solar power station (instead using slashing/mowing and baling);
 - b) significantly restrict the use of fertilisers, herbicides and pesticides in landscaping and resident gardens, such as through organic methods such as biodynamics; and
 - c) avoid or significantly restrict the use of bifenthrin in the management of biting insects and also apply the planting of naturally repelling vegetation species in landscaping.
27. The proponent also proposed to reduce the number of independent living units in the proposed action from 500 to "between 230 and 250", and submitted that this would reduce impervious surface area and therefore storm water flows, and would also reduce the amount of water generated by the proposed action. The proponent maintained that 200,000L of effluent produced per day could be regarded as a 'conservative estimate' due to the reduced number of independent living units now proposed, and could in any event be relied upon. The proponent noted that the OWTRSP does not reflect the reduced number of independent living units now proposed, and accordingly overestimates the wastewater loading figures.

28. Finally, the proponent asked that, if the Minister considered that water management issues mean the proposed action may have a significant impact on the GSS Ramsar site, the Minister should request further information, and/or impose conditions on approval requiring submission and approval of an appropriate management plan.

Further advice sought within Department

29. Following receipt of this additional material, advice was sought from the OWS and the Wetlands Section about the OWTRSP. The OWS advised that there were a number of environmental risks arising from the OWTRSP, including:

- a) that the treatment plant proposed under the OWTRSP has the potential to be operating continuously at, or near, peak capacity, and it is unclear how additional waste water will be treated and disposed (on the basis of an estimate of between 200,000 to 267,000L of effluent produced per day);
 - b) the possibility that untreated wastewater will need to be discharged if the system breaks down or requires maintenance;
 - c) the possibility of leakage from the proposed dam and irrigation areas to groundwater;
 - d) the possibility that prolonged rainfall or intense storms would prevent normal application of treated wastewater to irrigation areas and/or result in increased run-off from those areas;
 - e) the risk of contamination of surface or groundwater from exposure of acid sulphate soils during construction and untreated or partially treated wastewater.
30. The Department's Wetlands Section advised that it was not clear from the OWTRSP how treated wastewater will be managed onsite, and therefore it is not possible to determine whether impacts to the claypan mangrove area or other sensitive areas within the broader Ramsar site would be mitigated by the proposed measures.

Proponent's response to further advice

31. The proponent was given an opportunity to consider and provide any further comments in relation to the further advice from the OWS and Wetlands Section. In its response, the proponent submitted that the level of detail that has been provided about the OWTRSP is entirely appropriate for the purpose of assessment of the proposed action under the EPBC Act, and reiterated the request that further information be requested or conditions imposed on an approval if necessary.

32. The proponent also submitted in this response that:

- a) the proposed capacity of the plant is sufficient for the proposed action, and the plant as proposed would not be operating at, or near, peak capacity because the estimate of the volume of effluent produced that is relied on by the OWS in coming to this assessment does not reflect the reduced number of independent living units now proposed. Annexure A of the proponent's response indicates that, based on this reduction, and including a peaking factor to account for surges in generated wastewater, the estimated hydraulic loading would be 213,000 L/day;
- b) the plant will have built-in redundancy measures to ensure that the capacity is not exceeded;

- c) the plant will incorporate a back-up generator for use in the event of a power outage (so a power outage would not lead to the discharge of untreated wastewater), and an Emergency Management Plan will be prepared to set out the procedures to be followed in the event of a plant failure or suspected failure;
- d) various steps will be taken to ensure that the integrity of the system is maintained to avoid leakage from any aspect of the system. The proponent also confirms that the plant will be sited outside storm tide prone areas;
- e) it is highly unlikely that groundwater could be impacted by surface water from the proposed action site because, based on the geology of the area and results of groundwater sampling and analysis from bores on the project site, the shallowest groundwater aquifer present at the project site is located at approximately 30 m depth and is separated from the surface by a number of aquitards; and
- f) the Acid Sulfate Soils Management Plan adequately addresses the risk of acid sulphate soils being disturbed during construction.

Department's revised view on water management

33. The Department considers that the proposed action could result in:

- a) increased volumes of water (including treated water and storm water) leaving the proposed action area via direct discharge, surface runoff, subsurface seepage and/ or groundwater discharge; and
- b) changes to the quality of that the water that may flow from the proposed action area, because of sewerage discharge or leakage, the disturbance of sediment and acid sulfate soils, and/or the use of pollutants.

