Appendix 1

EPBC Referral

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

Referral of proposed action

What is a referral?

The *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act) provides for the protection of the environment, especially matters of national environmental significance (NES). Under the EPBC Act, a person must not take an action that has, will have, or is likely to have a significant impact on any of the matters of NES without approval from the Australian Government Environment Minister or the Minister's delegate. (Further references to 'the Minister' in this form include references to the Minister's delegate.) To obtain approval from the Environment Minister, a proposed action should be referred. The purpose of a referral is to obtain a decision on whether your proposed action will need formal assessment and approval under the EPBC Act.

Your referral will be the principal basis for the Minister's decision as to whether approval is necessary and, if so, the type of assessment that will be undertaken. These decisions are made within 20 business days, provided that sufficient information is provided in the referral.

Who can make a referral?

Referrals may be made by or on behalf of a person proposing to take an action, the Commonwealth or a Commonwealth agency, a state or territory government, or agency, provided that the relevant government or agency has administrative responsibilities relating to the action.

When do I need to make a referral?

A referral must be made for actions that are likely to have a significant impact on the following matters protected by Part 3 of the EPBC Act:

- World Heritage properties (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Listed threatened species and communities (sections 18 and 18A)
- Listed migratory species (sections 20 and 20A)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- The environment, if the action involves Commonwealth land (sections 26 and 27A), including:
    - actions that are likely to have a significant impact on the environment of Commonwealth land (even if taken outside Commonwealth land);
    - actions taken on Commonwealth land that may have a significant impact on the environment generally;
- The environment, if the action is taken by the Commonwealth (section 28)
- Commonwealth Heritage places outside the Australian jurisdiction (sections 27B and 27C)

You may still make a referral if you believe your action is not going to have a significant impact, or if you are unsure. This will provide a greater level of certainty that Commonwealth assessment requirements have been met.

To help you decide whether or not your proposed action requires approval (and therefore, if you should make a referral), the following guidance is available from:

- the Policy Statement titled Significant Impact Guidelines 1.1 – Matters of National Environmental Significance. Additional sectoral guidelines are also available.
- the Policy Statement titled Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies.

- the interactive map tool (enter a location to obtain a report on what matters of NES may occur in that location).

Can I refer part of a larger action?

In certain circumstances, the Minister may not accept a referral for an action that is a component of a larger action and may request the person proposing to take the action to refer the larger action for consideration under the EPBC Act (Section 74A, EPBC Act). If you wish to make a referral for a staged or component referral, read 'Fact Sheet 6 Staged Developments/Split Referrals' and contact the Referral Business Entry Point (1800 803 772).

Do I need a permit?

Some activities may also require a permit under other sections of the EPBC Act or another law of the Commonwealth. Information is available on the Department's web site.

Is your action in the Great Barrier Reef Marine Park?

If your action is in the Great Barrier Reef Marine Park it may require permission under the *Great Barrier Reef Marine Park Act 1975* (GBRMP Act). If a permission is required, referral of the action under the EPBC Act is deemed to be an application under the GBRMP Act (see section 37AB, GBRMP Act). This referral will be forwarded to the Great Barrier Reef Marine Park Authority (the Authority) for the Authority to commence its permit processes as required under the Great Barrier Reef Marine Park Regulations 1983. If a permission is not required under the GBRMP Act, no approval under the EPBC Act is required (see section 43, EPBC Act). The Authority can provide advice on relevant permission requirements applying to activities in the Marine Park.

The Authority is responsible for assessing applications for permissions under the GBRMP Act, GBRMP Regulations and Zoning Plan. Where assessment and approval is also required under the EPBC Act, a single integrated assessment for the purposes of both Acts will apply in most cases. Further information on environmental approval requirements applying to actions in the Great Barrier Reef Marine Park is available from http://www.gbrmpa.gov.au/ or by contacting GBRMPA's Environmental Assessment and Management Section on (07) 4750 0700.

The Authority may require a permit application assessment fee to be paid in relation to the assessment of applications for permissions required under the GBRMP Act, even if the permission is made as a referral under the EPBC Act. Further information on this is available from the Authority:

Great Barrier Reef Marine Park Authority

2-68 Flinders Street PO Box 1379
Townsville QLD 4810
AUSTRALIA

Phone: + 61 7 4750 0700
Fax: + 61 7 4772 6093

www.gbrmpa.gov.au

What information do I need to provide?

Completing all parts of this form will ensure that you submit the required information and will also assist the Department to process your referral efficiently.

You can complete your referral by entering your information into this Word file.

Instructions

Instructions are provided in green text throughout the form.

Attachments/supporting information

The referral form should contain sufficient information to provide an adequate basis for a decision on the likely impacts of the proposed action. You should also provide supporting documentation, such as environmental reports or surveys, as attachments.

Coloured maps, figures or photographs to help explain the project and its location should also be submitted with your referral. Aerial photographs, in particular, can provide a useful perspective and context. Figures should be good quality as they may be scanned and viewed electronically as black and white documents.

Maps should be of a scale that clearly shows the location of the proposed action and any environmental aspects of interest.

Please ensure any attachments are below two megabytes (2mb) as they will be published on the Department's website for public comment. To minimise file size, enclose maps and figures as separate files if necessary. If unsure, contact the Referral Business Entry Point for advice. Attachments larger than two megabytes (2mb) may delay processing of your referral.

Note: the Minister may decide not to publish information that the Minister is satisfied is commercial-in-confidence.

How do I submit a referral?

Referrals may be submitted by mail, fax or email.

Mail to:

Referral Business Entry Point
Environment Assessment Branch
Department of Sustainability, Environment, Water, Population and Communities
GPO Box 787
CANBERRA ACT 2601

- If submitting via mail, electronic copies of documentation (on CD/DVD or by email) are appreciated.

Fax to: 02 6274 1789

- Faxed documents must be of sufficiently clear quality to be scanned into electronic format.
- Address the fax to the mailing address, and clearly mark it as a 'Referral under the EPBC Act'.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

Email to: epbc.referrals@environment.gov.au

- Clearly mark the email as a 'Referral under the EPBC Act'.
- Attach the referral as a Microsoft Word file and, if possible, a PDF file.
- Follow up with a mailed hardcopy including copies of any attachments or supporting reports.

What happens next?

Following receipt of a valid referral (containing all required information) you will be advised of the next steps in the process, and the referral and attachments will be published on the Department's web site for public comment.

The Department will write to you within 20 business days to advise you of the outcome of your referral and whether or not formal assessment and approval under the EPBC Act is required. There are a number of possible decisions regarding your referral:

The proposed action is NOT LIKELY to have a significant impact and does NOT NEED approval

No further consideration is required under the environmental assessment provisions of the EPBC Act and the action can proceed (subject to any other Commonwealth, state or local government requirements).

The proposed action is NOT LIKELY to have a significant impact IF undertaken in a particular manner

The action can proceed if undertaken in a particular manner (subject to any other Commonwealth, state or local government requirements). The particular manner in which you must carry out the action will be identified as part of the final decision. You must report your compliance with the particular manner to the Department.

The proposed action is LIKELY to have a significant impact and does NEED approval

If the action is likely to have a significant impact a decision will be made that it is a *controlled action*. The particular matters upon which the action may have a significant impact (such as World Heritage values or threatened species) are known as the *controlling provisions*.

The controlled action is subject to a public assessment process before a final decision can be made about whether to approve it. The assessment approach will usually be decided at the same time as the controlled action decision. (Further information about the levels of assessment and basis for deciding the approach are available on the Department's web site.)

The proposed action would have UNACCEPTABLE impacts and CANNOT proceed

The Minister may decide, on the basis of the information in the referral, that a referred action would have clearly unacceptable impacts on a protected matter and cannot proceed.

Compliance audits

If a decision is made to approve a project, the Department may audit it at any time to ensure that it is completed in accordance with the approval decision or the information provided in the referral. If the project changes, such that the likelihood of significant impacts could vary, you should write to the Department to advise of the changes. If your project is in the Great Barrier Reef Marine Park and a decision is made to approve it, the Authority may also audit it. (See "*Is your action in the Great Barrier Reef Marine Park,"* p.2, for more details).

For more information

- call the Department of Sustainability, Environment, Water, Populations and Communities Community Information Unit on 1800 803 772 or
- visit the web site www.environment.gov.au/epbc

All the information you need to make a referral, including documents referenced in this form, can be accessed from the above web site.

Referral of proposed action

Project title:

1 Summary of proposed action

NOTE: You must also attach a map/plan(s) showing the location and approximate boundaries of the area in which the project is to occur. Maps in A4 size are preferred. You must also attach a map(s)/plan(s) showing the location and boundaries of the project area in respect to any features identified in 3.1 & 3.2, as well as the extent of any freehold, leasehold or other tenure identified in 3.3(i).

1.1 **Short description**

The proposed action relates to the a wind farm consisting of 75 hollow tower wind turbines (approximately 80m high with 55m rotor blades), associated access tracks and an electricity substation that will feed into the main electricity grid (the Chalumbin- Woree transmission line) located approximately 20km SSW of Mareeba on the Atherton Tablelands, North Queensland (See Figure 1 in Attachment 1).

1.2 **Latitude and longitude**

Latitude and longitude details are used to accurately map the boundary of the proposed action. If these coordinates are inaccurate or insufficient it may delay the processing of your referral.

Location Point

Latitude			Longitude		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
17	9	8.67	145	21	55.7
17	9	11.95	145	21	53.02
17	9	13.24	145	21	48.25
17	9	12.63	145	21	42.47
17	9	16.96	145	21	22.82
17	9	15.07	145	21	17.6
17	9	37.15	145	21	20.56
17	10	0.4	145	21	29.71
17	10	20.3	145	21	42.5
17	11	4.35	145	22	27.19
17	11	43.83	145	23	40.34
17	11	53.94	145	24	17.47
17	11	44.78	145	24	33.37
17	10	3.86	145	24	44.1
17	9	16.56	145	24	2.93
17	9	2.88	145	24	12.61
17	9	2.63	145	24	8.02
17	8	58.92	145	23	59.4
17	8	52.97	145	23	51.89
17	8	45.33	145	23	48.94
17	8	37.89	145	23	43.89
17	8	29.17	145	23	26.45
17	8	24.21	145	23	24.07
17	8	34.9	145	22	59.96
17	8	22.91	145	22	44.15
17	8	7.47	145	22	48.71
17	7	59.65	145	22	49.11
17	8	3.18	145	22	47.91
17	8	7.31	145	22	47.7
17	8	23.27	145	22	42.99
17	8	36.03	145	22	59.83
17	8	25.51	145	23	23.58
17	8	29.88	145	23	25.67
17	8	38.64	145	23	43.18
17	8	45.77	145	23	48.03
17	8	53.55	145	23	51.03
17	8	59.76	145	23	58.86
17	9	3.6	145	24	7.78
17	9	3.76	145	24	10.76
17	9	14.07	145	24	3.46
17	8	48.58	145	23	23.05
17	8	40.73	145	22	42.89
17	8	49.38	145	22	32.2
17	8	30.86	145	22	15.15
17	8	27.35	145	21	43.6
17	8	37.54	145	21	38.92
17	8	38.73	145	21	40.98
17	8	45.45	145	21	46.05
17	8	49.65	145	21	46.33

The Interactive Mapping Tool may provide assistance in determining the coordinates for your project area.

If area less than 5 hectares, provide the location as a single pair of latitude and longitude references. If area greater than 5 hectares, provide bounding location points.

If the proposed action is linear (eg. a road or pipeline), provide coordinates for each turning point.
Do not use AMG coordinates.

1.3 **Locality and property description**
The proposed wind farm is located on a 2422 ha property at the northern-most section of the Herberton Range. The site is almost entirely covered in remnant dry sclerophyll woodland vegetation on rhyolite geology and is dominated by a series of roughly parallel high rocky ridges, up to 1000m altitude, dissected by ephemeral creek lines. The site is located approximately 20 km SSW of Mareeba and 50 km WSW of Cairns, North Queensland (Figure 1 in Attachment 1).

1.4	**Size of the development footprint or work area (hectares)**	Turbine footprint = 9 ha (75 x 30 m x 40 m) Access track footprint ~22.7ha (22.7 km x 10 m wide) (likely to alter once geotechnical surveys are conducted) plus existing track widening ~5.4 ha (10.6 km x 5m widening) Electricity substation = 1 ha Total Clearing: ~38 ha
1.5	**Street address of the site**	The subject site is accessed from Kippen Drive, Arriga, Queensland, and has no street address.

1.6 **Lot description**
Lot 7 Plan SP235244

1.7 **Local Government Area and Council contact (if known)**
Tablelands Regional Council; Brett Nancarrow (07) 40434000

1.8 **Time frame**
The construction phase is expected to take approximately 24 months, once all relevant approvals are obtained.

