



# Mount Emerald Wind Farm

## Environmental Management Plan



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## 1.0 Introduction

This Environmental Management Plan (EMP) has been prepared for RATCH Australia Corporation Ltd (RACL) for construction and operational activities to be carried out on the Mount Emerald Wind Farm (MEWF), in response to the Decision Notice Conditions as issued by the Queensland Minister for Infrastructure, Local Government and Planning, dated 18 December 2015 (**Appendix A**).

This document presents a framework from which the Engineering, Procurement and Construction (EPC) Contractor will prepare a Construction Environmental Management Plan. The CEMP will contain a higher level of detail in relation to management systems and operational details.

This EMP and the CEMP will be subject to approval by RACL, Department of Innovation, Local Government and Planning (DILGP) and the Department of Energy and Environment (DEE).

MEWF is required to comply with 15 key conditions listed within the Minister for Infrastructure, Local Government and Planning's Condition of Approval issued on 18 December 2015.

This EMP aims to identify sources of actual and potential environmental harm identified through the EIS approval process (including the MEWF Statement of Commitments) and what actions, processes and/or strategies will be adopted to avoid, prevent or minimise the likelihood of environmental harm being caused. The EMP aims to provide for the review and 'continual improvement' in the overall environmental performance of the MEWF operations.

The EMP addresses the following matters:

- (a) Identification of environmental issues and potential impacts
- (b) Environmental commitments - a commitment by senior management to achieve specified and relevant environmental goals.
- (c) Control measures for routine operations to minimise likelihood of environmental harm.
- (d) Contingency plans and emergency procedures for non-routine situations.
- (e) Organisational structure and responsibility.
- (f) Effective communication.
- (g) Monitoring of mitigation measures and residual impacts.
- (h) Conducting ongoing environmental impact assessments.
- (i) Staff training.
- (j) Record keeping.
- (k) Periodic review of environmental performance and continual improvement.

### 1.1 Project Description

The MEWF is approved to build a wind farm up to 63 wind turbines and associated infrastructure, on an elevated site approximately 20 km SSW of Mareeba on the Atherton Tablelands in north Queensland (Figure 1). The approximate size of the wind turbines proposed will be; towers 80-90m high, with 50-60m blades, for a capacity of 3-3.5 MW.

The site where the wind turbines, interconnecting tracks and associated infrastructure are to be established is on land formally described as Lot 7 on SP235224, which encompasses an area of 2,422ha. This land



forms the terminus of the Herberton Range and is contiguous with Mount Emerald (proper) at its southern boundary. Virtually all the wind farm project area is covered by remnant and relatively undisturbed vegetation, where the only land modification is associated with the existing 275 kV transmission line infrastructure and its series of access tracks. Kippen Drive at the base of the site is severely degraded in most zones adjacent to the unsealed road, and weeds are conspicuous.

The wind farm site has been selected on the basis that it represents an excellent wind resource because of its elevated position and series of high ridges. The elevation range of the site is between 540m up to 1089m above sea level (ASL). The highest ridges south of the existing 275 kV transmission line hold the most significant value in terms of flora and represent an important tract of land with functional connectivity to other regional nodes of high biodiversity importance. Although land to the north of the transmission line (includes the landmark of Walsh Bluff) possesses lower floristic diversity, it is recognised for its habitat value for the endangered Northern Quoll (which is also expected to occur south of the transmission line).

The wind farm project estimates to deliver up to 650,000 megawatt hours of renewable energy, which is predicted to meet the annual needs of approximately 75,000 north Queensland homes over a 20 year period.

The wind farm will be connected to the existing Chalumbin –Woree 275 kV transmission line via a substation, which is to be located within the site. The 275 kV transmission line infrastructure that traverses the site was established in 1998 and represents a pre-existing disturbance footprint which the proposed wind farm will take advantage of in order to minimise the area of new impacts to the environment.

From a constructability perspective, the northern sector of the site has more undulating landforms and fewer dissected ridges with precipitous drop offs. There also appears to be a higher proportion of former landscape disturbance in the northern sector and across the east-facing slopes on the Walkamin side.

## 1.2 Construction Details

Access to the site will be via Kennedy Highway, onto Hansen Drive and then into the site at a realigned Springmount Road - Kippen Drive intersection. Kippen Drive is currently unsealed. A series of access and interconnecting tracks will need to be constructed within the wind farm site, and will take advantage of existing transmission line infrastructure tracks wherever possible. A number of new tracks will need to be constructed to an initial cleared width of approximately 10m. The interconnecting tracks will form the routes for the inter-turbine underground cabling - expected to be buried in trenches at approximately 1m deep.

Each turbine construction pad is expected to occupy an area in the order of 40m (long) x 60m (wide). The substation and associated compound will be in the order of 200m x 200m or similar configuration and will be located close to the existing 275 kV transmission line which crosses the site.

Wind turbines will be "micro-sited" - a technique which involves selecting a position in the landscape where the least environmental, constructability and other impacts area considered and weighed up. As part of this procedure, comprehensive ground surveys will be undertaken of each site to ensure impacts to conservation significant species and other matters of importance are minimised or avoided.

A wind farm operations building will be constructed adjacent to the substation, which will house monitoring and communications equipment. Other associated internal infrastructure will include car parking areas, construction compound and machinery area. Depending on the outcomes of relevant approvals, a batching plant may be temporarily constructed within the site.

The Mount Emerald Wind Farm project has been broadly categorised into four phases: pre-construction, construction, operation and maintenance and decommissioning. Rehabilitation and impact mitigation will be actively practiced throughout these stages and will be informed by respective plans and strategic documents.

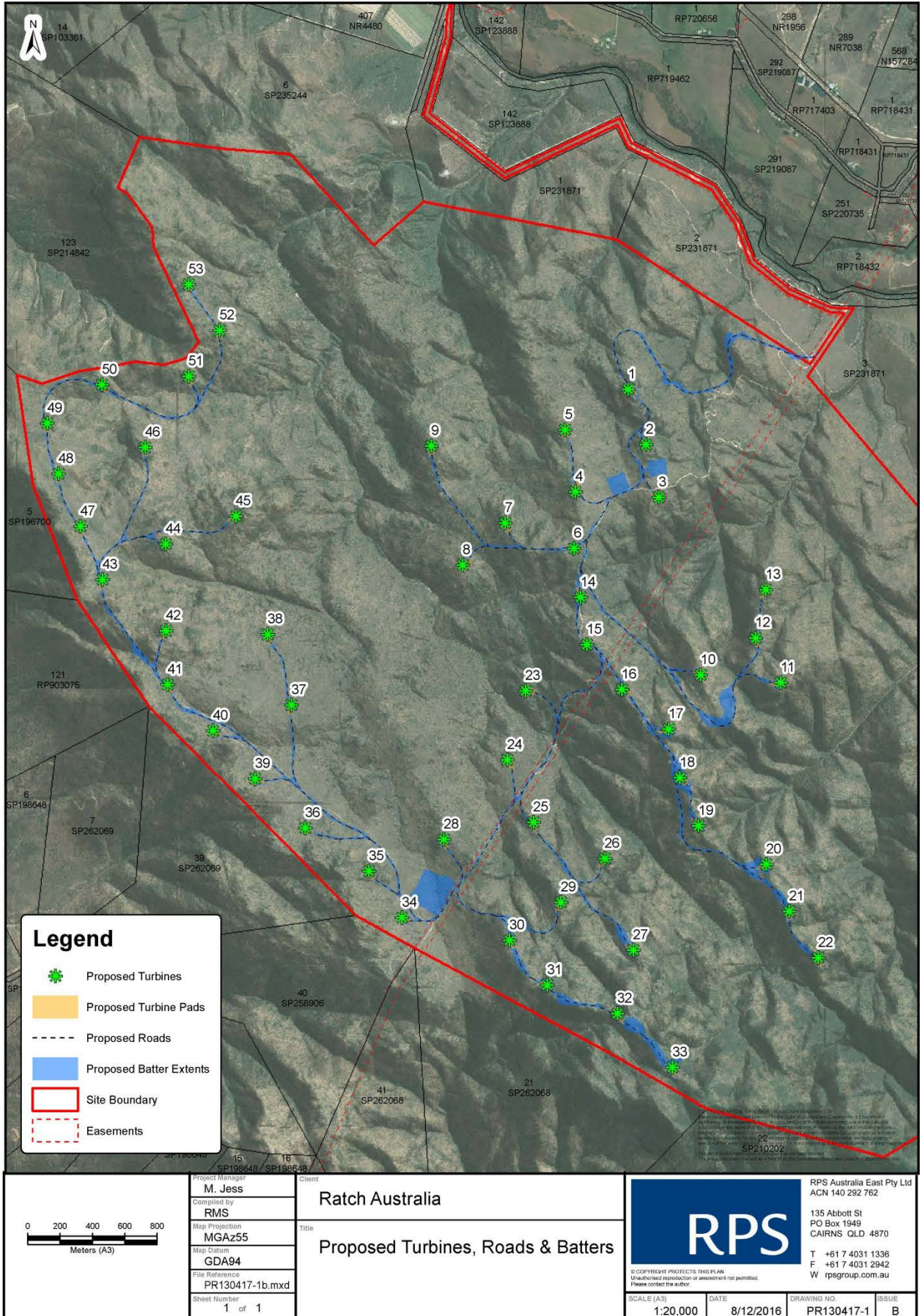


Figure 1 Project Site Location



## 2.0 Regulatory Requirements

### 2.1 Project Approvals

#### 2.1.1 Sustainable Planning Act 2009

Conditions relevant to the preparation and implementation of the EMP are detailed in Condition 13 of the Ministerial Decision Notice (**Appendix A**).