34. However, having considered the further information provided by the proponent, the Department considers that the quantity and quality of the water that may flow from the proposed action area could be managed to ensure that there would be no unacceptable impacts on matters of national environmental significance, including the GSS Ramsar site. To achieve this, the measures already proposed by the proponent would need to be expanded upon and supplemented by way of conditions to ensure that water treatment and use were carefully assessed, monitored and managed.

35. If you accept the Department's recommendation that the proposed action should be refused on the basis of the other, unrelated impacts it would have on listed migratory species and the GSS Ramsar site, it is not necessary to determine the precise conditions that would need to be attached to any approval to ensure that water management was adequate. The Department notes the OWS advice that further site-specific monitoring of surface water, groundwater and the tidal zone would likely be required to inform the detail of such conditions, and that any such conditions would need to strictly limit movement of additional water flows from the proposed action area into the GSS Ramsar site (among other things).

36. In the Recommendation Report at paragraph 95, the Department noted that it did not consider the third-party review of the management plans relating to water quality and quantity in the PER to be independent, because it was conducted by a consultant that contributing to producing several of the management plans. The proponent has submitted that it is not correct, and asked that the report be properly considered and afforded due weight.

37. The comment in the Recommendation Report was included on the basis that the independent reviewer, 'MWA Environmental', is listed as a contributor to the Recycled Water Management Plan authored by another consultant. The Department nonetheless considered the third-party review, and this observation about the independence of the third-party review was not material to the Department's conclusions on water management in the Recommendation Report. In any event, the third-party review has largely been overtaken by the further information provided, and on the basis of that further information the Department now accepts that water treatment and use could be adequately managed (consistent with the third-party review).

b) Degradation or loss of important habitat as a result of changes to hydrological regime and water quality

38. On the basis that changes in the quantity and quality of water entering the GSS Ramsar site as a result of the proposed action could be managed so that they do not alter the hydrological regime in the GSS Ramsar site or cause a decline in water quality, the Department does not consider that the proposed action would result in the degradation or loss of important habitat for any listed threatened species or listed migratory species.

c) Noise interference, light pollution, marine debris, human and dog interactions and boat traffic

39. The Department's view that the proposed action would have a significant impact on the Eastern Curlew as a result of frequent and ongoing visual and noise disturbance has not changed – this is addressed in further detail below.

40. In relation to boat traffic, the Department is now satisfied on the basis of the information provided by the proponent in response to the Recommendation Report that the proposed action will not cause any significant increase in the number and frequency of boats using the waterways of the GSS Ramsar site as a result of the proposed action because a large proportion of the resident population are expected to move to the facility from within the local area. Furthermore, the local marine area is and will continue to be subject to a formal 'Go Slow Zone'. The Department therefore does not consider that any significant impacts on matters of national environmental significance.

41. The proponent has identified a number of avoidance and mitigation measures to address the other impacts, including:

- a) scheduling construction noise outside the times when species will be using the area surrounding the proposed action area (that is, during non-migratory season and/or not during the period an hour before and an hour after high tide);
- b) conservation of the 47.41 ha of the proposed action area below the HAT as environmental open space via a conservation covenant;
- c) revegetation of the foreshore landscape with appropriately selected native species, to form a 50 m vegetated buffer from the HAT into the terrestrial land area;
- d) constructing fencing between the development and the foreshore revegetation to restrict public access and the movement of foxes and other feral and domestic animals;
- e) use of temporary screening during the period when shorebirds will roost on the foreshore near to the HAT line (that is, when the HAT is greater than 3.8 m);
- f) situating infrastructure not closer than 100 m from the HAT;