The proposed wind farm is expected to have an operation life of 25 years. Once this life expectancy has been reached Transfield Services will either: continue with the operation of the wind farm, upgrade the turbines or decommission the wind farm and rehabilitate the project area appropriately.

1.9	**Alternatives to proposed action** Were any feasible alternatives to taking the proposed action (including not taking the action) considered but are not proposed?		No
		X	Yes, you must also complete section 2.2
1.10	**Alternative time frames etc** Does the proposed action include alternative time frames, locations or activities?	X	No
			Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	**State assessment** Is the action subject to a state or territory environmental impact assessment?	X	No
			Yes, you must also complete Section 2.5
1.12	**Component of larger action** Is the proposed action a component of a larger action?	X	No
			Yes, you must also complete Section 2.7
1.13	**Related actions/proposals** Is the proposed action related to other actions or proposals in the region (if known)?		No
		X	Yes, provide details: Port Bajool, the owners of the property, have proposed the construction of a 200 seat restaurant/sustainable energy visitor centre on the site.
1.14	**Australian Government funding** Has the person proposing to take the action received any Australian Government grant funding to undertake this project?	X	No
			Yes, provide details:

1.15	**Great Barrier Reef Marine Park** Is the proposed action inside the Great Barrier Reef Marine Park?	✗	No
			Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

NOTE: It is important that the description is complete and includes all components and activities associated with the action. If certain related components are not intended to be included within the scope of the referral, this should be clearly explained in section 2.7.

2.1 Description of proposed action

Ratch Australia Pty Ltd (RATCH) proposes to develop a Wind Farm within the Springmount Station over Lot 7 on SP235244. The subject site is located within the Tableland Regional Council, towards the northern portion of the Atherton Tablelands in North Queensland. The project includes the proposed development of up to 75 wind turbines in various locations, a substation and associated roads and infrastructure. The proposed location of the wind turbines is illustrated on Figure 1 in Appendix 1.

The 75 wind turbine sites, identified on a preliminary basis, will occupy small footprints of land connected by a network of underground cabling, the disturbance footprint of which will also serve as access tracks for construction and future maintenance. The substation will act as a collection point for the underground cabling and a connection point to feed power generated from the wind farm into the main electricity grid.

Preliminary designs are for wind turbines with a tower height of approximately 80m and rotor diameter of up to 55m. The proposed clearing footprint area for each turbine is 30 m x 40 m, however, there is potential to reduce this to an area of 20 m x 40 m in areas which are considered to be constrained (e.g. along narrow ridgelines).

The preliminary road and underground cabling layout which connects each turbine and allows for access between sites for future maintenance of the project will require a cleared width of approximately 10 metres for the construction stage, with an expected decrease in width to 5 metres through natural vegetation succession after construction is completed. The preliminary road and cabling network is shown on Appendix A2 in Attachment 1.

The principal activities involved in the **construction phase** will include the following:

- Initiation of community notification/awareness program prior to commencement of construction activities
- Site establishment (temporary facilities including site offices and equipment storage areas)
- Daily transport of people, equipment and materials to the site via local roads
- Earthworks for:
    - access track construction
    - turbine and substation footing construction
    - cable trench construction
- Formation of concrete footings for turbines and substation
- Erection of up to 75 turbines and supporting structures
- Installation of underground cables
- Construction of one substation and electrical testing
-
- Grid connection works in accordance with Powerlink requirements

Site establishment – The main site offices are likely to include several demountable buildings, an amenities block and portable pump-out toilet facilities which will be located on the site for the duration of construction work. One or more additional smaller temporary office facilities may also be constructed at locations distant from the main facility to provide temporary shelter for workers and temporary storage areas at these locations, if required. Construction staff will be accommodated away from the construction site and camping on site will not be permitted.

Earthworks for access works - On-site access track construction will involve grading, rock-breaking and removal of topsoil as required, to provide a formation of up to 10 metres width. This will involve placing and compacting of suitable gravel road base and the provision of major drainage works. Some additional minor clearing may be required along access tracks to turbine sites but areas identified as ecologically sensitive will be avoided where practicable. There are currently approximately 6km of tracks traversing the site providing access to the Powerlink High Voltage Transmission Line, these will be used to link with the additional turbine access tracks and therefore minimise further disturbance.

In designing the access tracks, particular attention will be given to the management of stormwater drainage to minimise erosion and sediment transport. Excavated topsoil will be stockpiled during the construction of the access tracks and later used in the rehabilitation of the site. The stockpiles will be stabilised to prevent dust generation and loss of material. At the conclusion of the construction phase, any tracks not required for subsequent operation and maintenance of the wind farm will be restored and revegetated.

Footing construction and hardstands - Whilst the detailed footing design is yet to be finalised, excavation into rock for each turbine footing will be required. It is envisaged little blasting will be required as the substrate is sufficiently weathered to be removed using ripping and non explosive rock splitting. Turbine footings will comprise a reinforced concrete block poured against natural ground or formwork, and into excavated anchors. Topsoil from the footing excavation will be stockpiled separately adjacent to the excavation. It will be used for backfilling over the constructed footing with any excess topsoil being evenly spread around the disturbed turbine site. Excavated material can also be used to prepare a level hard stand area for the lay down of the component turbine parts and for the large cranes required for erection of the turbine.

Turbine erection - Turbine erection will involve one or more large mobile cranes, together with the transport of large equipment components to the site in advance of erection. The component parts will be temporarily stored on assembly hardstands at the turbine sites. The lower section of the turbine supporting towers will be bolted to a stub section embedded within the footings that will be constructed in advance of tower erection. Subsequent sections of the tower will be lifted into place and bolted to the section of the tower below. The nacelles will also be delivered during this phase and will be lifted onto the towers using one or two large cranes once the completed tower sections are in place.

Underground power and control cables - Underground cables will be buried in trenches generally about one metre in depth to give a minimum cover of 0.75 metres. The width of the trenches for individual cables will be about 0.5 to 0.75 metres with power cables and control cables being installed in the same trench. The time that trenches are open will be minimised and they will be backfilled and compacted using sand immediately above the cables and excavated material above the sand.

Any surplus material will be distributed over the surrounding area to blend in with the natural landform and will be revegetated. In situations where trenches will need to cross constructed drainage channels, the crossings will either involve under boring of the channel or stringing conductors above the channels with due consideration given to safety standards and the normal maintenance activities for drainage channels.

2.2 Alternatives to taking the proposed action

Initial feasibility assessments continue to be undertaken by RATCH for a number of potential wind turbine sites across Australia. The results of these assessments indicated the proposed Mt Emerald site is a preferred site for the development of a wind farm in Queensland. The other locations remain commercially confidential at this stage as they may be developed in the future.

2.3 Alternative locations, time frames or activities that form part of the referred action

There are no alternative locations, time frames or activities that form part of the referred action.

2.4 Context, planning framework and state/local government requirements

A development application seeking approval for a Material Change of Use has been applied for with the Tablelands Regional Council for assessment under the Sustainable Planning Act 2009 (SPA) and the Mareeba Shire Planning Scheme 2007.

Further to the requirements of the development to be assessed under the local government requirements, the application is also assessable under the following State Government instruments;

- the Far North Queensland Regional Plan 2009-2011 (FNQ Regional Plan);
- Any applicable State Planning Polices;
- the Environmental Protection Act 1994 (EPBC Act), RATCH has a general duty of care for the environment, that is, 'a person may not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practical measures to prevent or minimize environmental harm'.
- the Environmental Protection Policy (Air) 2008, to ensure the development complies with noise, dust and sediment runoff requirements;
- The Vegetation Management Act 1999 (VMA) provides a framework for vegetation management on freehold land and makes clearing of native vegetation on freehold land an 'assessable development'. This means that the clearing of remnant vegetation on freehold land requires approval under the SPA. A development application for the proposal will require referral to DERM for approval;
- The Nature Conservation Act 1992 (NCA) establishes the framework for the identification, gazettal and management of protected area (such as National Parks) and the protection of rare, threatened, vulnerable and endangered animals and plants. There are a number of plant and animal species of significance in regards to the NCA that could be potentially impacted by the proposed wind farm, and the applicant will undertake any relevant approval process under this Act should it be required;
- The Water Act 2000 provides a framework for the sustainable management of water and other resources in Queensland. The applicant understands their obligations to obtain any relevant permits should the project take or interfere with a water resource as defined under the Act;
- The Land Protection (Pest and Stock Route Management) Act 2002 requires landowners to keep land free of declared pests. As such the current land owners and the applicant are obliged to prevent the spread of declared weed species and control weeds within the subject sites;
- The applicant understands their obligations under both the Queensland Heritage Act 1992 (QH) and Aboriginal Cultural Heritage Act 2003 (ACH); and
- Federal legislation that is relevant to this application includes the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The EPBC Act provides a framework to protect and manage national and international significant flora, fauna, ecological communities and heritages places within Australia. This application provides referral to the Department of Environment, Water, Heritage and the Arts (DEWHA) as part of the approval processes being undertaken by the applicant.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

No Environmental Impact Assessment is being undertaken under Commonwealth, State or Territory legislation, as the proposed development will be assessed under the Integrated Development Assessment System (IDAS) under the Sustainable Planning Act 2009. It is noted that a preliminary ecological assessment has been undertaken and forms part of this referral application (see Attachment 1 and associated appendices). Additional ecological assessments will be undertaken throughout 2012 to assist in clarifying some potential ecological risks.

2.6 Public consultation (including with Indigenous stakeholders)

A community open day was held in Mareeba on 31 March 2011. It is expected additional public consultation will be undertaken with the communities in the surrounding area during the assessment period.

In regards to consultation with Indigenous stakeholders, preliminary advice from Converge Heritage and Community outlines that liaison with the Bar Barrum and the Muluridji Peoples to ensure reasonable management is undertaken for any potential Aboriginal cultural heritage should be undertaken during the development application process. Preliminary discussions with the Bar Barrum and Muluridj People in relation to the Cultural Heritage Management Plan have been undertaken and field survey planning is underway.

2.7 A staged development or component of a larger project

The project is not proposed to be staged, and is not part of a larger project.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest.

Your assessment of likely impacts should refer to the following resources (available from the Department's web site):

- specific values of individual World Heritage properties and National Heritage places and the ecological character of Ramsar wetlands;
- profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;
- *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*; and
- associated sectoral and species policy statements available on the web site, as relevant.

Note that even if your proposal will not be taken in a World Heritage area, RAMSAR wetland, Commonwealth marine area, the Great Barrier Reef Marine Park or on Commonwealth land, it could still impact upon these areas (for example, through downstream impacts). Consideration of likely impacts should include both direct and indirect impacts.

3.1 (a) World Heritage Properties

Description

No World Heritage properties will be directly or indirectly impacted by the proposed action

Nature and extent of likely impact

3.1 (b) National Heritage Places

Description

No National Heritage places will be directly or indirectly impacted by the proposed action

Nature and extent of likely impact

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

No RAMSAR declared wetlands will be directly or indirectly impacted by the proposed action

Nature and extent of likely impact

3.1 (d) Listed threatened species and ecological communities

Several flora and fauna assessments have been undertaken for the Mt Emerald Wind Farm project area by RPS Group. These include the following:

- May 2010 – Preliminary Early Dry Season Flora & Fauna Assessment;
- Mar – Apr 2011 Supplementary Late Wet Season Flora & Fauna Assessment;
- Jun – Jul 2011 Targeted Northern Quoll Survey and additional flora and vegetation assessments; and
- October 2011 Bird and Bat utilisation survey.

The scope, methods and results of the assessments are described further in the report itself provided in Attachment 1.

The EPBC Protected Matters Search Tool returned a total of 23 threatened fauna species as being known to occur or having the potential to occur within a 10 km of the project area (defined by the co-ordinates listed in section 1.2) (Table 1). An additional threatened bird species, the Buff-breasted Button Quail, not included in the EPBC Protected Matters Search Tool is also considered as potentially occurring within the site, based on the presence of suitable habitat in open Eucalyptus woodland and known records from nearby Mareeba and Mt Molloy. Of the 23 species identified in the EPBC Protected Matters Search Tool, 11 species are not considered likely to occur on the site due to the lack of suitable habitats: principally closed rainforest, wet sclerophyll forest, permanent wetlands or streams. An additional four species, the Grey-headed Flying-fox, Northern Bettong, Brush-tailed Rabbit Rat and Magnificent Brood Frog are also considered unlikely to occur on the site given knowledge of their known current distributions. Of the EPBC-listed fauna, one threatened species, the Northern Quoll (*Dasyurus hallucatus*) was positively confirmed during the field surveys.