##### 2.1.1.1 Ministerial Decision Notice

The Development Notice (dated 18 December 2015) in accordance with the SPA included a number of conditions relating to the preparation of an EMP. *Condition 13 - Environmental Management* which relates to this EMP, states the following:

**Table 1 Conditions imposed by Ministerial Delegation on the MEWF Project**

Condition		Timing
13	<p>(a) Submit to the chief executive administering SPA an Environmental Management Plan (EMP) prepared by a suitably qualified person(s). The EMP must:</p> <ul style="list-style-type: none"> <li>i. be generally in accordance with the Preliminary Environmental Management Plan prepared by RPS and dated November 2013 and the draft <i>Statement of Commitments</i> contained within Appendix A of the RPS Development Application Material Change of Use Report dated March 2012;</li> <li>ii. be based on the revised Turbine Location and Development Footprint Plan submitted in accordance with Condition 2 of this approval;</li> <li>iii. include the following components as further detailed in Attachment 1: <ul style="list-style-type: none"> <li>▪ a construction and work site operational management plan</li> <li>▪ a sediment, erosion and storm water management plan</li> <li>▪ a hydrocarbon and hazardous substances plan</li> <li>▪ a bushfire risk management plan and emergency evacuation plan</li> <li>▪ a significant species management plan</li> <li>▪ a weed and pest management plan</li> <li>▪ a rehabilitation plan</li> <li>▪ an ecological fire management plan</li> <li>▪ a cultural heritage management plan</li> <li>▪ an environmental management plan training program</li> <li>▪ an environmental management plan reporting program</li> <li>▪ an implementation plan</li> </ul> </li> </ul> <p>(b) The development must be carried out in accordance with the EMP.</p>	<p>(a) Prior to seeking approval for any site, operational building work</p> <p>(b) During site / operational / building work and to be maintained</p>

## 2.2 Legislation Relevant to the Project

The legislation and standards listed in **Table 2** below have been used to guide preparation of this EMP and will form the basis for ongoing decision-making and complaint resolution in respect of the EMP.

**Table 2 Environmental legislation, policies and standards relevant to the Project**

Element	Legislative and Other Requirements
Construction—General	<i>Environmental Protection Act 1994 (Qld)</i> <i>Environmental Protection Regulation 2008 (Qld)</i> <i>Workplace Health and Safety Act 1995 (Qld)</i> <i>Workplace Health and Safety Regulation 1997 (Qld)</i>
Noise and Vibration	<i>Environmental Protection (Noise) Policy 2008 (Qld)</i> <i>Workplace Health and Safety Act 1995 (Qld)</i> AS 1055.1 & .2: Acoustics—Description and measurement of environmental noise AS 2436: Guide to noise control on construction, maintenance and demolition sites
Air Quality	<i>Environmental Protection (Air) Policy 2008 (Qld)</i> National Health and Medical Research Council Guidelines 1985(Cwth) Draft National Environmental Protection Measures and Impact Statement for Ambient Air Quality 1997(Cwth)
Water Quality	<i>Environmental Protection (Water) Policy 1997 (Qld)</i> Australian Water Quality Guidelines for Fresh and Marine Waters, ANZECC 2002 <i>Water Act 2000 (Qld)</i>
Erosion and Sedimentation Control	Soil Erosion and Sediment Control, Engineering Guidelines for Queensland Construction Sites—IEAust (Qld) 1996
Contaminated Land	<i>Environmental Protection Act 1994 (Qld)</i>
Storage and Handling of Dangerous Goods	<i>Environmental Protection Act 1994 (Qld)</i> <i>Environmental Protection Regulation 2008 (Qld)</i> <i>Workplace Health and Safety Act 1995 (Qld)</i> AS1940 – The Storage and Handling of Flammable and Combustible Liquids
Transport of Dangerous Goods	Australian Code for Transport of Dangerous Goods by Road and Rail
Waste Management	<i>Environmental Protection (Waste Management) Policy 2000 (Qld)</i> <i>Environmental Protection (Waste Management) Regulation 2000 (Qld)</i>
Flora and Fauna	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwth)</i> <i>Nature Conservation Act 1992 (Qld)</i> <i>Nature Conservation Regulation 1994 (Qld)</i> <i>Vegetation Management Act 1999 (Qld)</i> <i>Environmental Protection Act ( Qld)</i> <i>Biosecurity Act 2014</i>
Cultural Heritage	<i>Native Title Act 1993 (Cwlth)</i> <i>Native Title (Queensland) Act 1993</i> <i>Queensland Heritage Act 1992</i> <i>Queensland Heritage Regulation 2003</i> <i>Aboriginal Cultural Heritage Act 2003 (Qld)</i>
Land Use	<i>Integrated Planning Act 1997(Qld)</i> <i>Biosecurity Act 2014</i>

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## 2.3 Related Documentation

The operation will be carried out generally in accordance with the following documents:

- MEWF – Environmental Impact Assessment – RPS Australia 2013 (Volumes 1-3) incl. Draft Statement of Commitments;
- This EMP (incl. sub-plans), CEMP;

If there is any inconsistency between the Conditions of Approval and a document listed above, the Conditions of Approval shall prevail to the extent of the inconsistency. If there is any inconsistency between documents listed above (other than the Conditions of Approval) then the most recent document shall prevail to the extent of the inconsistency.

### 3.0 Management Systems

This section provides an outline of the elements that have been adopted in this Environmental Management Plan.

#### 3.1 Environmental Policy

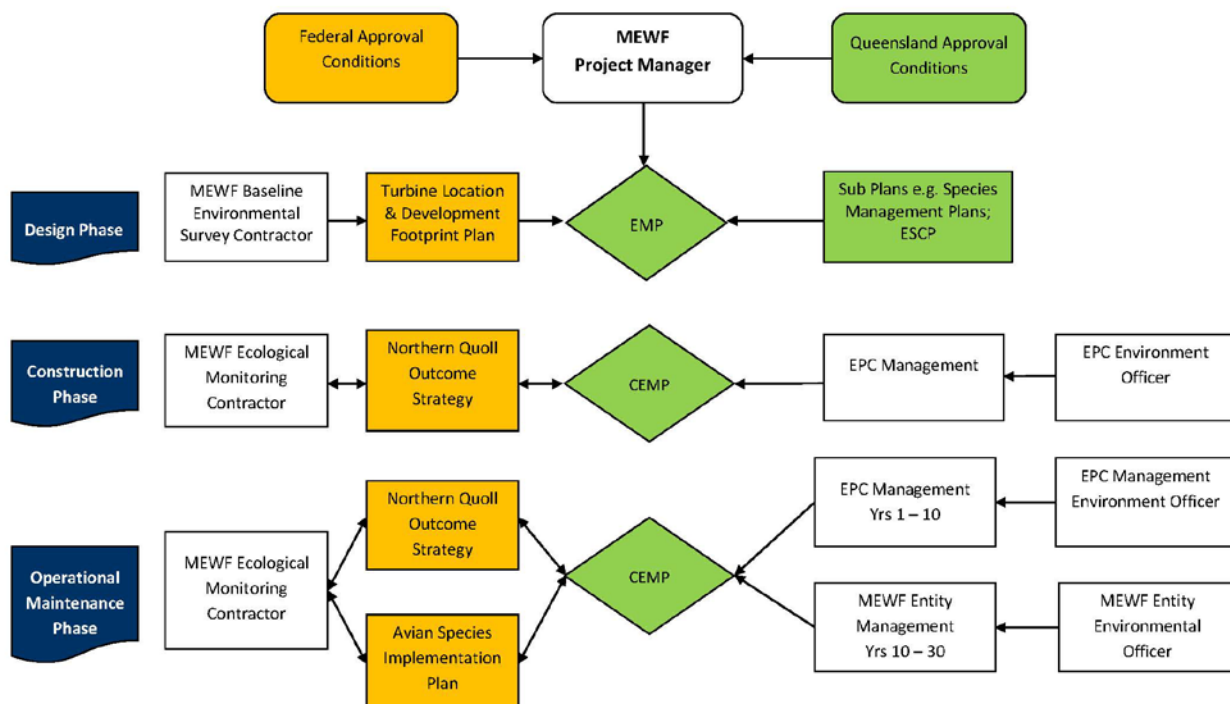
As a developer of renewable energy in Australia, implementing sustainable measures and ensuring the protection of the environment are fundamental to RACL’s long term objectives and philosophy. Investments in renewable energy are both environmentally and commercially sustainable and RACL currently owns three wind farms that are significantly reducing Australia’s greenhouse emissions. In addition, RACL continues to improve the environmental ratings of its other power generation assets by continuously revising for economically possible ways of reducing its carbon emissions.

As RACL continues to grow, it strives to promote preservation and restoration of the environment, by managing and minimising the environmental impact of its operations and activities and fully respecting environmental laws and regulations.

RACL encourages employees to take care and demonstrate responsibility towards the environment and to report any incident that may have a hazardous effect. RACL continuously strives to ensure its employees are aware of how they can reduce the consumption of energy and resources and implement strategies focused on waste minimisation and recycling where possible. Ensuring the protection of the environment and implementing sustainable solutions are paramount to the success of RACL, its people and the communities in which it serves.