- g) limiting the building height of the independent living units to one storey only;
 - h) ensuring that all lighting located near the infrastructure is appropriately shaded to ensure that it is focused downwards and not towards the foreshore, and otherwise implementing the best practice lighting design principles in the National Light Pollution Guidelines for Wildlife, and meeting the performance outcomes contained in the Sea Turtle Sensitive Area Model code;
 - i) community signage and educational material to advise residents and visitors of the nearby presence of shorebirds, that increased or sudden loud noises can disturb foraging shorebirds, and about the impacts of marine debris;
 - j) regularly cleaning the foreshore of marine debris, developing and implementing an appropriate management plan for those activities, and introducing gross pollutant traps into the storm water systems; and
 - k) controlling foxes, dogs and cats through implementation of a faunal pest management plan, which includes community education, trapping and fumigation of fox dens.
42. Some of these measures were proposed for the first time in the proponent's response to the Recommendation Report, and were accordingly not considered in that Report.
43. The Department now considers that these avoidance and mitigations would adequately minimise or avoid any significant impacts on listed threatened species, and listed migratory species, which may arise from marine debris or light pollution.
44. Other than the impacts on the Eastern Curlew from noise and visual disturbance (discussed further below), the Department also now considers that these measures could be refined and supplemented by way of conditions to adequately minimise or avoid significant impacts on listed threatened species and listed migratory species as a result of human and dog interactions. However, these measures would in and of themselves likely constitute a visual disturbance which would need to be considered and carefully managed.

Impacts on the Eastern Curlew as a result of noise and visual disturbance

45. The Department's assessment of the impacts on the Eastern Curlew as a result of noise and visual disturbance has not changed since the completion of the Recommendation Report – see in particular paragraphs 263-290. These impacts arise because of the proximity of the proposed action area to an internationally important site for this species: the Mangrove Point South Claypan, which extends from the highest astronomical tide (HAT) line that runs through the proposed action area. In summary, the Department considers that the considerable volume of advice and scientific evidence available support findings that:
- a. The Mangrove Point South Claypan is one of the most important sites in Australia for the Eastern Curlew, and is also internationally important on the basis that it consistently supports 1 per cent of the global population of the species;
 - b. The entirety of the Mangrove Point South Claypan, including the foreshore up to the HAT line, is important habitat for the Eastern Curlew, and so any buffer zone to avoid disturbance must be measured from the HAT line;
 - c. The Eastern Curlew is extremely wary and vulnerable to disturbance, with various studies recording a flight initiation distance of between 81 and 250 m;

- d. The large group sizes of Eastern Curlew at the Mangrove Point South Claypan mean that the flight initiation distance of birds at that site is likely to be at the high end of the range for the species;
 - e. Flight initiation distance is highly variable, and disturbance causes physiological impacts well before a bird takes flight, so it is necessary for the distance of any buffer to be larger than the flight initiation distance;
 - f. For a buffer to be effective, no development or activities can occur within the buffer zone, and screening must be set at the inland edge of the buffer zone, rather than within it.
46. In both the PER and the response to the proposed decision, the proponent notes that the Eastern Curlew predominantly uses the central area of the claypan to roost, and uses the foreshore for approximately one hour either side of high tide when it exceeds 3.8 m, when the claypan is completely inundated. The Wader Bird MNES Management Plan at Appendix N of the PER calculates that the Eastern Curlew only uses the foreshore area up to the HAT for 3.7% of the time they spend roosting. The proponent accordingly submits that any "buffer" should properly be measured from the central area of claypan, rather than the HAT, and that a buffer of between 60 to 100 m from the HAT would be sufficient because it would create a total buffer distance of 400 and 500 m from the central area of the claypan.
47. The Department accepts that the Eastern Curlew predominantly uses the central area of the claypan, and only uses the foreshore area around high tide. However, the entirety of the Mangrove Point South Claypan, including the foreshore, is nonetheless important habitat for the Eastern Curlew. When the high tide exceeds 3.8 m and the claypan is completely inundated, the only roosting habitat available to the Eastern Curlew is the foreshore area immediately adjacent to the HAT along the entire inland perimeter of the claypan.
48. It follows that the Department considers that to effectively mitigate the noise and visual disturbance from the proposed action on the Eastern Curlew, there must be a buffer of 250 m measured from the HAT as a minimum. The proposed action will otherwise result in frequent and ongoing disturbance to the Eastern Curlew, which would reduce their capacity to migrate and breed, and seriously disrupt the species' lifecycle.
49. Given the size of the proposed action area, its location and the nature of the proposed action, the Department does not consider that it is feasible for the proposed action to incorporate a buffer that would adequately protect the Eastern Curlew. The majority of the development would be located within 250 m of the HAT, many of the residential buildings are proposed to be located within 100 m of the HAT, and there would be nothing to prevent residents moving around and otherwise using area up to the proposed buffer. Nor does the Department consider that the impact that the proposed action would have on the Eastern Curlew could be repaired or mitigated, given the importance of the Mangrove Point South Claypan to this species.