The EPBC Protected Matters Search Tool returned a total of 11 threatened flora species as being known to occur or having the potential occur within 10 km around the project area. Of the EPBC-listed flora, three species are considered likely to occur within the project footprint. Two of these species: *Grevillea glossadenia* and *Homoranthus porteri* were positively identified on the site during field surveys.

Table 1. Threatened Fauna & Flora Known to Occur or Having the Potential to Occur on the Site

Scientific Name	Common Name	Status	Assessed Likelihood of Occurrence
BIRDS			
Casuarius casuarius johnsonii	Southern Cassowary	E	Unlikely; no suitable rainforest habitat
Erythrotriorchis radiatus	Red Goshawk	E	Possible
Erythrura gouldiae	Gouldian Finch	E	Possible
Neochmia ruficauda ruficauda	Star Finch (eastern)	E	Unlikely; historical records from within the region (Mt Surprise) not able to be positively attributed to this subspecies. The eastern subspecies is only currently known from a 20km^2 area in Central Queensland.
Rostratula australis	Australian Painted Snipe	V	Unlikely; no suitable vegetated wetland habitats
Turnix olivii	Buff-breasted Button Quail	E	Possible
FISH			
Melanotaenia eachamensis	Lake Eacham Rainbowfish	E	Unlikely; no suitable permanent streams
Pristis microdon	Freshwater Sawfish	V	Unlikely; no suitable permanent streams
FROGS			
Litoria nannotis	Waterfall Frog	E	Unlikely; no suitable permanent streams
Litoria nyakalensis	Mountain Mist Frog	CE	Unlikely; no suitable permanent streams
Litoria rheocola	Common Mist Frog	E	Unlikely; no suitable permanent streams
Nyctimystes dayi	Australian Lacelid	E	Unlikely; no suitable permanent streams
Psuedophryne covacevichae	Magnificent Brood Frog	V	Unlikely; not known from outside current

			distribution near Ravenshoe
MAMMALS			
Bettongia tropica	Northern Bettong	E	Unlikely; only currently known from Paluma Range, Lamb Range, Mt Carbine Tablelands & Mt Windsor
Conilurus pencillatus	Brush-tailed Rabbit Rat	V	Unlikely; only known to occur in Queensland on Bentinck Island, Gulf of Carpentaria
Dasyurus hallucatus	Northern Quoll	E	Recorded
Dasyurus maculatus gracilis	Spotted-tailed Quoll	E	Unlikely; no suitable rainforest habitat above 900m.
Hipposideros semoni	Semon's Leaf-nosed Bat	E	Possible
Petaurus australis un-named subspecies	Fluffy Glider	V	Unlikely; no suitable wet sclerophyll forest containing *Eucalyptus resinifera* or *Eucalyptus grandis*
Pteropus conspicillatus	Spectacled Flying-fox	V	Possible
Pteropus poliocephalus	Grey-headed Flying-fox	V	Unlikely; no records north of Mackay
Rhinolophus philippinensis maros	Greater Large-eared Horseshoe Bat	E	Possible
Saccolaimus saccolaimus nudicluniatus	Bare-rumped Sheathtail Bat	CE	Possible
PLANTS			
Acacia purpureopetala	A wattle	V	Possible
Grevillea glossadenia	Irvinebank Grevillea	V	Recorded
Homoranthus porteri	A shrub	V	Recorded
Acacia guymeri	-	V	Low possibility although no specimens collected or shown in HERBRECS data.
Acacia ramiflora	-	V	Low possibility although no specimens collected or shown in HERBRECS data.
Chamaesyce carissoides	-	V	Unlikely - no specimens collected or shown in HERBRECS data.
Dendrobium superbiens	Curly Pinks	V	Unlikely – sub-optimal habitat.
Huperzia marsupiiformis	Water Tassel-fern	V	Unlikely due to absence of well-developed vine forest habitat.
Phalaenopsis rosenstromii	Native moth orchid	E	Unlikely due to altitude above sea level. Generally occurs at lower elevation in well-developed rainforest.
Taeniophyllum muelleri	Minute Orchid, Ribbon-root Orchid	V	Unlikely due to sub-optimal habitat.
Tropilis callitrophilis	Thin Feather Orchid	V	Unlikely no specimens collected or shown in HERBRECS data.

E- Endangered; V – Vulnerable; CE- Critically Endangered

Species that have been positively identified or are considered to have a high probability of presence in the project area are discussed below.

Northern Quoll *(Dasyurus hallucatus)*

A single Northern Quoll scat was recorded during the late wet season (March-April 2011) surveys in the vicinity of proposed turbine #30 (See Figure 2 in Attachment 1). On the basis of this observation and the presence of mapped critical Northern Quoll habitat across the entire site, a targeted survey utilising camera traps set at 129 sites (54 non-impact sites located along creek lines and 75 sites located on rocky ridge lines in the vicinity of proposed turbine locations) and latrine searches was conducted during the Northern Quoll breeding season (June-July 2011).

Northern Quolls were captured at a total of 88 sites (43 impact sites and 45 non-impact sites) (See Figure 2 in Attachment 1). Analysis of the unique spot patterns of captured individuals for the purposes of deriving relative population estimates for impact and non-impact areas was begun but then abandoned following consultation with SEWPAC officers, when it was decided that presence/absence data would be sufficient. The absence of Northern Quolls from some areas of the site is unlikely to indicate the species is permanently absent from these localities, but may reflect stochastic variations in quoll activity or that of non-target species which removed the bait, and the relatively short sampling period of the survey.

The regional distribution of Northern Quoll records is shown in Attachment 2. The locality records were obtained from the Quoll Seekers Network (Luke Jackson, pers. comm.) and from Woinarksi *et al.* (2008), which also includes records from the Queensland Museum.

Nature and Extent of Likely Impacts

From a regional perspective the site represents a small part of the Herberton Range which is known Northern Quoll habitat, lying on its northern most extremity. The proposed area of disturbance (38 ha including 20ha temporary) represents less than 2% of the potential foraging and denning habitat at the site, notwithstanding the ridgelines may have greater denning habitat importance. Whether the proposed action could represent a significant impact to the species is difficult to determine without conducting proposed detailed habitat utilisation studies (refer Section 4). Implementation of effective management measures such as those listed in Section 4 is however likely to reduce the potential risk to an acceptable level, particularly if the proposed preconstruction surveys identify that denning activities occur over the whole site and are not substantially restricted to the proposed disturbance areas. It is considered the major component of the residual risk is a short term risk during the civil works phase, which would be restricted to one breeding season. Erection of the turbines, which is not considered to represent a significant impact to this species, will however continue for at least a further 12 months following the civil works.

The introduction of exotic grasses, particularly Guinea Grass (*Megathyrsus maximus*), Thatch Grass (*Hyparrhenia rufa*), Grader Grass (*Themeda quadrivalvus*) and Gamba Grass (*Andropogon gayanus*) onto the site, which can readily invade undisturbed habitats, has the potential to result in altered landscape that could be detrimental to the local population. These grasses can produce high fuel loads relative to native grasses and have the potential to increase the frequency, extent and intensity of late dry season fires, which have been identified as threatening processes for Northern Quolls through direct mortality and loss of hollow trees and logs. This risk can be effectively mitigated through careful attention to weed control and eradication during the construction and operational phases of the project. In addition it is considered possible that access track and turbine pad levelling works may create some compensatory refugial and denning habitat through creation of boulder piles and rows. This would be confirmed by the proposed post construction population surveys.

The construction of access tracks into areas of remnant vegetation that are currently remote has some potential to increase the levels of predation of Northern Quoll by feral predators, particularly feral cats and foxes in these areas, in addition to increasing competition for prey.

The operation of turbines may result in the avoidance by Northern Quolls of the area immediately surrounding the turbines due to sound disturbance. Northern Quolls appear to rely on hearing and smell, more so than vision, to detect active prey and predators (Pellis *et al.,* 1991). The noise levels associated with the operating wind turbines may interfere with these activities, however Northern Quolls are well known in this area to frequent areas of human habitation and may be more tolerant of anthropogenic noise than other species, although noise levels in human habitation are likely to be significantly lower than in the vicinity of operating turbines.

Bare-rumped Sheathtail (Saccolaimus saccolaiumus nudicluniatus)

It was not possible to confirm the presence of this species on the site due to difficulties in separating its call from that of either the Yellow-bellied Sheathtail Bat (*Saccolaimus flaviventris*) or Troughton's Sheathtail Bat (*Taphozous troughtoni*). A total of eight calls out of 1092 recorded bat calls could have potentially belonged to the critically endangered, *S. s. nudicluniatus*. In particular, one call recorded in the vicinity of turbine #30 on the 30/3/2011 is "considered highly probable" to belong to the species according to Greg Ford from Balance Environmental who conducted the call analysis (Attachment 1-Appendix E1). Determining the relative abundance of the bat from call analysis was not possible, given the small number of potential calls of *S. s. nudicluniatus* over the study duration and the possibility that site utilisation rates are low. Notwithstanding this, further work is proposed over 2011/2012 to better understand the potential risk posed to this species.

The nearest collected specimen of *S. s. nudicluniatus* to the study site was captured ~50km to the NE near Wangetti Beach (Chris Clague, pers. comm.). Other confirmed records (collected specimens) in the region are known from Townsville, Cardwell and Iron Range National Park (Attachment 3).

Nature and Extent of Likely Impacts

The construction of the proposed turbine pads, access tracks and substation will result in the clearing of 38 ha of dry sclerophyll

woodland habitat which has potential to provide roosting habitat (standing tree hollows) for this species, including maternal roost sites. Habitat clearing has some potential to result in the direct mortality of some individuals during the construction phase, however given the uncertainties with regard to its distribution and abundance and the small percentage of the total site being disturbed (<2%) the likelihood of mortality due to direct clearing is likely to be low, particularly given potentially suitable habitat is widespread over the site and in the surrounding region. Potential for impacts can be largely mitigated through pre-clearing inspection of hollows for occupation by target species.

The operation of the proposed turbines has the potential to result in the mortality of an unknown number of *S. saccolaimus* individuals due to collisions and/or barotrauma caused by moving blades and wind wake turbulence. In addition to direct mortality from barotrauma, lesser injuries, such as hearing impairment and other internal injuries may allow bats to fly or otherwise move away from the vicinity of the turbine but would ultimately result in their death (Kozuka et al. 1997). At this stage, it is unknown whether the site supports a significant population of the species and further studies will be required to determine this. It is therefore not possible to accurately predict the impact of rotor strike and barotrauma on this species given the uncertainties with regard to its presence, distribution and abundance within the site and the ability of the species to avoid rotor strike/barotrauma.

The construction of the proposed infrastructure has the potential to result in the introduction of exotic grasses, particularly Guinea Grass (*Megathyrsus maximus*), Thatch Grass (*Hyparrhenia rufa*), Grader Grass (*Themeda quadrivalvus*) and Gamba Grass (*Andropogon gayanus*) onto the site, which can readily invade undisturbed habitats. These grasses are known to readily invade intact remnant dry sclerophyll habitats, produce high fuel loads relative to native grasses and have the potential to increase the frequency, extent and intensity of late dry season fires, which could reduce the availability of tree hollow roosting sites. This risk can however be effectively mitigated through careful attention to weed control and eradication during the construction and operational phases of the project.

Semon's Leaf-nosed Bat (Hipposideros semoni)

Although this species was not recorded during field surveys, the site contains potential foraging and roosting habitat and is within its known distribution range. Semon's Leaf-nosed Bat occurs in tropical rainforest, monsoon forest, wet sclerophyll forest and open savannah woodland (SEWPAC, 2011b).

The species typically forages within the undergrowth within 1 to 2 m above the ground, and their flight is relatively slow and manoeuvrable (Churchill, 2009). The species is known to roost in tree hollows, caves, relatively shallow underground structures including overhangs and cracks, shallow caves or other unusual relatively open situations (SEWPAC, 2011b).

The locality of collected specimens of *Hipposideros semoni* in Queensland is shown in Attachment 4. The majority of the records are known from Iron Range, Coen and Cooktown areas, with three specimens collected from the Townsville region which appears to represent the southern most extent of its range. Data used for the collation of the map was obtained from the Queensland Museum and from the Atlas of Living Australia website (ALA, 2010).