#### 3.2 Implementation Responsibilities

A draft Site Organisation Chart outlining responsibilities for environmental design and management is presented in **Figure 2** below.



**Figure 2 Draft Site Organisation Flowchart**



### **3.2.1 MEWF Australia Project Manager**

MEWF Project Manager will amongst other matters, oversee compliance with the EMP/CEMP covering the construction and operation phases of the project. The Project Manager will also be responsible for integration of outcomes of the EIS/Approvals processes into final designs, operational plans and contractual documentation, including facilitating any preconstruction environmental programs, regular review of operational performance reports, and facilitation of external environmental compliance audits.

In addition the Project Manager will continually review environmental performance of the Construction Contractor against all Approval/EMP/CEMP commitments, conditions and audit outcomes and drive any necessary operational changes as required to maintain regulatory compliance.

The Project Manager will also be responsible for commissioning any external environmental expertise, particularly in relation to ecological research and monitoring programs and incorporation of outputs into a range of environmental programs identified in the EMP/CEMP, in consultation with regulatory agencies as required.

### **3.2.2 Construction Manager**

The Construction Manager will direct work in a manner that complies with all relevant environmental procedures, adheres to all legislative requirements and ensures the requirements of this EMP and CEMP are implemented. The Construction Manager will have 'stop task' and 'stop work' authority and will report to the Project Manager. They will also be responsible for initiating and managing external system audits.

### **3.2.3 Environmental Officers**

Environmental Officers will be appointed by the Construction Manager. The Construction Environmental Officers (EO) will be responsible for monitoring and reporting the implementation of the EMP/CEMP for the construction phase and the first 10 years of the operation phase. Jurisdictional responsibilities between MEWF and the Construction Contractor will be incorporated in the contractual documentation.

The Environmental Officers will also be responsible for implementation of environmental programs such as species management plans, the Complaints Register and for setting up compliance audits and monitoring programs. Construction compliance auditing will be conducted against the requirements of this EMP, CEMP, Construction Safe Work Method Statements, License and Permit Conditions.

### **3.2.4 Ecological Monitoring Contractor**

MEWF will appoint an external ecological contractor to assist with all phases of the project commencing with input into the detailed design process which will be informed by a number of preconstruction ecological surveys. A key function will be the preparation and implementation of detailed significant species management plans which will set out key impact management strategies, including further baseline programs, design, construction and operational measures and protocols, monitoring regimes, management targets, corrective actions, timeframes and responsibilities. Elements of these plans are listed below (Section 4), with details to be provided in the specific plans.

## **3.3 Training**

The success of the EMP depends on all those responsible for its implementation and review being thoroughly conversant with its contents, interpretation and performance measurements. MEWF and its contractors will be responsible for ensuring project personnel have sufficient knowledge and awareness to identify potential environmental issues, and that they are trained to take appropriate corrective action.

It is essential all personnel are familiar with the procedures for reporting on issues that may result in environmental degradation. This includes informing key personnel within MEWF its contractors and relevant regulatory authorities.

### 3.3.1 Induction

All employees and sub-contractors will complete a comprehensive project induction prior to commencing work on the Project. The induction will include safety, access and a comprehensive review of environmental requirements, which will be documented in an EMP Induction Plan (Appendix B) to be issued to all site personnel. All Project personnel from supervisory to managerial level will have an additional detailed training session on the use and implementation of the EMP/CEMPs. It is the responsibility of the Construction Manager to ensure records of training are maintained.

### 3.3.2 Toolbox Meetings

The Construction (Site) Manager will ensure that supervisors hold at least one weekly toolbox talk with staff and crews to discuss issues associated with the scheduled work.

This will include highlighting and discussing relevant environmental and safety issues as required. The sessions will include discussion of strategies to be implemented as identified in Job Hazard Analysis (JHA) of current work activities.

### 3.3.3 Job Hazard Meetings

A Job Safety Environment Analysis (JSEA) is a simple tool used in helping personnel identify, analyse and manage the hazards that exist in the work they undertake. It formalises the process of hazard identification and risk management that most people follow when working. The JSEA requires personnel to examine the task they are about to undertake and:

- Break the job down into separate and defined steps;
- For each step identify the potential hazards (including potential environmental or cultural heritage hazards) that could occur; and
- For each potential hazard list the method to be followed to prevent the hazard causing an injury, loss, damage or environmental incident.

Weekly job hazard meetings will be held in conjunction with the Toolbox meetings.

## 3.4 Reporting and Auditing

### 3.4.1 Reporting

During construction, operations and decommissioning phases there will be continuous review of the project area and individuals and work crews will be required to demonstrate the pertinent requirements of the EMPs/CEMP's are being adhered to. Daily Inspection Checklists (example **Appendix C**) will be filled out by supervisors to ensure controls are in place and these are reviewed by the Construction Contractor. Monthly Monitoring Environmental Inspections will be undertaken across the work site (**Appendix F**), by the Environmental Officer and signed off by the Construction Manager.

### 3.4.2 Auditing

The Construction Contractor and Operator are responsible for monitoring and auditing the environmental performance of all persons/organisations involved in their respective stage of the Project. MEWF commissioned external audits will include as a minimum, two annual construction audits (the first within two

months of commencement) and two annual operation phase audits for the first three years, reverting to an annual audit thereafter assuming high levels of compliance. Frequency of auditing will be revised following receipt of approval conditions. Where regulatory authorities determine that compliance levels are unacceptable, auditing and reporting schedules may be reviewed.

### 3.4.3 Incident Reporting and Non-conformance

Incident reporting will be implemented to record any safety or environmental non-conformances, incidents or complaints. These shall be recorded on an incident report form (**Appendix D**) and forwarded to the Construction Manager for reporting within the MEWF system and for a process of continuous improvement to be implemented.

The notification of emergencies or incidents will include the following information:

- The area where incident occurred;
- The details of incident;
- The location of the emergency or incident;
- Recommended future actions;
- Site supervisor.

#### 3.4.3.1 Compliance and External Reporting Procedure

Section 320 of the Environment Protection Act requires any person who becomes aware of an event that may or has caused environmental harm, reports the event / incident to their employer. Details of the nature and circumstances of the event must be provided.

Any such incidents must be immediately reported to the Construction Manager and recorded on an Incident Report Form (**Appendix D**). The Construction Manager will ensure the appropriate external agencies are notified within the appropriate timeframe.

A written report will be provided to the administering authority within 14 days following the initial notification of an emergency or incident or receipt of monitoring results.

The report will include:

- Results and interpretation of samples taken at the time of the incident and analysed;
- Outcomes of actions taken at the time of the incident to prevent or minimise environmental harm; and
- Proposed actions to prevent a recurrence of the emergency or incident.

Within six weeks of any environmental monitoring performed in relation to the emergency or incident, a written report on the results of any such monitoring will be provided to the administering authority.

All such incidents shall be investigated in a timely manner and any necessary steps implemented to minimise likelihood of recurrence. If required, the EMP shall be reviewed and updated in accordance with **Section 3.4.7**.

### 3.4.4 Complaints Procedure

### 3.4.5 Community complaints

The complaints and dispute resolution procedure outlined below will be implemented at the MEWF. This procedure will enable stakeholders to raise grievances or disputes with MEWF PL and will provide a framework for addressing and resolving issues in an appropriate and timely manner.

#### 3.4.5.1 Complaints mechanisms

A range of mechanisms are available to facilitate the lodgment of complaints, including:

- a 24 hour community call line (1800 702 597)
- a Project email address: info@mtemeraldwindfarm.com.au
- a Project mailing address: PO Box 1058, North Sydney NSW 2060
- Website feedback form
- Contacting community relations personnel directly
- Incident/Complaints Form (part of RATCH-Australia Information Management System)

The complaints mechanisms will be advertised on the MEWF website, factsheets and other relevant community publications.

#### 3.4.5.2 Complaints protocol

- (1) Complaints received should be recorded using the designated Community Complaints Record Sheet (**Appendix E**) or alternatively, via the Incident/Complaints Form under RATCH-Australia's internal systems. These documents will then be incorporated into the Complaints Management Register.
- (2) Any complaint that may not be resolved immediately must be referred to the MEWF Community Liaison via the MEWF project email or telephone number.
- (3) The Community Liaison will contact the complainant within 48 hours to acknowledge receipt of the complaint and to explain that either an update or resolution will be provided within seven working days.
- (4) The Community Liaison will liaise with the relevant MEWF PL representative and/or external project consultant to investigate the complaint.
- (5) The target should be to develop an update or resolution for communication to the complainant within seven working days.
- (6) Where complaints are unable to be adequately resolved through this process, and if the MEWF board believe it is necessary, these complaints will be referred to an external mediation body.
- (7) At the completion of any follow-up activities and resolution the Community Complaints Record Sheet is to be finalised and the Complaints Management Register updated accordingly.
- (8) MEWF PL's community relations team will prepare a monthly communications report during the construction phase and quarterly during the operation phase. Each report will include a summary and analysis of all complaints during the reporting period. The effectiveness of dispute resolution will also be described in the reports. Feedback received via complaints will be incorporated into organisational practice.