Impacts on the Bar-tailed Godwit

50. In the Recommendation Report, the Department observed that the Bar-tailed Godwit has a shorter flight initiation distance than the Eastern Curlew, of around 70 m. The Department nonetheless concluded that the proposed action would have a significant impact on the Bar-tailed Godwit for the same reasons that it would impact on the Eastern Curlew.
51. On reflection, the Department considers that the shorter flight initiation distance of this species means that they would be impacted differently by the proposed action. In particular,

the Department considers that the Bar-tailed Godwit would be less susceptible to visual and noise disturbance from the proposed action. The Department accordingly considers that visual and noise disturbance, as well as the impacts arising from direct human and dog interactions, on the Bar-tailed Godwit could be managed by the implementation of stringent and comprehensive avoidance and mitigation measures.

Significant impact on ecological character of the GSS Ramsar site

52. The Eastern Curlew is a native species that contributes significantly to the ecological character of the GSS Ramsar site as described in the RIS. The Eastern Curlew is listed in the RIS as noteworthy fauna, is critical to the listing of the GSS Ramsar site as an internally important wetland, and contributes to four of the six criteria for which it was listed.
53. It follows that the Department considers that the proposed action will have a significant impact on the ecological character of the GSS Ramsar site as it will lead to the habitat and lifecycle of native species dependent upon the wetland being seriously affected.

Factors to be taken into account

54. You must take into account:
- a. the principles of ecologically sustainable development (section 3A, and section 136(2)(a)) – this is addressed in the Secretary’s Recommendation Report at paragraphs 379 to 381;
 - b. the precautionary principle (section 3A(b), and section 391(1)) – this is also addressed in the Recommendation Report at paragraphs 379 to 381;
 - c. the final Public Environment Report and any other documents provided by the proponent under section 99 (section 136(2)(c)(i)), which is at **Attachment A**;
 - d. the Recommendation Report relating to the action (section 136(2)(c)(ii), which is at **Attachment A**;
 - e. any other information on the relevant impacts of the action (section 136(2)(e)) – addressed in the Recommendation Report at paragraphs 384-394, and otherwise referred to and annexed to this brief;
 - f. any relevant comments that are received in accordance with invitations under sections 131, 131AA or 131A (sections 136(2)(f) and 131AA(6)) – addressed in this brief;
 - g. any information given to the Minister in accordance with a request under section 132A (section 136(2)(g)) – no such notice has been issued; and
 - h. any relevant bioregional plan (section 176) – there are no relevant bioregional plans.
55. You may also consider whether the person proposing to take the action is a suitable person to be granted an approval. This is addressed in the Recommendation Report at paragraphs 400 to 402.

Other requirements

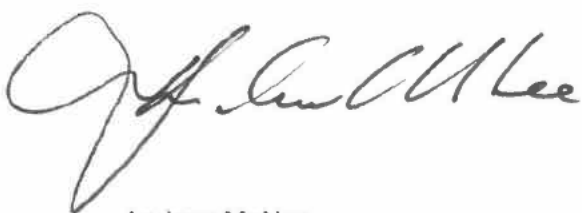
56. In making your decision you are also required:

- a. not to act inconsistently with Australia's obligations under the Ramsar Convention in deciding whether or not to approve the taking of an action for the purposes of sections 16 and 17B (section 138, see also section 334);
- b. not to act inconsistently with the Biodiversity Convention, the Apia Convention, CITES or a recovery plan or threat abatement plan in deciding whether or not to approve the taking of an action for the purposes of sections 18 and 18A (section 139(1));
- c. to have regard to any approved conservation advice for the relevant listed threatened species (section 139(2));
- d. not to act inconsistently with the Bonn Convention, CAMBA, JAMBA or ROKAMBA in deciding whether or not to approve the taking of an action for the purposes of sections 20 and 20A (section 140).