Nature and Extent of Likely Impacts

Recent overseas research indicates wind farms have the potential to cause microchiropteran bat mortality, mostly amongst high-flying or migratory species (Arnett *et al*., 2011). The major cause of bat deaths has been shown to be due to barotrauma, that is, damage to the lungs caused by changes in air pressure near the moving blades, rather than direct turbine collisions (Kunz *et al.,* 2007). Ultrasonic echoes returned from moving turbine blades have features which may render them attractive to bats or which might make it difficult for bats to accurately detect and locate blades with sufficient time to avoid a collision (Long et al, 2010a). In addition to direct mortality caused by barotrauma, bats may suffer lesser injuries, such as hearing impairment and other internal injuries that may allow bats to fly or otherwise move away from the vicinity of the turbine but would ultimately result in their death (Kozuka et al. 1997). Little definitive work on these potential impacts on Australian species has been carried out.

The construction of the proposed wind farm infrastructure has the potential to remove some foraging and roosting habitat for this species; however similar potentially suitable habitat is widespread over the site and in the surrounding region.

The operation of the proposed turbines has the potential to result in the mortality of *H. semoni* individuals due to rotor strike and/or barotrauma. Semon's Leaf-nosed Bat has been observed to typically forage below the potential rotor strike and barotrauma zone (Churchill, 2009) and as a result, it may be expected that the risk of barotrauma and/or collision for this species is likely to be low. However, all Australian microchiropteran bats have the capacity to fly within the rotor sweep height and, while some may do so less than others, current knowledge is insufficient to suggest the exclusion of any key bat taxa from a preliminary assessment of the potential for turbine-related mortality such as has been conducted to date (EPHC, 2010).

Further investigations, including additional spatially and temporally replicated call detection surveys, is planned to quantify the likelihood and impact of rotor strike on this species.

Large-eared Horseshoe Bat (Rhinolophus philippinensis maros)

No *Rhinolophus philippinensis* individuals were recorded during the field surveys; nevertheless, the site contains potential foraging and roosting habitat and is within its known distribution range. The species occurs in lowland and upland rainforest, along riparian gallery forest within open eucalypt forest, *Melaleuca* forest with rainforest understorey, open savannah woodland

and tall riparian woodland of *Melaleuca, E. tereticornis* and *E. tessellaris* (Churchill, 2009). The species commonly roosts during the day in caves and underground mines but it is also suspected to utilise basal hollows of large trees, dense vegetation, rock piles and areas beneath creek banks (see references in (SEWPAC, 2011c).

Rhinolophus philippinensis has been recorded in the nearby vicinity of the project site from Danbulla State Forest (~18 km east), Curtain Fig Tree National Park (~23 km SE), Mt Baldy State Forest (~14 km SSE) and Mt Molloy (~53 km N) (Duncan *et al.* 1999 in SEPWAC, 2011c; Kutt, 2004 in SEPWAC, 2011c) (Attachment 5). Locations of museum specimens collected within the region are shown in Attachment 6. Data used for the collation of the map was obtained from the Queensland Museum and from the Atlas of Living Australia website (ALA, 2010).

Nature and Extent of Likely Impacts

The loss of potential foraging and roosting habitat due to clearing is not likely to present a significant impact on this species due to the large extent of similar habitat occurring throughout the site and in the surrounding region.

Clearing of ~38 ha of sclerophyll woodland and open forest for the proposed infrastructure may result in the direct mortality of some individuals and the loss of some potential roost sites such as the basal hollows of trees and rock piles. It is not expected that clearing will have significant direct and indirect impacts on the species given the majority of known roost sites have been recorded in caves, underground mines and road culverts

The operation of the proposed turbines has the potential to result in the mortality of an unknown number of *R. philippinensis* individuals due to collisions and/or barotrauma caused by moving blades and wind wake turbulence. In addition to direct mortality from barotrauma, lesser injuries, such as hearing impairment and other internal injuries that may allow bats to fly or otherwise move away from the vicinity of the turbine but would ultimately result in their death (Kozuka et al. 1997). *R. philippinensis* appears to prefer to forage amongst thicker vegetation in gullies and along creeks in open forest and woodlands (SEWPAC, 2011c), thereby lowering potential impact risk, however, all Australian microchiropteran bats have the capacity to fly within the rotor sweep height and, while some may do so less than others, current knowledge is insufficient to suggest the exclusion of any key bat taxa from a preliminary assessment of the potential risk turbine-related mortality such as has been conducted for this project to date (EPHC, 2010).

Spectacled Flying-fox (Pteropus conspicillatus)

No Spectacled Flying-foxes were recorded during the field surveys. However these surveys were not conducted during periods of flowering of the species preferred food plants (i.e. *Eucalyptus* spp., *Corymbia* spp., *Melaleuca* spp.) when the species is most likely to be detected in significant numbers.

Spectacled Flying-foxes are known to forage at least 40 km from their daytime camps (Parsons *et al.*, 2006), the nearest of which are located at nearby Mareeba and the Tolga Scrub, ~ 20 km to the north and 9 km to the SW respectively. Spectacled Flying-foxes have been recorded foraging on the Herberton Range in similar habitats to those occurring on the site and it is considered to be probable that they will forage on the site during periods of mass flowering of their preferred food plants (Dr David Westcott, CSIRO).

Nature and Extent of Likely Impacts

Flying-foxes have the potential to be at risk from turbine collisions because they can fly within the proposed wind turbine rotor strike zone and can fly in large aggregations. Flying fox populations have a "low capacity for increase and depend on low levels of natural mortality and high survival rates of adults to maintain stable population levels" (TSSC, 2007). Little information is available on the risks posed by wind farms to flying foxes in Australia as most wind farms constructed to date have not been located in areas of flying-fox roosts or potential foraging areas. Similarly the ability of flying foxes to identify and avoid wind turbines is unknown; however some avoidance behaviour can be expected, as with avifauna, although few studies in Australia have specifically examined faunal avoidance rates. The site can periodically experience low cloud cover and the reduction in visibility during these periods may increase the risk of rotor strike for Spectacled Flying-foxes.

The operation of the proposed 75 wind turbines has the potential to result in some mortality of Spectacled Flying-foxes due to collision with turbine blades or towers, whilst either foraging on the site or transiting across the site whilst flying between the camps and off-site foraging areas. Satellite-tracking of Spectacled Flying-foxes by CSIRO indicates they forage in sclerophyll forests and woodland throughout the Herberton Range (David Westcott, CSIRO, pers. comm.). The known camps at Mareeba and Tolga Scrub are recognised by SEWPAC as important camps as they number more than 2000 individuals each and have been occupied for more than 10 years (David Westcott, CSIRO, pers. comm.)

The relatively small proposed amount of clearing of dry sclerophyll woodland and open forest on the site is not likely to significantly impact the Spectacled Flying-fox, given the widespread distribution of similar foraging habitat within the potential foraging area of the two known nearby camps (Tolga Scrub and Mareeba). No suitable daytime roosting habitat is known to occur within the site.

Gouldian Finch (Erythrura gouldiae)

No Gouldian Finches were recorded during the surveys

Historically, the species was widely distributed throughout the tropical savannahs of northern Australia. In recent decades, Gouldian Finches there have been sporadic and scattered records from north Queensland (Homes 1995 in (SEWPAC, 2011e),

however, the region no longer appears to supports large populations of this species.

Nature and Extent of Likely Impacts

The clearing of ~38ha of dry sclerophyll woodland is not expected to have significant direct or indirect impacts on Gouldian Finches due to the likely small population size and low likelihood of occurrence within the site and the presence of large areas of similar habitat both within the site and within the surrounding region.

There is expected to be a very low potential risk of mortality to Gouldian Finches due to rotor strike from operating turbines as they are most likely to forage below the rotor sweep area and are not likely to occur on the site in significant numbers.

The proposed action has the potential to result in habitat modification through changes in the fire regime resulting from invasion of exotic grasses brought in on construction machinery, although this threat can be significantly reduced through the implementation of weed control and monitoring and an appropriate ecological burning regime. Inappropriate fire regimes, in particular extensive hot late dry season fires have been indentified as a threatening process for Gouldian Finches.

The potential indirect and direct impacts of the proposed action are unlikely to result in a significant impact to Gouldian Finches as set out in the EPBC significant impact guidelines (SEWPAC, 2009).

Buff-breasted Button Quail (Turnix olivii)

No Buff-breasted Button Quail were recorded during the survey. There is a potential for the species to occur on the site on the basis of their known distribution and the confirmed presence of suitable habitat. Buff-breasted Button Quails are only known to occur in north-eastern Queensland and have been recorded to the north of the site at Mount Molloy and Mareeba (SEWPAC, 2011f). Recent extensive surveys for the species throughout their potential range only recorded a total of three pairs in close proximity to Mount Molloy (SEWPAC, 2011f). The species is known to occur in open Eucalyptus woodland in addition to grasslands, open glades amongst *Melaleuca, Acacia, Alphitonia* or *Tristaniopsis*, and in rainforest (SEWPAC, 2011f).

Nature and Extent of Likely Impacts

The clearing of ~38 ha of dry sclerophyll woodland is not expected to have a significant impact on Buff-breasted Button Quail as extensive areas of similar habitat are present throughout the site and in the surrounding region.

It is not expected that the operation of the 75 proposed wind turbines will result in a significant impact on the species due to rotor strike as assessed under EPBC guidelines, given the low likelihood of their occurrence on the site and the fact that, like other *Turnix* spp., they prefer to remain on the ground.

The potential indirect and direct impacts of the proposed action are unlikely to result in a significant impact to Buff-breasted Button Quail as set out in the EPBC significant impact guidelines.

Red Goshawk (Erythrotriorchis radiatus)

No Red Goshawks were recorded during the survey. The species has been recorded infrequently on the Atherton Tablelands and is known to visit the area from June to October (Bravery, 1970 in SEWPAC, 2011g). There is the potential for Red Goshawks to forage within the project site; however, it is unlikely that suitable nesting habitat is present within the site given the lack of suitable tall trees located within 1km of permanent water.

Nature and extent of likely impacts

It is unlikely the operation of the 75 turbines or the clearing of ~38 ha of the dry sclerophyll vegetation will pose a significant risk to the Red Goshawk as assessed under EPBC guidelines, given the large home range of the species and therefore low likelihood of occurrence on the site.

Clearing of remnant vegetation for the proposed infrastructure is not expected to have a significant impact on either foraging or nesting habitat for the Red Goshawk, given that extensive areas of similar habitat occur throughout the site and in the surrounding region and that there is limited suitable tall nesting trees located within 1 km of permanent water bodies on the site.

Wattle (Acacia purpureopetala)

Although the species was not found during field surveys of the project area, a single specimen has been recorded immediately to the south-west of the site (Attachment 7). This specimen represents the most northern and north-eastern distribution limit for *Acacia purpureopetala*. The core of the known population appears to be centred in the Irvinebank, Stannary Hills and Silver Valley region to the south-west of the project area. (Attachment 7).

An assessment of the significance of the impacts of the proposed works on *Acacia purpureopetala* is shown in Table 2.

Nature and extent of likely impacts – conservation significant plants

The following description of impacts and their extent apply to all species of conservation significant plants in the project area.

The potential long-term impacts of the project are difficult to categorise and quantify at this stage of the investigation as the preliminary layout may change as a result of detailed site planning and approval conditions. Nevertheless, it is expected that

linear and patch clearing of vegetation will be required for the construction pad of each turbine (approximately 30 m x 40 m), construction of access tracks and where underground cabling is required to connect each turbine and finally connect to the main electricity grid.

Vegetation clearing and ground excavation has the potential to interrupt connectivity of vegetation and remove important microhabitats for plants (and fauna). These habitats are expressed as niche zones of soil accumulation in rock fissures and cracks that support a range of species reliant on the special edaphic characteristics. For example, *Homoranthus porteri* is highly restricted to this particular environment. This is particularly relevant for the narrow ridges that characterise a majority of the sites chosen for turbine placement. These impacts can however, be mitigated or substantially reduced with considered placement of each wind turbine and the incorporation into the construction phase of a range of specially developed impact mitigation strategies.

Direct impacts on flora are expected to occur during the construction phase of the project, albeit on a small portion of the site (<2%). Following the construction phase, the 10m wide access tracks will be rehabilitated to approximately 5m in width. Hard stand construction pads, access tracks and trenching for underground cabling will require vegetation clearing and considerable ground disturbance. In non-remnant areas (i.e. the existing cleared corridor of the power line easement), these impacts are possibly of less significance from an environmental perspective.

The immediate effects of linear clearing within woodland remnants introduce a range of potential impacts. The ingress of weeds into otherwise weed-free sites is a possibility, with confirmed evidence that the grass weed *Themeda quadrivalvis* (grader grass) has established in linear strips and patches associated with the existing powerline through the project area and entry point along Kippen Road.