### 3.4.6 Document Control and Records

All relevant personnel involved in the environmental management process will be expected to maintain a document control system for recording environmental management activities on the MEWF site which



includes all monitoring events and activities and all incidents and complaints. It will remain available and accessible by parties on site and also stored securely offsite.

### **3.4.7 Review and Update**

The EMP/CEMP will be regularly reviewed and revised to ensure that they address environmental issues and changes in legislation, policies and guidelines including work practices.

These reviews will occur at minimum on an annual basis however they will occur more frequently as appropriate when:

- There are changes to the MEWF operating procedures;
- There are changes to the conditions of the MEWF Approval Conditions, permits, licences or sub-plans;
- A review is required as a consequence of a corrective action;
- Feedback from regulatory agencies has resulted in appropriate changes to plans;
- Suggested amendments required to the EMP.

### **3.4.8 Monitoring**

The MEWF Project Manager will be responsible for the preparation of project phase reporting as identified in approval conditions; this may include compliance reporting and the status of ongoing research and monitoring programs.

The results of other environmental programs directly commissioned by MEWF including any additional construction/ operation phase ecological impact monitoring, will be provided to DEHP and DOTE as requested and are outlined in the Implementation Program.

## 4.0 Management Sub Plans

Nine sub-plans (**Table 3**) have been developed to comprise part of this EMP and should be read in conjunction with associated sections of the Construction, Operations and Decommissioning Phases of the MEWF project. Each sub-plan has been developed in response to the Decision Notice Conditions dated 18 December 2015 (**Appendix A**).

Additional documents associated with this plan and referenced throughout the document have been conditioned under the Federal Department of the Environment Ministers Approval Notice (26 November 2015), and are as follows;

- *Northern Quoll Outcomes Strategy* (Burnett, 2016)
- *Implementation Plan* (for Bare-rumped Sheathtailed Bat and Spectacled Flying Fox) (2017,TBA)
- *Offsets Strategy* (RPS, 2016)

**Table 3 Summary of Sub-plans Developed for the EMP**

Sub-plan	Description
Protected Plant Management Plan	<p>Five significant conservation flora species exist on the Mt Emerald Wind Farm site, these include:</p> <ul style="list-style-type: none"> <li>▪ <i>Homoranthus porteri</i></li> <li>▪ <i>Grevillea glossadenia</i></li> <li>▪ <i>Acacia purpureopetala</i></li> <li>▪ <i>Prostanthera clotteniana</i></li> <li>▪ <i>Melaleuca uxorum</i></li> </ul> <p>A <i>Threatened Plant Management Plan</i> (<b>Appendix G</b>) has been created to ensure impacts to these species are minimized and mitigated. Works will aim to minimise the effect on vegetation and habitat for flora and to promote regeneration of native vegetation on areas affected by construction phase. This management plan details management strategies such as:</p> <ul style="list-style-type: none"> <li>▪ Preconstruction surveys to identify locations of rare and threatened species and other significant plants (including habitat trees);</li> <li>▪ Clearing limits should be well identified and communicated to relevant staff;</li> <li>▪ No unauthorised clearing;</li> <li>▪ Stockpiling of topsoil;</li> <li>▪ Collection and storage of seed and plant propagules to accumulate a seed bank for future rehabilitation;</li> <li>▪ Placement of physical barriers around significant vegetation areas in order to restrict access and prevent disturbance; and</li> <li>▪ Transplanting of conservation significant species.</li> </ul>
Northern Quoll Species Management Plan	<p>The Northern Quoll is listed as Endangered under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) and the <i>Nature Conservation Act 1992</i> (NC Act).</p> <p>This <i>Northern Quoll Species Management Plan</i> (SMP) (<b>Appendix H</b>) has been developed to minimise the potential impacts on the Northern Quoll (<i>Dasyurus hallucatus</i>) from the construction and operation of the Mount Emerald Wind Farm (MEWF) Project.</p> <p>A variety of activities conducted during construction and operation of the MEWF Project have the potential to directly or indirectly affect this species and its habitat include:</p> <p><b>Construction</b></p> <ul style="list-style-type: none"> <li>▪ Direct Mortality during Clearing, Excavating and Blasting Operations;</li> <li>▪ Noise, Dust &amp; Vibration Disturbance;</li> <li>▪ Habitat loss;</li> <li>▪ Habitat degradation.</li> </ul> <p><b>Operations:</b></p> <ul style="list-style-type: none"> <li>▪ Disturbance resulting in exclusion and changes in utilisation patterns;</li> <li>▪ Noise;</li> </ul>

Sub-plan	Description
	<ul style="list-style-type: none"> <li>▪ Vehicular collision.</li> </ul> <p>A number of management measures have been developed to mitigate potential impacts on Northern Quoll habitat and Northern Quolls within the project area and adjoining areas throughout construction and operation. This is to be used in conjunction with the MEWF <i>Habitat Clearing and Management Plan</i> (Appendix I). These include:</p> <ul style="list-style-type: none"> <li>▪ Pre-works surveys that involve intensive pre-construction live-trapping surveys in the vicinity of the planned infrastructure areas, beginning when Northern Quoll are likely to be large enough to be fitted tracking collars. This will allow for the location of denning sites, including maternal sites which can be checked for occupation immediately prior to ground disturbance.</li> <li>▪ During works surveys - In addition to live-trapping, the proposed footprint clearing will be searched methodically for denning radio-collared individuals each morning prior to starting construction activities. If any actively occupied dens are located within the construction area, then all bulk earthworks will be halted until such time as the individual shifts den sites.</li> <li>▪ Traffic levels will be maintained and controlled on site, where traffic will be limited during night hours to minimise fragmentation and mortality of Northern Quoll; and ensure no entry into conservation areas by the implementation of signage (except for necessary environmental management and monitoring).</li> </ul>
Habitat Clearing and Management Plan	<p>The <i>Habitat Clearing and Management Plan</i> (Appendix I) addresses the potential effects of the Project on fauna species and/or their habitat during the clearing process through a range of management measures. The plan considers spotter catcher activities that are undertaken during pre-clearing, management and mitigation measures, vegetation clearing and construction and the necessary safety and reporting processes that are also required.</p> <p>The role of a wildlife spotter catcher at the time of land clearing and development of the site includes the following processes:</p> <ul style="list-style-type: none"> <li>▪ Species identification;</li> <li>▪ Animal trapping, capture and handling;</li> <li>▪ Identification of suitable wildlife release sites.</li> <li>▪ Ensure the timely and appropriate removal and management of animals from development sites prior to and/or during operational works or activities.</li> </ul> <p>Fauna habitat surveys must be conducted at each site prior to clearance of vegetation. These surveys are required to determine the presence of fauna both current and likely within the clearing alignment. The plan outlines management strategies for salvage and reuse of habitat material, hollow relocation, nest management and the clearing process for targeted species.</p> <p>Clearance methodologies consider staged clearing which should be performed by firstly removing non habitat trees prior to the removal of potential habitat trees. Potential habitat trees should be removed at least 24 hours later to enable resident hollow dependant fauna time to evacuate the tree prior to felling. Each felled tree must be inspected and habitation recorded.</p>
Weed and Pest Management Plans	<p>These plans provide an overview of the procedures that are required to minimise the introduction and spread of particular pests and weeds. For those species already present on the site, the plan will appropriately manage the increased risk they present to flora and fauna with the increased access to areas of the site as a result of the development. Control methods are provided to mitigate against impacts.</p> <p>This plan provides controls to manage potential increase and spread of weed and pests within and directly adjacent to the MEWF project in the Mareeba Walkamin district. These <i>Weed and Pest Management Plans</i> (Appendix J) establishes the objectives, management requirements and management actions to mitigate and manage the potential impacts that could arise from the introduction and increase in abundance of weed and pest species within the project area.</p> <p>Regular inspection and control methods will be undertaken on the site by a suitably qualified person to prevent the introduction and/or spread of pests throughout the site during development construction and operation activities. Consultation with surrounding landholders and council will be undertaken where required.</p>
Rehabilitation Management Plan	<p>The <i>Rehabilitation Management Plan</i> (<b>Appendix K</b>) Includes guidelines to incorporate appropriate landscape rehabilitation strategies and methods into the management of disturbed land. A schedule of progressive rehabilitation methods will be incorporated into the work schedules as clearing progresses to ensure that impacts are minimal Natural revegetation will be encouraged through the spreading of native topsoil and active weed management there will be a detailed performance and completion criteria schedule.</p>