57. The changes in the Department's assessment of the likely impacts of the proposed action have resulted in a consequential change to its consideration of the Biodiversity Convention, and the Recovery Plans and Threat Abatement Plans for the relevant listed threatened species. On the basis that the proposed action will not have a significant impact on any listed threatened species, the Department now considers that approval of the proposed action, appropriately conditions, would be consistent with the requirement that you not act inconsistently with Australia's obligations under the Biodiversity Convention, or with the relevant Recovery Plans and Threat Abatement Plans.

58. The Department's conclusions on the other matters in (a) to (d) above otherwise remain as set out in the Recommendation Report (notwithstanding the change in the way in which the GSS Ramsar site will be significantly impacted).

59. In summary, the Department still considers that approval of the proposed action would be inconsistent with Australia's obligations under the Ramsar Convention, Bonn Convention, CAMBA, JAMBA and ROKAMBA, and the Commonwealth's obligations under section 334 of the EPBC Act.



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Environment Assessments Queensland and Sea
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25 August 2020

ATTACHMENTS

- A: Copy of proposed refusal decision package (dated 5 March 2020)
- B: Responses to invitation for comment on proposed decision
 - B1: Response from proponent (dated 14 April 2020)
 - B2: Response from Qld Department of Environment and Science (dated 20 March 2020)
- C: Line area advice
 - C1: Office of Water Science advice (dated 11 May 2020)
 - C2: Wetlands Section advice (dated 22 May 2020)
- D: Proponent response to line area advice (dated 26 June 2020)
- E: Notice of decision
- F: Statement of reasons
- G: Letters to relevant parties
 - G1: Letter to proponent
 - G2: Letter to Qld Department of Environment and Science
 - G3: Letter to Minister for Infrastructure, Transport and Regional Development
 - G4: Letter to Minister for Resources, Water and Northern Australia
- H: Media
 - H1: Media release
 - H2: Social media content
- I: Talking points
- J: Correspondence
 - J1: Correspondence proponent to Minister dated 29 July 2020
 - J2: Correspondence proponent to Minister dated 17 August 2020
 - J3: Correspondence Minister to proponent dated 21 August 2020
 - J4: Correspondence NRF to Department dated 19 June 2020
 - J5: Correspondence NRF to MO dated 15 July 2020
 - J6: Correspondence Minister to proponent dated 29 July 2020 (provided 30 July 2020)
 - J7: Correspondence NRF to Minister dated 12 August 2020

**OFFICE OF WATER SCIENCE ADVICE
TURTLE COVE HAVEN RETIREMENT VILLAGE, RIVER HEADS, QUEENSLAND**

Requesting section	Queensland Assessments North	Requesting officer	s22
Date of request	11 May 2020		
EPBC reference	EPBC 2013/7038	OWS reference	OWS 2020-025
Project assessment stage	Assessment		
OWS contact officer	s22 and s22		
Cleared by	s22 A/g Director Office of Water Science	Date	12 May 2020

The OWS provides technical advice for internal Departmental decision making and briefing purposes only. OWS advice should not be forwarded directly to external parties in the format provided. Please contact the OWS before providing the advice directly to an external source. The OWS does not speak for, and our response has not been endorsed by, the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development.

This document, prepared at the request of the Environment Approvals Division, outlines the Office of Water Science's (OWS) technical advice on the proposed Turtle Cove Haven Retirement Village's wastewater treatment strategy.

The proposal is to construct and operate a retirement and aged care village and associated infrastructure at River Heads, Queensland. The project site is located directly adjacent to the Great Sandy Strait Ramsar site. As such, the OWS notes that the wetlands and migratory species sections have also previously provided advice on the referral and assessment documentation.

Question 1: Does the OWS consider that implementing the "[Onsite Wastewater Treatment and Reuse Strategy Proposal](#)" (at pages 238-294 of the document) will effectively manage water on the project site such that runoff/seepage from the proposed action will not impact on the claypan, mangroves and seagrass meadows adjacent to the project site, and the hydrology and water quality of the Great Sandy Strait Ramsar site?