Grader grass establishes in dense, banded swards and can quickly out-compete native grasses and other native plants. The dry bulk (dead foliage and seed heads) of grader grass has the capacity to exacerbate fires by developing abnormal fuel loads. Similar deleterious effects are produced by other tall-growing naturalised grasses such as *Melinis minutiflora* (molasses grass), *Megathyrsus maximus* (guinea grass), *Setaria* spp. (pigeon grasses) and others – all of which have the capacity to become established where machinery and ground disturbance are the primary vectors. These potential impacts can however be successfully managed through the implementation of rigorous weed management practices and monitoring throughout the life of the project, particularly during and immediately after the construction phase.

Human visitation and machinery movement (during construction and less frequently during maintenance activities) is likely to have an on-going, lower level impact assuming that such activities are undertaken and offset with consideration to Weed Management Plans, EMPs and other specifically prepared management strategies.

The stripping and loss of ground vegetation has the potential to exacerbate soil erosion unless checked by appropriate erosion and sediment control measures and a recovering of bare soil surfaces with plant matter (or supplemented by engineered technology). It is recommended a suite of locally occurring native plants are researched and designated for site rehabilitation.

The construction of access tracks and the turbine construction pads could result in impacts to plants of conservation interest, particularly in the south of the project area. Here, plant diversity is influenced by the proximity to Mount Emerald, as this area is known for its concentration of species of conservation interest, where plants such as *Acacia purpureopetala, Grevillea glossadenia, Homoranthus porteri* and *Plectranthus amoenus* have been collected.

Based on HERBRECS data (Queensland Herbarium, 2010), it is noted these species are not entirely restricted to this portion of the project area, and their presence, and possibly other species could occur in the vicinity of Walsh Bluff and in similar habitats along ridges of the western portion of the project area. Dedicated surveys of rare and threatened plants will be undertaken prior to the construction stage when the final configuration of the wind farm is determined, to allow fine tuning of tower and track positions and thus avoidance or minimisation of impacts on these species.

Direct impacts to vegetation communities will be most prevalent at each turbine site and along the road and cabling network that is proposed to connect each turbine and eventually to the main electricity grid. These impacts will result from vegetation clearing and ground surface levelling expected to be in the order of 20 or 30m wide for turbine construction pads, and road-cabling access tracks expected to be approximately 10 metres wide.

Removal of vegetation along narrow ridges at a number of turbine sites will result in a thin band of trees remaining either side of the clearing. Clearing of vegetation in these width-restricted situations could result in loss of discrete vegetation communities – many of which are too narrow or small in area to accurately show on mapping. For example, short sections of the ridgeline between turbines 42 and 50 support a band of *Eucalyptus abergiana* (range bloodwood) trees. Generally, this community is expressed as an area no wider than 20m, where the ridge falls away abruptly and almost vertically to the northeast and more gradually to the southwest. Loss of the canopy in these situations could result in a different group of species developing in the ground layer at the edge of the clearing.

Ridges also support heath-type vegetation comprising low shrubs and plants which occupy small niches. These inconspicuous plant communities could be irreversibly altered given the scale of clearing required to accommodate a wind turbine. It is not known how these communities will respond to disturbance of this nature, or what successional traits will occur, for example, whether the communities will be replaced by a similar floristic composition or whether a different suite of colonising plants will eventuate.

Vegetation clearing will also remove and modify the groundcover, whether this comprises grasses and herbaceous plants, or rocky cover. On rocky country, plants are woody sub-shrubs with stunted and contorted forms – an adaptation to persistent wind shearing, lower temperatures, lengthy periods of dry and rapidly draining substrates. Whether these plant communities are able to recuperate after significant alteration is unknown. A possible result is a change in floristic composition to more

herbaceous species, or replacement by colonisers such as wattles (*Acacia* spp.).

The creation or widening of access tracks could in some situations, result in the ground surface being, at least temporarily, destabilised by machinery beyond its natural condition. Possible impacts in this sense could include the transport of sediment, the development of rill and gully erosion, as well as possible sheet erosion after heavy rainfall events. Given the gravelly-clay nature of the substrate over most of the study area, the movement of finer soil particles can be expected. Accumulated soil deposits could create favourable niches for weed development. Rock armouring of pad clearing and access track verges will be incorporated into the mitigation methods implemented under the proposed erosion and sediment control plan.

A discernible characteristic of the study area is its rugged and markedly dissected ridge topography. This landscape situation becomes increasingly pronounced at the study area's southern end and sections of the western edge. The provision of wind turbines on these ridges (many of which are narrow with very steep to near-vertical sides) will require the establishment of a series of access tracks and construction pads and the need to clear undisturbed vegetation. Clearing of these ridgeline communities could result in fragmentation of the vegetation's current contiguous condition. It is proposed that the original cleared track width of 10 m will be allowed to regenerate under natural circumstances to 5 m width: at which stage vegetation connectivity will be in an improved state. Such an improved condition is obviously reliant on the inherent capacity of the vegetation, the seed bank and the management of top soil to contribute to this process and with minimal human intervention and assistance. The rate and ecological quality of natural recruitment and seral stages in vegetation development is unknown, and therefore, there must be a concerted effort to keep clearing and ground disturbance to an absolute minimum.

Grevillea glossadenia

A total of four specimens have been previously collected from within the project area and from the Mt Emerald area immediately to the south (Attachment 8). A single collection of *G. glossadenia* was taken from Abattoir Swamp between Mount Molloy and Julatten. This record represents the most northern distribution for the species and appears to be an outlier from the core of the population which appears to be centred on the Irvinebank-Silver Valley region (Attachment 8) The most southern distribution of the species is from Ben Lomond mining lease west of the Harvey Range and west of Townsville (Attachment 8). This collection also appears as an outlier and details regarding the population size are unknown.

Nature and extent of likely impacts

See previous description of nature and extent of likely impacts for *Acacia purpureopetala*.

An assessment of the significance of the impacts of the proposed works on *Grevillea glossadenia* is shown in Table 2.

Homoranthus porteri

This species was recorded at a number of sites within the project area growing directly on rock pavements or in patches of skeletal soil on the rock pavements. These observations are supported by a number of herbarium records from immediately south of the project area (Mt Emerald and surrounding slopes and ridges) where the same geology and similar vegetation formations are present. Where *H. porteri* grows in the project area, it forms monotypic thickets over limited areas. The largest population observed occurred in an area of 6 x 6 m. Occasionally it was observed as scattered seedlings growing in rock crevices.

The most northern distribution of the species is from the Mt Windsor region, assumed to be from 'dry' sclerophyll vegetation and from granite or rhyolite geology. This collection is represented by one herbarium specimen and the population size is not known. The most southern distribution of the species is Puzzle Creek, on The Mt Zero/Taravale Wildlife Sanctuary, northwest of Townsville. This is represented by a single collection and no details are known regarding the population size in this area. A conspicuous population cluster appears on the mapping and from herbarium data to be around the Tumoulin-Archer Creek-Kaban region northwest of Ravenshoe. A number of collections representing a population concentration have been made from the Baal Gammon Mine area between Watsonville and Herberton Attachment 9).

Nature and extent of likely impacts

See previous description of nature and extent of likely impacts for *Acacia purpureopetala*.

An assessment of the significance of the impacts of the proposed works on *Homoranthus porteri* is shown in Table 2.

Table 2. Assessment of Impact Significance for Vulnerable Plants.

Impact Type	***Acacia purpureopetala***	***Grevillea glossadenia***	***Homoranthus porteri***
Is there is a real chance or possibility that the action will:	Presence not confirmed in project area	Confirmed presence in project area	Confirmed presence in project area

Impact Type	***Acacia purpureopetala***	***Grevillea glossadenia***	***Homoranthus porteri***
lead to a long-term decrease in the size of an important population of a species	Unlikely – most collections of the species are from Irvinebank and Stannary hills – possible limited habitat on south-western boundary of project area.	Unlikely due to relative high abundance and ability to tolerate a wide range of ecological conditions.	Possible if not managed appropriately – need to identify important sub-populations within the site and conserve areas of rock pavement.
reduce the area of occupancy of an important population	Unlikely – most records of the species are from Irvinebank/Stannary Hills region to the south-west of the project area. One collection from the south-west of the project area.	Unlikely – a widespread species across the southern half of the project area.	Possible given that the species occupies a naturally small niche of rock pavements.
fragment an existing important population into two or more populations	Unlikely – see comments above.	Unlikely due to evenness of distribution.	Unlikely, as the species is represented elsewhere on the site where wind turbines are not proposed to be constructed.
adversely affect habitat critical to the survival of a species	Unlikely – more significant populations mapped over the Irvinebank/Stannary Hills region – lower rainfall and possibly more preferential habitat. Evidence indicates that the species is adapted to disturbed environments (road edges, mine sites).	Unlikely due to wide tolerance by the species of habitat types –even on disturbed land.	Some possibility if the species is determined to have a narrow ecological tolerance.
disrupt the breeding cycle of an important population	Unlikely – important population not identified on the site.	Unlikely due to capacity for mass germination – assuming soil seed bank is left intact.	Low probability if turbines are appropriately micro-sited.
modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	Unlikely – drier, and possibly more preferential habitat in the Irvinebank/Stannary Hills region.	Unlikely – habit for the species is well represented across the southern half of the project area.	Yes – see comments below for weeds. Also, rock pavements, which are the preferred habitat for this species, occupy small areas mostly associated with ridges and points of highest or exposed elevation.
result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	Possible – introduction of deleterious weeds such as sicklepod, grader grass, molasses grass, and a range of other naturalised plants that could outcompete the species and preclude successful regeneration.	Possible – introduction of deleterious weeds such as sicklepod, grader grass, molasses grass, and a range of other naturalised plants that could outcompete the species and preclude successful regeneration.	Possible – introduction of deleterious weeds such as sicklepod, grader grass, molasses grass, and a range of other naturalised plants that could outcompete the species and preclude successful regeneration.

Impact Type	***Acacia purpureopetala***	***Grevillea glossadenia***	***Homoranthus porteri***
introduce disease that may cause the species to decline, or	Possible if appropriate weed hygiene and other protocols for the management of pathogens are not implemented and maintained throughout the duration of the wind farm.	Possible if appropriate weed hygiene and other protocols for the management of pathogens are not implemented and maintained throughout the duration of the wind farm.	Possible if appropriate weed hygiene and other protocols for the management of pathogens are not implemented and maintained throughout the duration of the wind farm.
interfere substantially with the recovery of the species.	There is no recovery plan in place for this species.	There is no recovery plan in place for this species.	There is no recovery plan in place for this species.

Potential Impacts on Listed Threatened Ecological communities

The EPBC Protected Matters Search Tool indicates the presence of one threatened ecological community, Mabi Forest (Complex Notophyll Vine Forest Type 5b) within a 10km buffer of the site boundary. The nearest small patch of Mabi Forest is located approximately 5km to the SE of the site on Lot 5 Plan RP895949. The proposed action is not considered likely to contribute to any cumulative impacts on any patches of Mabi forest.

3.1 (e) Listed migratory species

Description

The EPBC Protected Matters Search Tool lists a total of 17 species (16 birds and the Estuarine Crocodile) as known or having the potential to occur up to 10km around the project site (Table 3). Due to the lack of suitable habitat, principally permanent vegetated water bodies, it is not considered likely that 8 of these migratory listed species will utilise the site as roosting, nesting or foraging habitat (Table 3). However, it remains possible that some of the bird species may fly over the site whilst moving between suitable surrounding habitats.

A total of three EPBC migratory listed species were recorded during the field surveys (Table 2).

Table 3. Migratory species potentially occurring within the project site

Common Name	Scientific name	Status	Assessed Likelihood of occurrence on the Site	Notes
Fork-tailed Swift	*Apus pacificus*	MM	Possible	
Great Egret, White Egret	*Ardea alba*	MM, MW	Unlikely	No suitable habitat present on site and unlikely to utilise small ephemeral water bodies. However, the species may fly over site at rotor height between suitable nearby water bodies.
Cattle Egret	*Ardea ibis*	MM, MW	Possible	
Salt-water Crocodile, Estuarine Crocodile	*Crocodylus porosus*	MM	Very Unlikely	No suitable habitat present on site
Gouldian Finch	*Erythrura gouldiae*	MT	Possible	
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	MT	Recorded	

Common Name	**Scientific name**	**Status**	**Assessed Likelihood of occurrence on the Site**	**Notes**
White-throated Needletail	*Hirundapus caudacutus*	MT	Recorded	Several flocks (up to 60 individuals) were recorded flying within the rotor sweep area along the eastern edge of the site.
Barn Swallow	*Hirundo rustica*	MT	Possible	
Rainbow Bee-eater	*Merops ornatus*	MT	Recorded	
Black-faced Monarch	*Monarcha melanopsis*	MT	Unlikely	No suitable rainforest habitat occurs within the site. Potentially fly over site within rotor strike zone as dispersed between rainforest areas
Spectacled Monarch	*Monarcha trivirgatus*	MT	Unlikely	No suitable rainforest habitat occurs within the site. Potentially fly over site within rotor strike zone as dispersed between rainforest areas
Satin Flycatcher	*Myiagra cyanoleuca*	MT	Possible	
Rufous Fantail	*Rhipidura rufifrons*	MT	Recorded	
Latham's Snipe, Japanese Snipe	*Gallinago hardwickii*	MW	Unlikely	No suitable habitat present on site and unlikely to utilise small ephemeral water bodies. However, the species may fly over site at rotor height between suitable nearby water bodies.
Sarus Crane	*Grus antigone*	MW	Recorded	No suitable foraging/roosting habitat present on site and unlikely to utilise small ephemeral water bodies.
Australian Cotton Pygmy-goose	*Nettapus coromandelianus albipennis*	MW	Unlikely	No suitable habitat present on site and unlikely to utilise small ephemeral water bodies. However, the species may fly over site at rotor height between suitable nearby water bodies.
Painted Snipe	*Rostratula benghalensis s. lat.*	MW	Unlikely	No suitable habitat present on site and unlikely to utilise small ephemeral water bodies. However, the species may fly over site at rotor height between suitable nearby water bodies.