Sub-plan	Description
Sediment, Erosion and Stormwater Management Plan	<p>An <i>Erosion, Sediment and Stormwater Management Plan (Appendix L)</i> has been created to manage water quality and soil erosion, along with the risk of adverse impacts associated with the proposed works on the site and receiving environment.</p> <p>It has been developed to provide a set of Best Practice Site Management Procedures to minimise soil erosion and transport during the earthworks and construction phase;</p> <ul style="list-style-type: none"> <li>▪ To provide techniques to control sediment so that it does not cause detrimental impacts to water quality;</li> <li>▪ To provide a monitoring plan to ensure detrimental impacts to water quality are not occurring; and</li> <li>▪ Ensure staff are adequately trained and capable of implementing this plan.</li> </ul>
Hydrocarbon and Hazardous Substance Plan	<p>This <i>Hydrocarbon and Hazardous Substance Plan (Appendix M)</i> includes procedures for any on site, permanent post construction storage of fuels lubricants waste oil or other hazardous substances or potential contaminants to be in bunded areas; and contingency measures to ensure that any chemical or oil spills are contained on site and cleaned up in accordance with the Council requirements.</p>
Bushfire Management and Emergency Evacuation plan	<p>The development of the <i>Bushfire Management and Emergency Evacuation Plan (Appendix N)</i> is to focus on preventing fires on the MEWF site and ensuring preparedness, should a bushfire be ignited or pass through the site. Fire risk can be minimised through strategically managed vegetation and landscaping, and this Plan considers the use of Asset Protection Zones around buildings (where turbine infrastructure are also considered buildings). These measures also include clearing and pruning, mowing and fire breaks.</p> <p>The plan also has procedures for vegetation management, fuel control standards for access roads and tracks to allow access for firefighting vehicles including criteria for access to static water supply tanks for firefighting vehicles.</p> <p>The plan also includes ecological fire management strategies to be implemented in order to maintain an appropriate fire regime for the various faunal and flora habitats represented in site. The ecological fire management guidelines provided by EHP are directed at maintaining the regional ecosystems biodiversity. The objectives of these management strategies are to assist in protecting the flora and fauna habitats represented on the MEWF site and to manage the fuel load to prevent intense dangerous fires that may impact human life and property.</p>
Cultural Heritage Management Plan	<p>The Cultural Heritage Management Plan (<b>Appendix O</b>) has been developed due to the potential for Aboriginal Cultural Heritage over the area being moderate. Consultation is with the Barburrum and Muluridji people who are the traditional owners of the land. A summary of studies and assessments were presented that identified a number of Cultural Heritage items of significance in the region and although limited sites or artefacts were identified (6 sites in close proximity to the site within 500m )for the site specifically records indicate the potential presence of cultural heritage values on the site. A lack of records is expected to be a result of a lack of cultural heritage surveys. The category 5 classification of the site was deemed appropriate due to these records in close proximity and given there is little previous disturbance over the majority of the area. The potential for Aboriginal Cultural Heritage over the area is moderate.</p>



## 5.0 Construction EMP

### 5.1 Flora

<b>Operational Policy</b>	To minimise the effect on vegetation and habitat for flora, and to promote regeneration of native vegetation on the Wind Turbine Generators (WTG) access tracks and turbine sites.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Rehabilitation with native plants of available cleared areas.</li> <li>▪ Where practicable, avoid disturbance to significant species (endangered, vulnerable and rare flora species).</li> <li>▪ Minimise habitat fragmentation and maintain absolute minimum width clearing along ridges.</li> <li>▪ Prevent weeds and plant pest diseases spreading as a result of construction activities.</li> <li>▪ Offset of any rare, endangered or vulnerable plants disturbed by construction by translocating species where practicable, and providing additional rehabilitation areas where revegetation trials can be established.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Conduct activities in accordance with <i>Threatened Plant Management Plan (Appendix G)</i> and <i>Weed and Pest Management Plans (Appendix J)</i>.</li> <li>▪ Preconstruction survey (early works package) undertaken to identify locations of rare and threatened species and other significant plants (including habitat trees) along the preferred WTG access tracks/ turbine sites will be undertaken to allow designers to avoid and minimise clearing of these species and communities during construction. Any seed or plant propagules should be collected, stored and labelled by a botanist or qualified person to accumulate a seed bank for future rehabilitation.</li> <li>▪ Topsoil is a rare commodity on the site and soil and rock spoil should be stockpiled separately and adjacent to where the material was taken, or the very nearest suitable storage area. Stockpiles of material (particularly soil) should not exceed a height of 1 (one) metre.</li> <li>▪ Placement of physical barriers around significant vegetation areas in order to restrict access and prevent disturbance.</li> <li>▪ Transplanting trials of suitable plants to be practiced as a rehabilitation/conservation measure if feasible. Transplanting should occur when ground conditions are best suited to plant growth (i.e. some longer term moisture is available in the soil).</li> <li>▪ Windrowed vegetation should not be burnt. Respreading of cleared native vegetation over areas available for rehabilitation (i.e. laydown areas, track batters, temporary crane pads) to occur following construction.</li> <li>▪ Conduct rehabilitation success trials particularly in relation to significant species and trials as per <i>Threatened Plant Management Plan</i>.</li> <li>▪ Control environmental weeds by approved methods and in accordance with <i>Weed Pest Management Plan</i> along the WTG access tracks and turbine sites prior to clearing and grading. This should be undertaken at least 2 weeks prior to construction work commencing in the respective areas.</li> <li>▪ Declared weeds to be controlled by an approved method prior to clearing and grading.</li> <li>▪ All imported construction material (road base, sand, rock-fill etc) is to be free of weed seed and propagules, and be sourced from clean suppliers in the local region.</li> <li>▪ All vehicles and machinery to be washed down and certified weed free prior to entering site and in accordance with the <i>Weed Management Plan</i>. Vehicles and machinery is to be monitored at the site entry point (washdown bay).</li> <li>▪ Vehicles and machinery working in internal weed infested areas are not to continue work in weed-free zones unless certified clean and weed free. Mobile washdown facilities will be established.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Minimum impact to ecosystems and protected plant species.</li> <li>▪ Minimal disturbance of flora during construction of the WTG access tracks and turbine sites and associated camp sites.</li> <li>▪ No damage to protected species without relevant permit and approval.</li> <li>▪ No presence/increase of environmental and declared weeds (e.g. grader grass, sicklepod, Lantana, thatch grass etc. - refer to <i>Weed Management Plan</i>).</li> <li>▪ Survival and persistence of species planted for the Offset Program</li> </ul>

<p><b>Monitoring, Reporting and Corrective Action</b></p>	<ul style="list-style-type: none"> <li>▪ Photographic records are to be maintained throughout the year (monthly basis). Fixed photo monitoring points are to be established.</li> <li>▪ Daily Check Sheets to include weed presence – completed and reviewed by Environmental Officer / supervisor, and supervising botanist when on site.</li> <li>▪ Prepare Annual <i>Threatened Plant Management Plan</i> and <i>Rehabilitation Plan</i> reports.</li> <li>▪ Additional weed control as required with supplementary weed surveys within 14 days following rainfall events (<b>Appendix J</b>).</li> <li>▪ Offset rehabilitation planting to be monitored for a period of 3 years following rehabilitation to ensure survival, persistence and performance, as well as replacement of mortalities.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all areas of the site. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<p><b>Responsible Person</b></p>	<ul style="list-style-type: none"> <li>▪ Environmental Officer Annual site rehabilitation assessment by supervising botanist</li> </ul>
<p><b>Associated Documentation</b></p>	<ul style="list-style-type: none"> <li>▪ <i>Threatened Plant Management Plan</i> (<b>Appendix G</b>)</li> <li>▪ <i>Rehabilitation Plan</i> (<b>Appendix K</b>)</li> <li>▪ <i>Weed and Pest Management Plans</i> (<b>Appendix J</b>)</li> <li>▪ Offset Area Management Plan (RPS, 2016)</li> </ul>

## 5.2 Fauna

<p><b>Policy</b></p>	<p>To protect threatened fauna and habitat from the impacts of construction activities.</p>
<p><b>Performance Objectives</b></p>	<ul style="list-style-type: none"> <li>▪ Where practicable, avoid disturbance to protected fauna species.</li> <li>▪ Minimize habitat fragmentation and promote habitat regeneration where practicable.</li> <li>▪ Prevent the spread of pest animals and animal pest diseases as a result of construction activities.</li> <li>▪ Implement management strategies to limit the spread of fauna pest species (e.g. cane toad) along the WTG rows.</li> <li>▪ Ensure that the existing population of Northern Quoll in the project area is maintained at pre-construction levels</li> </ul>
<p><b>Management Strategies</b></p>	<p>Implementation of Key Sub plans as identified in <b>Section 4.0</b> above :</p> <ul style="list-style-type: none"> <li>▪ <i>Northern Quoll Species Management Plan</i> (<b>Appendix H</b>);</li> <li>▪ <i>Weed and Pest Management Plans</i> (<b>Appendix J</b>)</li> <li>▪ <i>Habitat Clearing and Management Plan</i> (<b>Appendix I</b>)</li> </ul> <p><i>Northern Quoll Species Management Plan</i> (<b>Appendix H</b>) Construction Phase Protocols. Key elements include:</p> <ul style="list-style-type: none"> <li>▪ Saturation trapping and collaring of all quolls prior to commencement of section clearing and daily radio tracking/sniffer dog surveys to confirm absence of quolls in proposed clearing area. Trapping to confirm stage of reproduction cycle as this can vary from year to year.</li> <li>▪ Daily clearing to commence only once all tracked animals are confirmed clear of the area.</li> <li>▪ Carry out bulk earthworks during February to October period to avoid mortality of dependant juveniles. If earthworks is to occur during November to January period conduct sniffer dog searches in advance of clearing to confirm presence/ absence. If present, delay clearing in that area until maternal dens have been removal.</li> <li>▪ Primary bulk earthworks will need to be conducted in discrete, clearly marked sections on a sequential basis.</li> <li>▪ If adult females are captured during the preconstruction live-trapping and inspection indicates that they have dependent young that are not in the pouch (i.e. lactating nipples), then the female will be released immediately at the point of capture rather than being relocated, and then tracked to the day-time maternity den. Construction will be halted within a buffer distance (to be determined) until live-trapping monitoring indicates that young are trappable.</li> <li>▪ All site personnel and contractors shall report any evidence of dens, regardless of whether or not the person suspects the den to belong to a Northern Quoll. The Environmental Officer shall establish a 20 metre exclusion zone around the den until proven abandoned.</li> </ul> <p>Implementation of <i>Habitat Clearing and Management Plan</i> (<b>Appendix I</b>) Protocols. Key elements include spotter catcher pre-clearance and fauna management strategies during the clearing process such as animal trapping and capture to remove from clearance areas to a</p>