1. Site-specific monitoring of surface water, groundwater and the tidal zone, do not appear to be discussed as part of the wastewater treatment strategy proposed by Envira (2020). As such, the OWS is unable to comment on specific environmental impacts. However, in the absence of this information, the below advice outlines environmental risks posed from the proposal.
2. The OWS notes that the expected hydraulic loading of the project is between 200,000 – 267,000 l/d (Envira 2020, Table. 1.1, p. 4; Envira 2020, Table 3.1, p. 9; and Norton 2020,

p. 5), where the onsite water treatment plant (OWTP) has been designed to treat a maximum peak load of 270,000 l/d (Envira 2020, p. 7). The OWS considers that the OWTP has the potential to be operating continuously at, or near, peak capacity, where it is unclear how additional waste water will be treated and disposed.

- a. The OWS notes that the OWTP will be designed to have built-in redundancy across multiple treatment vessels, with no availability of by-pass infrastructure. Discharge of untreated waste water would therefore be unable to occur (Envira 2020, p. 8). Further information is required to justify how the OWTP meets this design criteria, including proposed management options for scenarios where discharge is unable to occur as:
 - i. irrigation areas have sustained prolonged rainfall; and/or
 - ii. the system breaks down or requires maintenance.
 - b. A bio-retention dam to store treated effluent and multiple irrigation and reuse strategies are also proposed, however, the type and capacity is yet to be determined (Envira 2020, p. 11). Noting paragraphs 1 and 4, the OWS considers that leakage from the proposed dam and irrigation areas to groundwater is possible, where potential environmental impacts do not appear to be discussed.
3. The OWS notes the proposed water quality design targets (Envira 2020, Table 3.3, p. 10).
- a. Given the close proximity of the site to the Ramsar wetland, it is possible that groundwater contamination could occur. However, as site-specific data do not appear to be provided, the OWS is unable to comment on whether the proposed water quality design targets appear adequate.
 - b. The OWS notes that a multi-step disinfection of the final effluent via UV sterilisation, ozone injection and a cell disintegration unit is proposed. The OWS commends the proposal of a chlorine free alternative to disinfection (Envira 2020, p. 29).
4. The OWS notes that recycled water disposal options are proposed to be underpinned by water-balance modelling and MEDLI (land irrigation model for effluent disposal) analysis which considers soil structure and composition suitability to accept recycled water. The numerical analysis would be supported by a groundwater survey to assess groundwater depths and identify areas where groundwater could be at risk from contamination (Envira 2020, p. 32).
- a. Whilst zero runoff and minimum deep drainage are predicted based on the analysis identified in paragraph 4, the proponent also notes that high risk areas will have mitigation measures applied or be avoided (Envira 2020, p. 32). The OWS considers that these high risk areas should be identified as a priority, and notes that no mitigation options or trigger action response plans have been proposed. Specific, achievable mitigation measures are required to provide certainty that potential impacts can be avoided or remediated.
 - b. The OWS also notes that no monitoring is proposed to verify any predicted impacts.
5. The OWS notes that the site is likely to contain shallow groundwater, and this could be within the lowest constructed surface. As there is no groundwater data to confirm this (Bio-Track 2018, p. 2), the OWS considers that areas where shallow groundwater and

potential acid sulfate soils (ASS) co-occur, could be exposed to oxidation through excavation and dewatering for project construction. These soils, when exposed to aerobic conditions, can oxidise resulting in the release of sulphuric acid and iron into the soil, which in turn can mobilise metals and nutrients, impacting water resources and poisoning biota. The OWS recommends the proponent should provide further information on the following:

- a. The extent of the ASS and potential interactions with ASS during construction. This should also include targeted sampling protocols for ASS in accordance with the Queensland ASS Technical Manual, Soil Management Guidelines.
 - b. Proposed mitigation and management measures for ASS, as well as the implications of the use of lime as a barrier.
 - c. A ground and surface monitoring program, which considers the pathways of potential contaminant mobility as a result of ASS.
6. Noting the potential impacts identified throughout this advice, the OWS considers that if the project progresses, the proponent should prepare a water monitoring and management plan which will ensure (a) the project meets prescribed compliance pertaining to the receiving water quality and (b) that regional water quality objective are achieved.
- a. An adaptive monitoring and management framework should be developed for the construction and development stages of the project and include:
 - i. appropriate site-specific baseline data for impact assessment, compared to the ANZG (2018) guidelines for aquatic ecosystem protection and regional water quality objectives; and
 - ii. commitments for surface and groundwater monitoring throughout the life of the project.
 - b. The proponent should also provide mitigation and management strategies for runoff from the site. The concern would be the risk of higher nutrient, sediment and pollution levels entering the Great Sandy Strait Ramsar site which would affect the sea grass beds and reef environments that provide food and shelter for threatened species.
 - c. The proponent should provide climatic scenario modelling, which considers maximum intensity rainfall events (e.g. cyclones). The erosion and sediment control measures employed should be informed by probable maximum rainfall events and extreme weather events. This approach will ensure impacts from all potential weather conditions are covered. It should also be noted that during the construction phases, relevant erosion and sedimentation measures should be designed likewise.
 - d. The proponent should also provide maps showing high risk areas that are subject to erosion and/or tidal surges and their relationship to site-level control measures. Details and justification for control measures within zones during tidal surge events is needed to demonstrate how these measures avoid adverse environmental impacts. This should include their susceptibility to flooding or tidal surges.
7. The OWS also notes case studies are listed (Envira 2020, App. 13 – 17), but not provided, as part of the proposed wastewater treatment strategy. Monitoring results from

these projects would be useful to substantiate conclusions that the proposed OWTP will ensure the protection of the environmental values of the area (Envira 2020, p. 38).

[Water Assessment Information Portal \(WAIP\)](#): for more information on water-related environmental impacts, please see the WAIP (accessible on the intranet via Home ⇒ Themes ⇒ Water ⇒ Water Assessment Information Portal).

References

Bio-Track Pty Ltd 2018. *Acid Sulfate Management Plan for a proposed development. Turtle Cove Have Retirement Village, at River Heads*. Dated 27 April 2018. Prepared for REMC.

Envira Holdings Pty Ltd (Envira) 2020. *Onsite Wastewater Treatment and Reuse Strategy Proposal, prepared for Turtle Cove Retirement Haven, located at River Heads, Queensland*. Dated 20 January 2020, revision 1.3. Prepared for Metacap Developments Pty Ltd.

Norton Rose Fullbright Australia (Norton) 2020. *Response to proposed decision in relation to Turtle Cove Haven Retirement Village (EPBC 2013/7038). Comments on behalf of the Proponent made pursuant to section 131AA of the Environment Protection and Biodiversity Conversation Act 1999 (Cth)*. Dated 14 April 2020.

COMMONWEALTH ENVIRONMENTAL WATER OFFICE

EPBC ACT REFERRAL ADVICE FROM WETLANDS SECTION

REFERRAL: EPBC 2013/7038

DATE DUE BACK TO ESD: ASAP

TURTLE COVE HAVEN RETIREMENT VILLAGE, RIVER HEADS

QUEENSLAND

Assessment stage

Input to assessment advice - Onsite Wastewater Treatment and Reuse Strategy Proposal

Brief Description of Proposal

The Turtle Cove Aged Care Facility was referred in 2013 for consideration under the EPBC Act and was determined a controlled action (on 29 November 2013) for significant impacts to listed threatened species, migratory species and wetlands of international importance, specifically the Great Sandy Strait Ramsar site. The proposal has been assessed by a Public Environment Report (PER).

The proposed facility is located on the River Heads Peninsula near Harvey Bay. It includes a high care facility for 80 residents; village town square with convenience shops and a medical precinct; hotel for visitors & tourists; up to 500 independent living units; a solar power station (up to 10 megawatt); long term storage for boats, caravans and recreational vehicles; and a standalone sewage treatment plant with the daily peak design capacity of 1500 equivalent persons.

An earlier version of the proposal included an elevated foreshore boardwalk and a 9 hole golf course. These elements have since been removed from the proposal.

The proposed action is located on Lot plans 214 SP 156870, and 996 SP 129069. 47.41ha comprises middle estuary clay pan with some *Mangrove/ sprobolus/ samphire* ecosystems. It is our understanding that the clay pan area is not being developed under this proposal.

The Environment Approvals Division has requested Wetlands advice on the adequacy of the *Onsite Wastewater Treatment and Reuse Strategy Proposal*. This advice relates only to the wastewater treatment proposal (and not to any other aspects of the proposed development).