MW – migratory wetland species, MT - migratory terrestrial species, MM – migratory marine species

Nature and extent of likely impact

It is unlikely the clearing of ~38 ha of remnant vegetation for the proposed infrastructure will have a significant impact on any of the migratory species given that no suitable foraging or roosting habitat for these species, principally vegetated wetlands, will be removed or indirectly affected. None of the surrounding wetlands or other suitable habitats are known to support significant populations of any migratory species, with the exception of the Sarus Crane. The Atherton Tablelands is known to be an important over-wintering site for this species and individuals have been recorded foraging in agricultural lands in all directions surrounding the project site (Elinor Scambler, pers. comm.).

There is the potential for some individuals of migratory species to be killed by rotor strike whilst flying over the site between adjacent suitable areas of habitat. Little is known about the local or regional movements of migratory birds in North Queensland. A recent bird utilisation survey at the site (3rd – 5th November 2011) recorded small flocks (8-12 individuals) of Sarus Cranes flying within the rotor sweep area on several occasions. Additional observations of up to 20 individuals crossing the Herberton Range at similar height south of the site were also recorded. Sarus Cranes were also heard flying over the site during a period when the ridge tops were obscured by cloud. A significant proportion of the known Atherton Tablelands population of Sarus Cranes were observed foraging on freshly ploughed fields within 3-5 km of the site (>100 birds). Preliminary observations suggest Sarus Cranes and other birds (raptors, White-throated Needletails, Darters etc) utilise the updraft on the eastern edge of the site to gain altitude. Further planned avian utilisation surveys over the next 12 months will be conducted to model the risk of rotor strike for Sarus Cranes and other listed migratory bird species.

Migratory species that are considered most likely to be affected by rotor strike includes large, soaring species such as Sarus Cranes and White-bellied Sea Eagles, and flocking species such as Cotton Pygmy Goose, White-throated Needletails and Rainbow Bee-eaters. The ability of these species to avoid rotor strike is unknown. It is thought that a general avoidance rate for birds of up to 90% may be applicable, although this figure has not been confirmed by observational studies. It is unlikely that rotor strike will have a significant impact on any of the above listed migratory species, with the possible exception of Sarus Cranes, given the majority of these species are relatively abundant and have extensive distributions throughout Northern Australia.

There is thought to be approximately 13000-15000 Sarus Cranes in Asia with an additional subpopulation in Australia of approximately 5000 birds. It is thought the introduction of cattle into Cape York has had a positive impact on these cranes such that their distribution has expanded to include the Atherton Tablelands where there is a dependable supply of winter food available on agricultural lands. The most significant threat to this species throughout its entire range is considered to be the modification and destruction of wetlands. The project will not affect any wetland areas, however the aggregation behaviour of these cranes in the area during winter months (thought to be 750-1200 birds) may put them at risk of mortality due to rotor strike. Mortality due to collisions with high voltage powerlines is currently a significant source of mortality for Sarus Cranes on the Atherton Tablelands (Dr John grant, pers. com., Elenor Scambler, pers. com.). The site occupies a relatively small area within the wider locality that could be traversed by Sarus Cranes, however little is known about the local scale movements of this species.

3.1 (f) Commonwealth marine area

(If the action is <u>in</u> the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description
There will be no direct or indirect impacts on a Commonwealth marine area.

Nature and extent of likely impact

3.1 (g) Commonwealth land

(If the action is on Commonwealth land, complete 3.2(d) instead. This section is for actions taken outside Commonwealth land that may have impacts on that land.)

Description
There will be no direct or indirect impacts on a Commonwealth land.

Nature and extent of likely impact

3.1 (h) The Great Barrier Reef Marine Park

Description
There will be no direct or indirect impacts on the Great Barrier Reef Marine Park.

Nature and extent of likely impact

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

You must describe the nature and extent of likely impacts (both direct & indirect) on the whole environment if your project:

- is a nuclear action;
- will be taken by the Commonwealth or a Commonwealth agency;
- will be taken in a Commonwealth marine area;
- will be taken on Commonwealth land; or
- will be taken in the Great Barrier Reef marine Park.

Your assessment of impacts should refer to the *Significant Impact Guidelines 1.2 - Actions on, or impacting upon, Commonwealth land, and actions by Commonwealth agencies* and specifically address impacts on:

- ecosystems and their constituent parts, including people and communities;
- natural and physical resources;
- the qualities and characteristics of locations, places and areas;
- the heritage values of places; and
- the social, economic and cultural aspects of the above things.

3.2 (a)	**Is the proposed action a nuclear action?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	**Is the proposed action to be taken by the Commonwealth or a Commonwealth agency?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	**Is the proposed action to be taken in a Commonwealth marine area?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))

3.2 (d)	**Is the proposed action to be taken on Commonwealth land?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.2 (e)	**Is the proposed action to be taken in the Great Barrier Reef Marine Park?**	X	No
			Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Other important features of the environment

3.3 (a) Flora and fauna

Refer to attached preliminary flora and fauna assessment report (Attachment 1)

3.3 (b) Hydrology, including water flows

The site is dissected by numerous low order ephemeral watercourses.

3.3 (c) Soil and Vegetation characteristics

For a full description of the soil and vegetation characteristics of the site refer preliminary flora and fauna assessment report (Attachment 1)

3.3 (d) Outstanding natural features

Walsh's Bluff is a highly visible landscape feature and is located within the project area.

3.3 (e) Remnant native vegetation

A full description of the remnant vegetation is provided in the attached Attachment 1

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The project site ranges from 540 m in the vicinity of the Kippen Drive road access to approximately 1089 m in the south-eastern section of the property.

3.3 (g) Current state of the environment

The project site is largely undisturbed with very limited areas of non-remnant vegetation restricted to the current power line easement and access track and recently constructed access tracks to two small (<1/2 ha) clearings containing test wind towers.

Surrounding land outside of the project area and at lower elevations is characterised by intensive agricultural uses, including sugar cane production, grazing and a range of cropping enterprises. Turbines are not proposed to be located on any of these land use types. Existing built infrastructure in the study area comprises a high voltage electrical transmission corridor that passes through the project area in an approximate southwest direction towards Oaky Creek. This corridor is maintained free of vegetation and forms the primary access route into the site.

Exotic plants generally appear to be relatively uncommon across the project site. The species identified to date, their distribution and relative abundance are described below:

- Molasses Grass *(Melinis minutiflora)* – forms extensive narrow linear infestations but is largely restricted to ephemeral drainage lines, particularly in the eastern section of the site
- Yellow Bristle Grass *(Setaria pumila)* is present as one small patch occurring at a creek crossing along the power line access track
- Thatch Grass *(Hyparrhenia rufa)* appears to be restricted to a single small patch located on the eastern rise of the site along the power line access track which has subsequently been reported for control by the powerline entity
- Grader Grass *(Themeda quadrivalvus)* occurs in a narrow strip along sections of Kippen Drive
- Sicklepod *(Senna obtusifolia)* is restricted to the recently cleared test wind tower site in the vicinity of turbine #51 (Figure 1 in Attachment 1)
- Praxelis *(Praxelis clematidea*) is the most widespread weed on the project site but only occurs as scattered individuals
- Wynn Cassia *(Chamaecrista rotundifolia)* occurs as a single small infestation within the eastern test wind tower clearing

Include information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

There are no known Commonwealth Heritage Places or other places recognised as having heritage values within the project area to be further noted.

3.3 (i) Indigenous heritage values

In regards to consultation with Indigenous stakeholders, consultation with the Bar Barrum and the Muluridji Peoples in relation to timing for field surveys and preparation of a Cultural Heritage Management Plan is in progress.

3.3 (j) Other important or unique values of the environment

Describe any other key features of the environment affected by, or in proximity to the proposed action (for example, any national parks, conservation reserves, wetlands of national significance etc).

Nil

3.3 (k) Tenure of the action area (eg freehold, leasehold)

Freehold

3.3 (l) Existing land / marine uses of area

The project site is currently not utilised for grazing or agriculture.

3.3 (m) Any proposed land / marine uses of area

4 Measures to avoid or reduce impacts

Note: If you have identified alternatives in relation to location, time frames or activities for the proposed action at Section 2.3 you will need to complete this section in relation to each of the alternatives identified.

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

For any measures intended to avoid or mitigate significant impacts on matters protected under the EPBC Act, specify:
- what the measure is,
- how the measure is expected to be effective, and
- the time frame or workplan for the measure.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

Provide information about the level of commitment by the person proposing to take the action to implement the proposed mitigation measures. For example, if the measures are preliminary suggestions only that have not been fully researched, or are dependent on a third party's agreement (e.g. council or landowner), you should state that, that is the case.

Note, the Australian Government Environment Minister may decide that a proposed action is not likely to have significant impacts on a protected matter, as long as the action is taken in a particular manner (section 77A of the EPBC Act). The particular manner of taking the action may avoid or reduce certain impacts, in such a way that those impacts will not be 'significant'. More detail is provided on the Department's web site.

For the Minister to make such a decision (under section 77A), the proposed measures to avoid or reduce impacts must:
- clearly form part of the referred action (eg be identified in the referral and fall within the responsibility of the person proposing to take the action),
- be must be clear, unambiguous, and provide certainty in relation to reducing or avoiding impacts on the matters protected, and
- must be realistic and practical in terms of reporting, auditing and enforcement.

More general commitments (eg **preparation of management plans or monitoring) and measures aimed at providing environmental offsets, compensation or off-site benefits CANNOT be taken into account in making the initial decision about whether the proposal is likely to have a significant impact on a matter protected under the EPBC Act.** (But those commitments may be relevant at the later assessment and approval stages, including the appropriate level of assessment, if your proposal proceeds to these stages).

FAUNA

Northern Quoll *(Dasyurus hallucatus)*

Habitat Modification

- The primary strategy to be utilised to avoid significant impacts on the Northern Quoll population resulting from habitat clearing during the construction phase will be to firstly confirm whether the ridge top areas constitute critical denning habitat on site or whether denning occurs generally across the site. This will be determined by undertaking detailed fine-scale habitat utilisation studies using live-trapping and radio-tracking for a minimum of one entire breeding season prior to the construction phase of the proposed works.
- To minimise any direct mortality to Northern Quoll from clearing, live-trapping will be conducted ahead of clearing of habitat and all individuals captured will be retained in captivity until clearing of the particular section is completed, then released into the nearest area of remnant vegetation to their trapped locations. It is acknowledged that this method is not likely to be effective in avoiding mortality of dependent young remaining in dens within the clearing footprint. If studies confirm that substantial denning also occurs over the majority of the site, the potential impact of civil works on the species would be minimal.
- An ecological fire management plan will be developed for the site to ensure the most appropriate fire regime for the Northern Quoll is maintained, i.e. reduce the frequency, intensity and extent of late dry season fires.
- A rigorous invasive plant monitoring and control programme will be developed to ensure the site remains free of weed species that have the potential to result in the degradation of the native vegetation, either through displacement of native species or through changes in fire regime brought about by increases in fuel load.

- A feral predator monitoring and control programme will be implemented on the project site, targeting feral cats and foxes but not dingos as recent evidence suggests intact, unmolested dingo populations may actually benefit native animals by actively excluding other meso-predators (Johnson, 2007).
- A post-construction monitoring study will be undertaken annually for the first two years and then once every three years thereafter for the life of the project as recommended in SEWPCA (2011). The monitoring program will be designed to provide evidence of the effectiveness of the above management actions aimed to mitigate impacts of the project on the population of Northern Quolls occurring on the site i.e. no significant decline in population size or distribution.