	<p>suitable wildlife release site.</p> <ul style="list-style-type: none"> <li>▪ Staged clearing should be performed whereby firstly removing non habitat trees prior to the removal of potential habitat trees. Potential habitat trees should be removed at least 24 hours later to enable resident hollow dependant fauna time to evacuate the tree prior to felling. Each felled tree must be inspected and habitation recorded.</li> <li>▪ To manage fauna interactions at trenches, several mitigation measures will be required which include erection of fauna exclusion fences to prevent access to trenches, ramps will be required to be installed at a minimum of 500m apart to ensure small fauna can traverse habitat and hessian bags and polystyrene should be placed intermittently along the trench to allow for shade and height to prevent heat stress or drowning of smaller fauna species.</li> <li>▪ Avoidance of clearing of any roosting trees identified during preconstruction surveys and micro siting of turbine and track location.</li> </ul> <p>Additional strategies include:</p> <ul style="list-style-type: none"> <li>▪ Minimizing area of cleared vegetation;</li> <li>▪ Avoid vehicular use of site at night where possible;</li> <li>▪ Restrict speed limits at night;</li> <li>▪ Weed monitoring and control (<b>Appendix J</b>);</li> <li>▪ Develop and implement ecological burning regime (<b>Appendix N</b>);</li> <li>▪ Minimising the introduction and spread of pests (<b>Appendix J</b>);</li> </ul>
<p><b>Performance Indicators</b></p>	<ul style="list-style-type: none"> <li>▪ Viability of endangered species within approved limits. Refer to <i>Northern Quoll Outcomes Strategy</i> (<b>Burnett, 2016</b>); and</li> <li>▪ Compliance with Implementation Plan (2017 TBA) for Bare-rumped Sheathtailed Bat and Spectacled Flying Fox.</li> <li>▪ Site occupancy of the Northern Quoll population on Mt Emerald windfarm site remains within the normal range of values during each year of construction phase.</li> <li>▪ No mortalities of fauna during clearing operation.</li> <li>▪ Successful reintroduction of native fauna to alternative (non-impact) areas of the site during construction.</li> </ul>
<p><b>Monitoring, Reporting and Corrective Action</b></p>	<ul style="list-style-type: none"> <li>▪ Clearing scheduling to be determined by Construction Manager in consultation with Spotter Catcher and External Ecological Contractor.</li> <li>▪ Quarterly reports in accordance with Northern Quoll Outcomes Strategy and Implementation Plan, 2017 TBA) for Bare-rumped Sheathtailed Bat and Spectacled Flying Fox and approval conditions, including mortality surveys to DOTE.</li> <li>▪ USQ conduct, biannual monitoring of quoll populations at MEWF site and three reference sites (<i>Outcomes Strategy Appendix P</i>) with reporting to MEWF Project Managers and DOTE regulators annually.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> </ul>
<p><b>Responsible Person</b></p>	<ul style="list-style-type: none"> <li>▪ Environmental Officer</li> <li>▪ External Ecological Contractor / Spotter Catcher</li> <li>▪ Construction Manager to authorize clearance only</li> </ul>
<p><b>Associated Documentation</b></p>	<ul style="list-style-type: none"> <li>▪ <i>Northern Quoll Species Management Plan</i> (<b>Appendix H</b>),</li> <li>▪ <i>Habitat Clearing and Management Plan</i> (<b>Appendix I</b>)</li> <li>▪ <i>Weed and Pest Management Plans</i> (<b>Appendix J</b>)</li> <li>▪ <i>Bushfire Management and Emergency Evacuation Plan</i> (<b>Appendix N</b>)</li> <li>▪ Approval permits</li> <li>▪ Northern Quoll Outcomes Strategy (Burnett, 2016)</li> <li>▪ Implementation Plan (2017 TBA)</li> </ul>

## 5.4 Erosion, Sediment and Stormwater Control

<b>Policy</b>	To provide effective erosion and sediment practices to mitigate the potential effects of construction on watercourses, land use and the general environment.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise environmental impacts caused by soil erosion.</li> <li>▪ Minimise sedimentation of land.</li> <li>▪ Minimise modification to drainage patterns.</li> <li>▪ Prevent as far as practical, sediment transport to adjacent watercourses.</li> </ul>
<b>Management Strategies</b>	<p>Conduct all earthworks in accordance with the detailed <i>Erosion, Sediment and Stormwater Control Plan (Appendix L)</i>.</p> <p>Management strategies include:</p> <ul style="list-style-type: none"> <li>▪ Install clean water diversions upslope of sloping Wind Turbine Generation (WTG) sites to direct clean stormwater away from work/bare areas. Where possible, runoff from access tracks will also be directed away from WTG sites;</li> <li>▪ Direct all uncontaminated (clean) stormwater to stable land, ensuring water is dispersed / diffused to prevent erosion. Examples of Flow Control Berms, Catch Drains, Flow Diversion Banks, Level Spreaders and Energy Dissipators which could be utilised to achieve this are detailed in <b>Appendix L</b>;</li> <li>▪ Strip topsoil (~200mm depth) separately and retained for rehabilitation/stabilisation activities. It is important to ensure separate soil horizons are retained in separate stockpiles and not mixed. These stockpiles must be located away from drainage lines and have appropriate controls to ensure sediment is not lost (e.g. sediment fence/geotextile covers);</li> <li>▪ Respread/cover tower and permanent pad batters with topsoil and rehabilitate as soon as practicable on completion of pads;</li> <li>▪ Stabilise pad surfaces using methods such as topsoiling and revegetation or gravelling, where there is a risk of erosion of the pad;</li> <li>▪ Do not carry out clearing activities within 50 metres of a watercourse; where required (e.g. water course crossings), improve or develop appropriately designed watercourse crossings that prevent erosion;</li> <li>▪ Maintain vegetation cover along hardstands and access tracks where possible. Reduce damage to grass cover and sensitive heath vegetation types by limiting vehicle movements to work areas and approved access tracks;</li> <li>▪ Sediment fences and temporary drain crossings should be constructed / maintained as per the <i>Erosion, Sediment and Stormwater Management Plan</i>.</li> <li>▪ Minimise disturbance, stage and revegetate disturbed areas to achieve a ground cover of at least 70% on completion of construction in each area.</li> </ul> <p>Stormwater Diversion</p> <ul style="list-style-type: none"> <li>▪ In areas which are subject to erosion potential (slopes &gt;5%), stormwater diversion banks/drains (whoa-boys) should be placed diagonally across the tracks to divert stormwater to adjacent undisturbed grassed areas following completion of construction. Spacing of such diversion drains can be approximately 50 m to 70 m apart. Where slopes are &gt;5%, then more frequent spacing is required.</li> <li>▪ Adequate monitoring and follow-up work following construction to ensure any initiated erosion is arrested early.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Achievement of downstream water quality targets (turbidity, suspended solids)</li> <li>▪ No large scale erosion or sedimentation caused to adjacent land uses as a result of construction activities.</li> <li>▪ No evidence of additional sedimentation in watercourses as a result of erosion from construction activities.</li> <li>▪ Reinstatement of watercourses to original profile.</li> <li>▪ Adequate spacing of stormwater diversion drains in areas of erosion potential.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Controls should be inspected weekly by the Construction Manager immediately prior to anticipated runoff producing rain or immediately following runoff-producing rainfall. This will include watercourse crossings, drainage lines and areas of concentrated water flow. Weekly Check Sheets – completed and reviewed by manager / supervisor. Check sheets are provided in the <i>Erosion, Sediment and Stormwater Management Plan (Appendix L)</i>.</li> <li>▪ A post-construction audit which will evaluate revegetation, erosion control, weed control, water course bank stability will be conducted annually for two years following completion of construction.</li> </ul>



	<ul style="list-style-type: none"> <li>Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>External Environmental Scientist (WQ monitoring)</li> <li>Environmental Officer</li> <li>Construction Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li><i>Erosion, Sediment and Stormwater Control Plan (Appendix L)</i></li> <li><i>Rehabilitation Plan (Appendix K)</i></li> </ul>