Distance from the Ramsar site

The development is adjacent to the Great Sandy Strait Ramsar site, with part of it within the Ramsar site. Lot 996 which includes the Mangrove Point South Clay Pan, is private land and forms part of the Great Sandy Strait Ramsar site. This clay pan is considered internationally important for the critically endangered Eastern Curlew, which forms part of the ecological character of the Ramsar site. A number of other species also use this site and form part of the ecological character of the Ramsar site.

Advice

The Assessments Team has requested a response to the following question:

Does the Wetlands Section consider that implementing the *Onsite Wastewater Treatment and Reuse Strategy Proposal* will effectively manage water on the project site such that runoff/seepage from the proposed action will not impact on the claypan, mangroves and seagrass meadows adjacent to the project site, and the hydrology and water quality of the Great Sandy Strait Ramsar site?

In reviewing the *Onsite Wastewater Treatment and Reuse Strategy Proposal* and advice received from the Office of Water Science, the Wetlands Section has identified the following issues of concern:

- ENVIRA proposes to design and construct an Onsite Wastewater Treatment Plant (OSWTP), collection network and treated effluent disposal strategy (see page 7). This implies that the disposal strategy for treated effluent is yet to be determined and therefore its adequacy cannot be assessed.
- Whilst the report implies that once treated, wastewater will be used on site, it doesn't specify exactly where or how this will be used. The report mentions the option of use on the golf course (which is no longer part of the proposed action), as well as in the watering of gardens, open greenspace and landscaped areas (see page 31). Similarly, the report mentions that the preference for water application on site would be via drip irrigation, but the details of how and where this would be applied are not specified. If the use of drip irrigation is not a requirement, will other forms of irrigation be used? If so, what and where?
- Advice from OWS indicates that the capacity of the onsite water treatment plant may be insufficient. It has the potential to be operating continuously at, or near, peak capacity. If this is the case, how will excess wastewater be treated and disposed? How will wastewater be treated and/or disposed of in the instance of prolonged rainfall/ intense storms (which would prevent normal application to irrigation areas and/or result in increased run off). What measures are in place to deal with system breakages and/or maintenance requirements?
- The report indicates that effluent sewers will be used on site, including STEP tanks. They claim these can "affordably serve small, spread-out communities, largely because they use small-diameter, shallowly buried, and easy to place PVC or HDPE mains along variable grades to transport primary treated wastewater to a secondary or advanced treatment facility, rather than using large diameter, deeply excavated mains laid at a constant slope" (see page 16). What is the likelihood of these shallowly buried systems being broken or damaged, for example during the use of machinery for building and/or landscaping works; or due to intrusion by tree roots, etc? Would this increase the risk of contamination of surface or groundwater from untreated or partially treated effluent? Given the proximity of the proposed development to the Ramsar site, could this result in contaminants entering the Ramsar site (through surface and/or groundwater flows)?
- No information has been provided regarding potential groundwater contamination. Groundwater is a potential pathway for contaminants to enter the Ramsar site.
- The proposal does not appear to include any site-specific monitoring of surface water, groundwater or the tidal zone as part of the wastewater management strategy. How will runoff be monitored, and therefore impacts mitigated?

Conclusion

The Wetlands Section has previously outlined concerns on impacts to the Great Sandy Strait Ramsar site, in particular to the Mangrove Point South Clay Pan, which provides important roosting and foraging habitat for a number of species including the Eastern Curlew.

It is not clear how the treated wastewater will be managed on site. As such, it is not possible to determine whether impacts to the clay pan/ mangrove area or other sensitive areas within the broader Ramsar site will be mitigated by these measures.

Advice prepared by: s22

Other DoE areas consulted: Office of Water Science advice used

EAD Assessment Officer: s22

Cleared by: s22 Director: Wetlands Section

Signature: s22

Date: 22/05/2020

Sources:

- Envira Holdings Pty Ltd (Envira) 2020. *Onsite Wastewater Treatment and Reuse Strategy Proposal*, prepared for Turtle Cove Retirement Haven, located at River Heads, Queensland. Dated 20 January 2020, revision 1.3. Prepared for Metacap Developments Pty Ltd.
- Great Sandy Strait Ramsar Information Sheet (RIS) and Ecological Character Description (ECD)
- Previous Wetlands advice for referral 2013/7038
- Advice from the Office of Water Science