Microchiropteran Bats *(Saccolaimus saccolaimus nudicluniatus, Rhinolophus philippinensis maros & Hipposideros semoni)*

Habitat Modification

- The potential direct impacts of clearing (i.e. mortality resulting from the clearing of daytime roost areas such as tree hollows and boulder piles) on the three threatened bat species will be significantly reduced through systematic inspection of all potential roosting habitats within the infrastructure footprint prior to clearing using video endoscope inspection and active full spectrum ultrasonic bat call detection. Any identified roost sites for the three threatened bat species will be located with GPS and clearly marked and infrastructure will be relocated to avoid any such sites.
- Artificial nest/roost boxes will be established in area adjacent to cleared areas in an attempt to offset any loss of potential threatened microchiropteran bat nesting or roosting habitat due to clearing. Periodic monitoring will be conducted to assess the effectiveness of this measure.
- An ecological fire management plan will be developed for the site to ensure the most appropriate fire regime for the maintenance of potential tree hollow roosting sites for this species, i.e. reduce the frequency, intensity and extent of late dry season fires.
- An invasive plant monitoring and control programme will be developed to ensure the site remains free of landscape-altering weed species that have the potential to result in the loss of potential hollow tree roost sites.

Rotor Strike/Barotrauma

- The primary strategy to avoid the potential significant impact of rotor strike on the three species of threatened bats that have the potential to occur on the site *(Saccolaimus saccolaimus nudicluniatus, Hipposideros semoni and Rhinolophus philippinensis maros)* will be to avoid areas of high utilisation for these species.
    - Areas of high utilisation of the three threatened species will need to be identified by systematic passive monitoring call detection surveys at representative proposed turbine locations.
    - These passive call monitoring surveys will be conducted in conjunction with observations using thermal vision goggles and active call monitoring to attempt to quantify bat activity within the rotor sweep area.
- The relationship between bat activity/abundance and wind speed will be investigated to determine the potential to increase the rotor cut-in speed, that is, the minimum wind speed the turbines are permitted to begin moving. Recent research in the US suggests microchiropteran bat mortality due to rotor strike and/or barotrauma can be significantly reduced with only small increases in the rotor cut-in speed and minor losses in total annual energy production (Arnett *et al.*, 2011).
- Given that presence, utilisation rates and impact avoidance studies of site microchiropteran bats are preliminary, an adaptive management approach will be taken. A systematic, spatially and temporarily replicated bat mortality monitoring programme incorporating the use of a trained sniffer dogs together with a handler will be conducted during operation phase of the project. Trials to determine carcass scavenging rates and the capacity of sniffer dogs to detect carcasses will be undertaken. Mortality searches will be conducted within at least a 60 m radius of each selected turbine as overseas research indicates the majority of bat carcasses are located within this area (see references in USFWS, 2011). The use of a sniffer dog is likely to allow more accurate estimates of bird and bat mortality than could be obtained with human visual assessments given the rugged, vegetated terrain and likely high abundance of potential scavengers such as corvids, butcherbirds, northern quolls and dingos and subsequent high removal rates. Regular mortality monitoring will provide valuable information for assessing the impacts of this and other wind farms sited within remnant vegetation which is lacking for most Australian wind farms and is non-existent for any wind farms in northern Australia in particular. This will provide a benefit in understanding impacts from wind turbines and assist in improving operational protocols. Operation of turbines that are found to be causing excessive bat deaths could be temporarily halted or feathered until follow up surveys using bat detectors and thermal cameras indicate the activity of the impacted species within the rotor sweep area has declined to acceptable levels of risk.
- The feasibility of deploying a radar detection and deterrent technology system (such as Merlin Avian Radar System, DTBird System or Accipiter Radar) to mitigate potential rotor strike/barotrauma impacts on Spectacled Flying-foxes and other bats and birds during the operation phase of the project will be investigated. These systems apply rule sets programmed to respond to a variety of risk conditions in real-time activating mitigation measures that include operator alerts, turbine idling and activation of deterrent devices (bioacoustic and laser based). Radar activated on-demand sonic deterrents such as long-range acoustic devices (LRAD) have shown some success in deterring birds from various installations. The use of such devices will be investigated.
- One potentially highly effective strategy to reduce the impact of barotrauma on microchiropteran bats that has been identified to date is to raise the wind-turbine cut-in speed, defined as the lowest wind speed at which turbines generate power to the utility system. Recent research from a single wind farm in the US, suggests reducing turbine operation during periods of low wind speed resulted in nightly reductions in bat mortality, from between 44% to 93%, with minor annual losses of ≤1% of total output (Arnett *et al.*, 2011). Bat activity at a proposed wind farm site in Leonard's Hill in

Victoria showed a 50% reduction when wind increased from 3-3.9 $m.s^{-1}$ to 5-5.9 $m.s^{-1}$ (Richards, 2011) which indicates a reduction in cut-in-speed could also be an effective mitigation strategy for Australian bat species. Further long-term surveys using ultrasonic call detection at the two existing test wind towers within the potential rotor strike/barotrauma zone will be undertaken to examine the relationship between wind speed and bat activity and the effectiveness of increasing turbine cut-in speeds to reduce bat mortality.

- Recent research indicates common colours (white or grey) used to paint turbines attract insects and contribute to the deaths of bats (and birds) that forage on them, possibly due to the paints UV signature which may resemble that of leaves and flowers (Long et al, 2010b). Consideration will be given to the use of alternative colours should additional research indicate this may reduce the mortality risk to insectivorous bats.

Spectacled Flying-fox *(Pteropus conspicillatus)*

Rotor Strike

- Targeted spatially and temporally replicated utilisation surveys for Spectacled Flying-foxes will be conducted to attempt to provide a quantitative assessment of the potential risk of rotor strike. The utilisation study will need to be of sufficient duration and intensity to ensure adequate data is collected to accurately characterise Spectacled Flying-Foxes use of the area. Consultation with Spectacled Flying-fox researchers and statistical power analyses of data derived from pilot surveys will be used to determine the appropriate sample intensity.
- In addition to vehicle-based spotlighting for foraging individuals, passive listening for squabbling foraging individuals and visual point counts for flying individuals using naked eye and a night-vision scope will conducted for within a period of 2 days either side of full moon. In addition to the point counts, vehicle-based spotlighting surveys for individuals foraging on myrtaceous trees will be conducted along all of the existing access tracks. Data recorded during the surveys will include the abundance in addition to flight heights and duration of time spent within rotor sweep area. The result of the habitat utilisation surveys will be used to avoid locating turbines in areas identified as posing a high risk to the species or to determine particular times of day during particular seasons when turbine operation may be restricted.
- An adaptive management approach will be adopted with the aim to reduce impacts of rotor strike on Spectacled Flying-foxes. Spatially and temporarily replicated mortality monitoring utilising ground searches by trained sniffer dogs will be used to identify particular turbines that may be causing excessive number of deaths. Surveys will be conducted on a daily basis across the entire site at selected times (including high risk times e.g. peak tree flowering periods). A minimum area of 100m around each turbine will be searched as overseas studies have shown this is the distance at which the majority of carcasses are located. Should mortality be shown to exceed an acceptable mortality rate, night-time operation of high risk turbines will be halted or blades feathered until such time as targeted surveys (utilising spotlighting and thermal vision goggles/video cameras) indicates the risk of rotor strike mortality for Spectacled Flying-foxes has abated.
- The feasibility of deploying a radar detection and deterrent technology system (such as Merlin Avian Radar System, DTBird System or Accipiter Radar) to mitigate potential rotor strike/barotrauma impacts on Spectacled Flying-foxes and other bats and birds during the operation phase of the project will be investigated. These systems apply rule sets programmed to respond to a variety of risk conditions in real-time activating mitigation measures that include operator alerts, turbine idling and activation of deterrent devices (bioacoustic and laser based). Radar activated on-demand sonic deterrents such as long-range acoustic devices (LRAD) have shown some success in deterring birds from various installations. The use of such devices will be investigated.

Sarus Crane

Rotor Strike

- Spatially and temporally replicated bird utilisation surveys will be conducted during 2012 to determine the potential risk to this species and the most appropriate design layout of the wind turbines to avoid areas which are likely to pose a high risk. The utilisation study will be of sufficient duration and intensity to ensure adequate data is collected to accurately characterise the use of the area by Sarus Cranes and other threatened bird species.
- A reactive management approach will be taken to minimise significant impacts on Sarus Cranes and other EPBC listed bird species. A systematic bird mortality monitoring programme will be implemented to identify any turbines that may be causing excessive numbers of deaths. Should mortality be shown to exceed an acceptable mortality rate, the operation of particular turbines could be temporarily halted until such times as further targeted surveys indicate that the risk of rotor strike has decreased to within pre-determined acceptable limits. The key risk period for Sarus Cranes is during winter.
- The feasibility of deploying a radar detection and deterrent technology system (such as Merlin Avian Radar System, DTBird System or Accipiter Radar) to mitigate potential rotor strike/barotrauma impacts on Spectacled Flying-foxes and other bats and birds during the operation phase of the project will be investigated. These systems apply rule sets programmed to respond to a variety of risk conditions in real-time activating mitigation measures that include operator alerts, turbine idling and activation of deterrent devices (bioacoustic and laser based). Radar activated on-demand sonic deterrents such as long-range acoustic devices (LRAD) have shown some success in deterring birds from various installations. The use of such devices will be investigated.

FLORA

Homoranthus porteri, Grevillea glossadenia & Acacia purpureopetala

Mitigation of Direct and Indirect Impacts of Habitat Clearing

- All vegetation clearing will be restricted to the actual development footprint. Careful 'micro-siting' of roads, cabling and turbine construction pads will be undertaken to minimise potential impacts. All areas to be cleared will be visibly marked taking into account poorly represented plant communities, important habitats and conservation significant flora.
- Access roads and cabling will be aligned along existing tracks wherever possible to minimise vegetation removal and loss of hollow-bearing trees, the number of easements, and the spread of weeds.
- Power line (cabling) between turbines will be constructed underground and along existing road and track infrastructure to minimise the area of remnant vegetation clearing and potential for disrupting vegetation connectivity. After initial clearing and construction, the cabling and road network will be allowed to regenerate under natural conditions to 5 m cleared width. Similarly, natural regeneration of plants will be promoted around wind turbines at each construction footprint as soon as possible after clearing and disturbance.
- Additional to the generic measures outlined above, the summarised procedures outlined here apply to all plant species of conservation interest listed under the EPBC Act as well as those under Queensland's Nature Conservation Act 1992. These procedures are not comprehensive and will require refinement according to project outcomes and site conditions. Detailed guidelines and procedures for mitigation will be presented in Site Based Management Plans and detailed environmental management plans (EMPs).
- Perform ground searches and identify individuals that may occur along proposed tracks and turbine footprints. This would require more precise and detailed mapping in order to be more targeted with searches and improve working efficiency.
- All individuals of conservation significant plants likely to be impacted are to be clearly marked. Seed from such species will be collected if available. Cuttings will be taken from threatened plants that will be destroyed by clearing activities. The population sizes of respective species will be estimated at each location where they are found, and assessments made of the probable impact to the viability and capacity of the population to persist following removal or disturbance. Where this is identified as being unacceptable (i.e. the reproductive capacity of the population is significantly compromised) then alternative routes and turbine locations will be planned. In all instances, avoidance of disturbance and modification to habitat will be the preferred practice.
- Compile historical and taxonomic information regarding a species' ecology and responses to disturbance (e.g. known history of healthy plants of Acacia purpureopetala emerging on the roadside near Irvinebank after verge grading by machinery; and positive germination responses by *Grevillea glossadenia* after clearing).
- The potential for nursery propagation of the threatened plant species will be identified. Yuruga Native Plant Nursery at Walkamin is nominally proposed, given their proven success with the propagation of other threatened species. Discuss with the nursery whether asexual propagation of A. purpureopetala (and Homoranthus porteri) is possible, and whether the nursery has a history of undertaking propagation of these species. If so, gather evidence of propagation and indicative information about the species hardiness and resilience to being transplanted into the natural environment with no post-human intervention or assistance.
- Identify and confirm opportunities for translocation of wild plants and nursery grown tube stock to zones around respective host turbine sites (i.e. if plants removed from natural habitat at proposed turbine construction pad, then identify opportunities to replant species around turbine after construction). Identify similar opportunities over project area for recipient/target translocation sites. Any efforts at translocating conservation significant plants will be in accordance with the guidelines outlined in Vallee *et al.* (2004).
- Consider opportunities for designing, establishing and interpreting arboretum-type landscaping, and integrated this form of sub-project into the overall project concept. Acknowledgement will be given to some of the unique floristic and vegetation qualities of the project site. For example, landscaping and plantings will be themed on the basis of existing flora composition and vegetation structure, and not adopt generic methods of landscape rehabilitation or 'aesthetic' plantings. All rehabilitation efforts will be rigorously investigated and strategically planned. This is critical in order to address some of the challenges that are likely to be encountered with rehabilitating an essentially harsh, sub-xeric environment.
- Monitoring of the rehabilitation works will be undertaken, and the results maintained on a regular basis until such time that a functional plant community has developed through natural, successional processes.
- Weed control (immediate and ongoing) will need to be implemented. The possibility of serious ecological modification is real if species such as Themeda quadrivalvis (grader grass), Senna obtusifolia and other Senna species (sickle pods), as well as other weeds are allowed to establish in currently weed-free areas. Weeds will compound the impacts to habitats for conservation significant plants, and will be managed according to a project-specific Weed Management Plan. Similar project-specific management plans will be developed for rehabilitation and conservation significant plants.