## 5.5 Management of Flammable and Combustible Substances

<b>Policy</b>	To ensure storage and handling of flammable and combustible substances onsite does not cause environmental harm or harm to persons.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>To minimise potential for land, surface water and groundwater contamination.</li> <li>To ensure the on-going safety of construction personnel.</li> <li>To minimise the potential for fire ignition (and wildfire) from site activities.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>A <i>Hydrocarbon and Hazardous Substance Plan (Appendix M)</i> and Emergency Evacuation Plan shall be in place and employees inducted in its application.</li> <li>Flammable and combustible substances are stored, handled, separated and signed as required by the Flammable and Combustible Liquids Regulations and AS1940.</li> <li>Transportation of dangerous goods will be in accordance with the Regulations and with AS 1678, AS 2809 and AS 2931.</li> <li>A qualified person will be appointed as Site Safety Officer.</li> <li>An on-site set of the relevant Material Safety Data Sheet (MSDS) for all flammable and combustible substances and dangerous goods used during construction and operation will be maintained and available.</li> <li>Waste flammable and combustible substances which cannot be recycled will be transported to a designated disposal site as approved by Local Government.</li> <li>No refuelling of plant and equipment over or within 100m of watercourses.</li> <li>Spill kits containing absorbent and containment material (e.g. absorbent matting) will be available where hazardous materials are used and stored and personnel trained in their correct use.</li> <li>Spills of flammable and combustible substances will be rendered harmless and collected for treatment and/or remediation or disposal at a designated site, including cleaning materials, absorbents and contaminated soils and reinstatement made to the affected area.</li> <li>Personal protective equipment (PPE) appropriate to the materials in use will be provided.</li> <li>Relevant Local Government permits will be held and conditions of permits met.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>No hazardous goods will cause contamination of the environment.</li> <li>Ensure appropriate remedial action has been implemented for any spills.</li> <li>Major incidents reported to relevant authorities and their directions followed.</li> <li>Spill kits and PPE available and used as appropriate.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>Photographic Records</li> <li>Regular inspection of storage facilities and work practices in the handling of flammable and combustible substances or other dangerous substances.</li> <li>Daily Check Sheets – completed and reviewed by manager/supervisor</li> <li>Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>Construction Manager</li> <li>Site Safety Officer</li> <li>Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li><i>Hydrocarbon and Hazardous Substance Plan (Appendix M)</i></li> <li><i>Bushfire Management and Emergency Evacuation Plan (Appendix N)</i></li> </ul>

## 5.6 Noise and Vibration

<b>Policy</b>	To minimise the impact of construction noise nuisance and vibration to nearby residences.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise noise nuisance generated by construction activities.</li> <li>▪ Minimise any vibration nuisance to nearby residences.</li> </ul>
<b>Management Strategy</b>	<ul style="list-style-type: none"> <li>▪ Provide advance notice of any scheduled atypical noise events to nearby residents.</li> <li>▪ Equipment maintained in accordance with manufacturer's specifications.</li> <li>▪ Schedule atypical noise events for appropriate times.</li> <li>▪ Any blasting is to be carried out in accordance with current practice standards with particular reference to AS 2187.</li> <li>▪ Maintain liaison with nearby residents.</li> <li>▪ Noisy construction activities in proximity to residences to be limited to 7.00 am to 6.00 pm Monday to Saturday or in accordance with local permits.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Zero damage to non-project associated buildings or structures;</li> <li>▪ Zero blasting related actions taken by regulators;</li> <li>▪ Zero blasting nuisance complaints;</li> <li>▪ Noise does not spread to sensitive areas and isn't more than 115dB (linear) peak for 9 out of 10 consecutive blasts, regardless of the intervals between blasts;</li> <li>▪ Noise doesn't exceed 120 dB (linear) peak for any blast; and</li> <li>▪ Vibration does not exceed peak particle velocity of 5mm per second for 9 out of 10 consecutive blasts, regardless of the interval between blasts and 10mm per second for any blast</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Complaints Register – recorded and closed out</li> <li>▪ Noise monitoring will occur at the source of the noise complaint as directed by the regulatory authority to investigate a noise complaint. Refer to <b>CEMP Appendix C</b> for further details.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Construction Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Complaints Register</i> (<b>Appendix E</b>)</li> </ul>

## 5.7 Air Emissions

<b>Policy</b>	To complete the installation of each WTG line in a manner to maintain ambient air quality of the local area.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ To maintain acceptable limits of vehicular and machinery operating emissions and to receive no complaints from local landholders regarding air quality.</li> <li>▪ To minimise the generation of fugitive dust emissions produced during construction.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Vehicles and machinery shall be maintained in accordance with manufacturer's specifications.</li> <li>▪ Trucks to have sound tailgates and mud flaps in good condition</li> <li>▪ Trucks carrying dusty materials on public roads to have their loads covered</li> <li>▪ Limit vehicle speeds on site to minimise dust generation.</li> <li>▪ Stockpiles will be maintained at minimum amounts where possible (topsoil max is 2m)</li> <li>▪ Watering of construction site and access tracks will be carried out on an as required basis, particularly on dry and windy days and especially near residences.</li> <li>▪ Avoid smoke generation by a strict no burning policy.</li> <li>▪ Treat stockpiles and/or exposed soil areas with chemical surface stabilisers or physical alternatives (crushed rock).</li> <li>▪ Implement fire control measures during welding operations. Hot Works Permits must be obtained for all works which may result in ignition of a fire (for example welding, grinding or anything that may cause a flame or spark). This will set out procedures to be followed regarding where the work is undertaken, firefighting equipment, and personnel to be in attendance and timing for the work to be undertaken.</li> </ul>

<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>No visual observations of dust emissions during windy / dry periods</li> <li>Nil dust nuisance complaints from nearby residents</li> <li>No visible dust during construction activities evident.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>Dust deposition gauge(s) will be installed on site to monitor dust emissions. All reasonable measures will be undertaken to ensure emissions do not exceed 4 grams per metre squared per month.</li> <li>Complaints Register – recorded, investigate the source and close out.</li> <li>Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>Construction Manager</li> <li>Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>All other issues to be handled in accordance with the Mt. Emerald Wind Farm Traffic Management Plan</li> <li>Refer to <i>Vestas Construction Air Quality and Dust Management Plan</i> (<b>Appendix D</b>) of the <b>CEMP</b>.</li> </ul>

## 5.8 Waste Management

<b>Policy</b>	To minimise waste generation and maximise reuse and recycling of construction waste products.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>Minimise impacts related to waste management.</li> <li>No evidence of litter or refuse generated from construction related activities.</li> <li>No contamination of land, air or water as a result of inappropriate waste management.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>Clean up progressively, all working areas will be kept free of rubbish and cleaned up at the end of each work day</li> <li>Separate skips for paper, waste steel and hydrocarbon containers, if applicable to the local waste transfer station</li> <li>Vegetation will be chipped for mulch and spread on site</li> <li>Separate paper and cardboard from office waste/packaging for recycling</li> <li>Service personnel capture, contain and remove waste liquids.</li> <li>Contaminated soil is recovered and taken to an appropriate waste facility.</li> <li>All chemical storage will be bunded, lined with impermeable material and located 100m away at a minimum from any natural watercourse, where possible.</li> <li>All waste to be kept in skip bins, where possible. Stock piles must be appropriately maintained to reduce the risk of ground or surface water pollution.</li> <li>Consults SDS to determine appropriate disposal method; provide separate storage if necessary.</li> <li>After concrete is poured, all chutes, hoppers, wheelbarrows and hand tools need to be washed down in a designated area. Concrete washout is to be contained within a plastic lined pit. Wash water must be retained in the wash down area and allowed to evaporate, leaving only the hardened cementitious solids to be recycled.</li> <li>Excess concrete wastes must be returned to the batching plant for treatment or reuse.</li> <li>All noxious weeds and exotic plant species will be disposed of at a license facility</li> <li>Separate waste, in line with local dump and separation agreements</li> <li>Remove sewage by licensed contractor;</li> </ul> <p>Vestas Construction Waste Management Plan <b>CEMP Appendix E</b>.</p>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>Minimise the amount of waste generated.</li> <li>No improper storage, transport or disposal of waste.</li> <li>No litter left onsite during construction</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>Maintain regulated waste tracking records.</li> <li>Photographic Records</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Regular housekeeping checks. The camp site area is to be inspected after relocation.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ At the planning stage of this project, the Construction (Site) Manager is responsible for identifying and planning methods for waste management and minimisation Environmental Officer.</li> <li>▪ Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ Refer to Vestas Construction Waste Management Plan <b>CEMP Appendix E</b>.</li> <li>▪ Material Safety Data Sheets</li> </ul>

## 5.9 Fire Management

<b>Policy</b>	To minimise the potential for bushfires resulting from construction activities.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ No fires deliberately lit or allowed to remain alight along the WTG line or other project related worksites.</li> <li>▪ No build-up of flammable material during construction near hot work areas.</li> </ul>
<b>Management Strategies</b>	<p>Conduct procedures in accordance with the <i>Bushfire Management and Emergency Evacuation Plan</i> (<b>Appendix N</b>).</p> <ul style="list-style-type: none"> <li>▪ Open fires will be banned on the project. Fires include open barbeques, billy fires, brush burning and rubbish burning.</li> <li>▪ Hot Works Permits must be obtained for all works which may result in ignition of a fire (for example welding, grinding or anything that may cause a flame or spark). This will set out procedures to be followed regarding where the work is undertaken, firefighting equipment, and personnel to be in attendance and timing for the work to be undertaken.</li> <li>▪ Adoption of lightning protection measures for both turbines and substations.</li> <li>▪ Unnecessary build-up of flammable material near working areas will be prevented, with vegetation and other flammable material being stockpiled well clear of hot work activities.</li> <li>▪ Water trucks (also used for dust suppression) will be available for use as fire trucks in the event of fire.</li> <li>▪ All vehicles will be equipped with portable fire extinguishers.</li> <li>▪ Fire extinguishers and a water cart will be available to the welding crew. All appropriate crew members will be trained in the use of firefighting equipment.</li> <li>▪ Emergency Response Plan shall include details on local contacts for firefighting assistance.</li> <li>▪ Construction management liaison with local Rural Fire Service personnel during high fire periods.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Build-up of flammable material near hot work areas.</li> <li>▪ Emergency Response Plan in place.</li> <li>▪ Permits and approvals as required.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Monitor work areas for appropriate fire extinguishers, build-up of dry fuel, or other dry combustible materials (paper etc).</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Environmental Officer</li> <li>▪ Construction Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Bushfire Management and Emergency Evacuation Plan</i> (<b>Appendix N</b>)</li> </ul>