5 Conclusion on the likelihood of significant impacts

Identify whether or not you believe the action is a controlled action (ie. whether you think that significant impacts on the matters protected under Part 3 of the EPBC Act are likely) and the reasons why.

5.1 Do you THINK your proposed action is a controlled action?

	No, complete section 5.2
x	Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Specify the key reasons why you think the proposed action is NOT LIKELY to have significant impacts on a matter protected under the EPBC Act.

5.3 Proposed action IS a controlled action

Type 'x' in the box for the matter(s) protected under the EPBC Act that you think are likely to be significantly impacted. (The 'sections' identified below are the relevant sections of the EPBC Act.)

	Matters likely to be impacted
	World Heritage values (sections 12 and 15A)
	National Heritage places (sections 15B and 15C)
	Wetlands of international importance (sections 16 and 17B)
x	Listed threatened species and communities (sections 18 and 18A)
x	Listed migratory species (sections 20 and 20A)
	Protection of the environment from nuclear actions (sections 21 and 22A)
	Commonwealth marine environment (sections 23 and 24A)
	Great Barrier Reef Marine Park (sections 24B and 24C)
	Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
	Protection of the environment from Commonwealth actions (section 28)
	Commonwealth Heritage places overseas (sections 27B and 27C)

Specify the key reasons why you think the proposed action is likely to have a significant adverse impact on the matters identified above.

If the proposed management option of trapping and removal of animals from within the civil construction footprint along with fire, weed and feral predator monitoring and control are undertaken, it is not considered likely that the proposed action will have a significant impact on the Northern Quoll, even though it will remove 38 ha of habitat that is 'known to be foraging and dispersal habitat in a toad invaded area (SEWPAC, 2011a)'. It is acknowledged that some mortality could potentially occur during the initial civil works phase as it is not conceivable to assume all animals would be trapped and removed during this time. This risk would increase if pre civil construction surveys confirm the rocky hill crest areas are critical denning habitat.

If any of the three threatened microchiropteran bat species (*Saccolaimus saccolaimus nudicluniatus, Rhinolophus philippinensis* and *Hipposideros semoni)* are confirmed to occur within the site, the proposed action may have potential to significantly impact them as a result of direct mortality due to rotor strike and/or barotrauma or indirect mortality due to non-lethal injuries such as hearing loss. At this preliminary stage in the assessment, it is not possible to quantitatively assess the risk of rotor strike on these species, additional surveys are required to enable risk modelling.

If the Spectacled Flying Fox flies over or forages on site in large numbers, the project has some potential to significantly impact on the two known nearby populations (camps) of Spectacled Flying-foxes. However, at this preliminary stage in the assessment it is not possible to quantitatively assess the risk of rotor strike on this species; this will require additional detailed spatially and temporally replicated utilisation studies. In addition, the species will have some ability to avoid the turbines though the extent of this behaviour is currently unknown.

Similarly, if Sarus Cranes fly over the site in substantial numbers, the proposed action may have potential to cause significant impact, given the Atherton Tablelands is known to support a large proportion of the total Australian population of the species during the winter months. An early bird utilisation survey identified infrequent small flocks of Sarus Cranes overflying the site including some at turbine sweep zone height, potentially placing them at risk. The frequency and pattern of such flights will require further investigation along with an assessment of the species ability to avoid the turbines, the extent of which is currently unknown.

6 Environmental record of the responsible party

NOTE: If a decision is made that a proposal needs approval under the EPBC Act, the Environment Minister will also decide the assessment approach. The EPBC Regulations provide for the environmental history of the party proposing to take the action to be taken into account when deciding the assessment approach.

		Yes	No
6.1	**Does the party taking the action have a satisfactory record of responsible environmental management?** **Provide details**	X	
6.2	**Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?** **If yes, provide details**		X
6.3	**If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?** **If yes, provide details of environmental policy and planning framework**	X	
6.4	**Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?** **Provide name of proposal and EPBC reference number (if known)**	X	

7 Information sources and attachments

(For the information provided above)

7.1 References

- List the references used in preparing the referral.
- Highlight documents that are available to the public, including web references if relevant.

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Kozuka, M., Nakashima, T. Fukyta, S. and Yanagita, N. (1997). Inner ear disorders due to pressure change. *Clin. Otolaryngol*. 22, 106-11.

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7.2 Reliability and date of information

For information in section 3 specify:

- source of the information;
- how recent the information is;
- how the reliability of the information was tested; and
- any uncertainties in the information.

Various sources of information have been used in preparation of this application including consultant reports, and Government databases and mapping. The information provided is understood to be current when reports were issued and searches undertaken. All sources are reliable and there are no uncertainties within the information used.

7.3 Attachments

Indicate the documents you have attached. All attachments must be less than two megabytes (2mb) so they can be published on the Department's website. Attachments larger than two megabytes (2mb) may delay the processing of your referral.

		✓ attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	✓	Figure 1. Site Location (inside Attachment 1)
	figures, maps or aerial photographs showing the location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)	✓	Figure 3. Targeted Northern Quoll Camera Trap Survey Sites (inside Attachment 1) Attachment 2 – Map of regional distribution of Northern Quolls Attachment 3 – Map of regional distribution of *Saccolaimus saccolaimus*

			nudicluniatus Attachment 4 – Map of regional distribution of *Hipposideros semoni* Attachment 5 – Potential distribution of *Rhinolophus philippinensis maros* on public land in vicinity if project site Attachment 6 –– Map of regional distribution of *Rhinolophus philippinensis maros* Attachment 7 – Collected Queensland Herbarium specimens of *Acacia purpureopetala* Attachment 8 – Collected Queensland Herbarium specimens of *Grevillea glossadenia* Attachment 9 – Collected Queensland Herbarium specimens of *Homoranthus porteri*
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)		
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)		
	copies of any flora and fauna investigations and surveys (section 3)	✓	Attachment 1. Fauna, Vegetation & Flora Assessment - Proposed Mt Emerald Wind Farm Attachment 1/Appendix A1. Location of fauna survey sites and survey methodology used. Attachment 1/Appendix B1. List of fauna species recorded or predicted to occur on the site. Attachment 1/Appendix C1. QLD Wildlife Online Search Results. Attachment 1/Appendix D1. EPBC Protected Matters Search Tool Results. Attachment 1/Appendix E1. Microchiropteran Bat Analysis

		Reports. Attachment 1/Appendix A2. Vegetation Survey Sites. Attachment 1/Appendix B2. Current RE Mapping. Attachment 1/Appendix C2. Regional Ecosystem Descriptions. Attachment 1/Appendix D2. Amended RE Mapping. Attachment 1/Appendix E2. Wildlife Online Search – Flora. Attachment 1/Appendix F2. HERBRECS Records. Attachment 1/Appendix G2. Compliance to RVM Codes Coastal & Western Bioregions. Attachment 1/Appendix H2. Watercourses. Attachment 1/Appendix I2. Provisional Checklist of Flora. Attachment 1/Appendix J2. Vegetation Structural Descriptions - Survey Sites.
technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)		Attachment 1. Fauna, Vegetation & Flora Assessment - Proposed Mt Emerald Wind Farm Attachment 1/Appendix A1. Location of fauna survey sites and survey methodology used. Attachment 1/Appendix B1. List of fauna species recorded or predicted to occur on the site. Attachment 1/Appendix C1. QLD Wildlife Online Search Results. Attachment 1/Appendix D1. EPBC Protected Matters Search Tool Results. Attachment 1/Appendix E1. Microchiropteran Bat Analysis Reports. Attachment 1/Appendix A2. Vegetation Survey Sites. Attachment 1/Appendix B2.

		Current RE Mapping. Attachment 1/Appendix C2. Regional Ecosystem Descriptions. Attachment 1/Appendix D2. Amended RE Mapping. Attachment 1/Appendix E2. Wildlife Online Search – Flora. Attachment 1/Appendix F2. HERBRECS Records. Attachment 1/Appendix G2. Compliance to RVM Codes Coastal & Western Bioregions. Attachment 1/Appendix H2. Watercourses. Attachment 1/Appendix I2. Provisional Checklist of Flora. Attachment 1/Appendix J2. Vegetation Structural Descriptions - Survey Sites.
report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)		

8 Contacts, signatures and declarations

NOTE: Providing false or misleading information is an offence punishable on conviction by imprisonment and fine (s 489, EPBC Act).

Under the EPBC Act a referral can only be made by:

- the person proposing to take the action (which can include a person acting on their behalf); or
- a Commonwealth, state or territory government, or agency that is aware of a proposal by a person to take an action, and that has administrative responsibilities relating to the action[1].

Project title:

8.1 Person proposing to take action

This is the individual, government agency or company that will be principally responsible for, or who will carry out, the proposed action.

If the proposed action will be taken under a contract or other arrangement, this is:

- the person for whose benefit the action will be taken; or
- the person who procured the contract or other arrangement and who will have principal control and responsibility for the taking of the proposed action.

If the proposed action requires a permit under the Great Barrier Reef Marine Park Act[2], this is the person requiring the grant of a GBRMP permission.

The Minister may also request relevant additional information from this person.

If further assessment and approval for the action is required, any approval which may be granted will be issued to the person proposing to take the action. This person will be responsible for complying with any conditions attached to the approval.

If the Minister decides that further assessment and approval is required, the Minister must designate a person as a proponent of the action. The proponent is responsible for meeting the requirements of the EPBC Act during the assessment process. The proponent will generally be the person proposing to take the action[3].

Name	Terry Johannesen
Title	Project Manager
Organisation	RATCH-Australia Corporation Limited (RATCH)
ACN / ABN (if applicable)	31 106 617 332
Postal address	Level 13, 111 Pacific Highway, North Sydney NSW 2000
Telephone	(07) 3248 8765
Email	Terry.Johannesen@ratchaustralia.com
Declaration	I declare that the information contained in this form is, to my knowledge, true and not misleading. I agree to be the proponent for this action.
Signature	Date

[1] *If the proposed action is to be taken by a Commonwealth, state or territory government or agency, section 8.1 of this form should be completed. However, if the government or agency is aware of, and has administrative responsibilities relating to, a proposed action that is to be taken by another person which has not otherwise been referred, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

[2] *If your referred action, or a component of it, is to be taken in the Great Barrier Reef Marine Park the Minister is required to provide a copy of your referral to the Great Barrier Reef Marine Park Authority (GBRMPA) (see section 73A,* EPBC Act*). For information about how the GBRMPA may use your information, see http://www.gbrmpa.gov.au/privacy/privacy_notice_for_permits.*

[3] *If a person other than the person proposing to take action is to be nominated as the proponent, please contact the Referrals Business Entry Point (1800 803 772) to obtain an alternative contacts, signatures and declarations page.*

8.2 Person preparing the referral information (if different from 8.1)

Individual or **organisation** who has prepared the information contained in this referral form.

Name	David Finney
Title	Technical Director Environment- North Queensland
Organisation	RPS Group Cairns
ACN / ABN (if applicable)	44140292762
Postal address	135 Abbott St., Cairns
Telephone	0740311336
Email	David.finney@rpsgroup.com.au
Declaration	I declare that the information contained in this form is, to my knowledge, true and not misleading.
Signature	Date

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

- ❑ Completed all required sections of the referral form?
- ❑ Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- ❑ Provided a map showing the location and approximate boundaries of the project area?
- ❑ Provided a map/plan showing the location of the action in relation to any matters of NES?
- ❑ Provided complete contact details and signed the form?
- ❑ Provided copies of any documents referenced in the referral form?
- ❑ Ensured that all attachments are less than two megabytes (2mb)?
- ❑ Sent the referral to the Department (electronic and hard copy preferred)?