## 6.0 Operational EMP

### 6.1 Flora Management

<b>Policy</b>	To promote vegetation re-establishment, promote a stable landform and protect threatened species.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Promote the establishment of ground cover plants and zones of native vegetation (including shrubs and trees) on all areas of disturbance.</li> <li>▪ Promote natural regeneration of native plant communities on temporarily cleared areas.</li> <li>▪ In addition to typical regenerating vegetation, planting and transplanting of conservation significant plant species in appropriate areas wherever possible.</li> <li>▪ Maintenance of revegetation and rehabilitation areas in accordance with the <i>Rehabilitation Plan</i> and <i>Threatened Plant Management Plan</i>.</li> <li>▪ Ensure that weeds are not spread along WTG access tracks, particularly environmental weeds, declared plants and invasive grasses.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Conduct activities in accordance with <i>Threatened Plant Management Plan (Appendix G)</i>.</li> <li>▪ Promote low regrowth of native plants along access track verges to ensure positive fire break.. Pads required for crane access during maintenance may be grassed with native species or a species certified to be sterile and non-weed forming. This may require spreading native grass seed following rain.</li> <li>▪ Monthly weed survey by supervising botanist (fortnightly during wet season for first two years after construction); control of weeds along the WTG access tracks, turbine pads and contractors yard implemented <i>Weed Management Plan (Appendix J)</i></li> <li>▪ All vehicles and machinery to be washed down and certified weed free prior to entering site and in accordance with the <i>Weed Management Plan</i>.</li> <li>▪ Vehicles and machinery working in internal weed infested areas are not to continue work in weed-free zones unless certified clean and weed free. Mobile wash down facilities will be established where control required.</li> <li>▪ All permanent staff provided training and induction in Weed Identification as per <i>Weed Management Plan (Appendix J)</i></li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Track verges, turbine pads stabilized and revegetated or rehabilitated according to <i>Threatened Plant Management Plan (Appendix G)</i>.</li> <li>▪ Nil declared, invasive or environmental weeds present. All outbreaks controlled before setting flowers and seeds.</li> <li>▪ Achievement of <i>Threatened Plant Management Plan</i> targets.</li> <li>▪ No damage to protected species without a relevant permit and approval.</li> <li>▪ Survival and persistence of species planted for the Offset Program (RPS, 2016)</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>▪ Inspection checklist</li> <li>▪ Independent annual audit</li> <li>▪ Weed records to be maintained according to <i>Weed Management Plan</i>.</li> <li>▪ Offset rehabilitation planting to be monitored for a period of 3 years following rehabilitation to ensure survival, persistence and performance, as well as replacement of mortalities.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Supervising botanist</li> <li>▪ MEWF Operations Manager</li> <li>▪ Annual site rehabilitation assessment by supervising botanist</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Threatened Plant Management Plan (Appendix G)</i></li> <li>▪ <i>Rehabilitation Plan (Appendix K)</i></li> <li>▪ <i>Weed and Pest Management Plans (Appendix J)</i></li> <li>▪ <i>Offset Area Management Plan (RPS, 2016)</i></li> </ul>



## 6.2 Fauna Management

<b>Policy</b>	To provide strategies to minimise the impacts on of operation activities on abundance and distribution of threatened fauna and habitat
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise impacts to native fauna.</li> <li>▪ Where practicable, avoid disturbance to threatened fauna species.</li> <li>▪ Minimise habitat fragmentation and promote habitat regeneration where practicable.</li> <li>▪ Prevent the spread of pest animals and animal pest diseases as a result of operational activities.</li> <li>▪ Implement and monitor management strategies to limit the spread of fauna pest species (e.g. cane toad) along the WTG rows.</li> <li>▪ Prevent introduction and spread of declared and invasive weeds</li> <li>▪ Ensure that the existing population of Northern Quoll in the project area is maintained at pre-construction levels</li> </ul>
<b>Management Strategies</b>	<p>Adaptive management strategies will be undertaken in accordance with significant species management Plans.</p> <p><b>Northern Quoll Species Management Plan (Appendix H)</b></p> <ul style="list-style-type: none"> <li>▪ Traffic levels will be maintained and controlled on site, where traffic will be limited during night hours to minimise fragmentation and mortality of Northern Quoll; and ensure no entry into conservation areas by the implementation of signage (except for necessary environmental management and monitoring)</li> </ul> <p><b>Bare-rumped Sheathailed Bat and Spectacled Flying Fox (Implementation Plan (RPSa, 2016))</b></p> <ul style="list-style-type: none"> <li>▪ Trial visual and acoustic automated collision detection systems</li> <li>▪ Conduct carcass searches (calibrated for scavenger removal and detectability); validate collision risk model.</li> <li>▪ Conduct call activity surveys at turbines within the turbine rotor swept area</li> <li>▪ Curtail operation of all/some of turbines during high-risk conditions or in response to detected excessive collision mortality</li> <li>▪ If appropriate, incorporate avian and bat radar with wind farm SCADA system to implement automatic turbine shut-down</li> </ul> <p><b>Weed and Pest Control</b></p> <ul style="list-style-type: none"> <li>▪ Ensure adequate controls and check are in place for weeds and pests as per the per the Weed and Pest Management Plan (Appendix ) including:</li> <li>▪ Survey periodically (quarterly) of high risk areas.</li> <li>▪ Continue management of waste products.</li> <li>▪ Promote continued education and training of staff to ensure implementation and changes to plan are ongoing.</li> <li>▪ Liaise with Local and state government to ensure management of declared weeds and pests around property remains current and in line with other property holders and council.</li> <li>▪ Continue pest and weed control through management of solid and liquid waste.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Compliance with Northern Quoll Outcomes Strategy (Burnett, 2016) and Implementation Plan (RPSa, 2016) for Bare-rumped Sheathailed Bat and Spectacled Flying Fox Management Plans.</li> <li>▪ Site occupancy of the Northern Quoll population on Mt Emerald windfarm site remains within the normal range of values during each year and each of three years following the construction phase, and at 5 and 10 years following completion of construction. (Burnett, 2016).</li> <li>▪ Compliance with <i>Implementation Plan</i> (2017, TBA).</li> <li>▪ No pest incursions to the site.</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>▪ Annual (quarterly for first two years) reports in accordance with Northern Quoll Outcomes Strategy and Implementation Plan (2017, TBA) for Bare-rumped Sheathailed Bat and Spectacled Flying Fox and approval conditions, including mortality surveys to DotE.</li> <li>▪ USQ conduct, biannual monitoring of quoll populations at MEWF site and three reference sites (<i>Burnett, 2016</i>) with reporting to MEWF Project Managers and DotE regulators annually.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Site Manager</li> <li>▪ University of Southern Queensland Researchers</li> <li>▪ MEWF Operations Manager</li> </ul>

### 6.3 Erosion, Sediment and Stormwater Control

<b>Policy</b>	To ensure erosion, sediment and stormwater control measures along access tracks and turbine pads are effectively maintained.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise soil erosion.</li> <li>▪ Minimise sedimentation of land and watercourses.</li> <li>▪ Minimise modification to drainage patterns.</li> <li>▪ Prevent as far as practical, sediment transport to adjacent watercourses.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Retain sediment control measures installed during construction phase until cleared areas are sufficiently revegetated to capture runoff.</li> <li>▪ Inspect all disturbed areas monthly and maintain erosion and sediment controls as necessary.</li> <li>▪ Place additional erosion control structures such as diversion banks / drains, rock check dams, rock armouring, whoa-boys) at key locations if additional erosion is detected along tracks.</li> <li>▪ Inspect drainage lines after first rain event (and after significant rain events) each wet season to assess whether erosion is occurring and to determine if remedial action may be required.</li> <li>▪ Divert stormwater away from tracks if necessary.</li> <li>▪ Ensure replacement of any erosion control measures as required.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ No large scale erosion or sedimentation caused to adjacent land uses as a result of prior construction activities.</li> <li>▪ No evidence of additional sedimentation in watercourses as a result of erosion from operational activities.</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>▪ A post-construction audit which will evaluate revegetation, erosion control, weed control, water course bank stability will be conducted annually for two years following completion of construction.</li> <li>▪ Monitor downstream water quality (turbidity) for first 12 months after construction.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Site Manager</li> <li>▪ Environmental Officer</li> <li>▪ MEWF Operations Manager</li> </ul>

### 6.4 Management of Flammable and Combustible Substances

<b>Policy</b>	To ensure that storage and handling of flammable and combustible substances onsite does not cause environmental harm or harm to persons.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ To minimise potential for land, surface and groundwater contamination.</li> <li>▪ To ensure the on-going safety of operations personnel.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ A <i>Hydrocarbon and Hazardous Substance Plan (Appendix M)</i> shall be in place and employees inducted in its application.</li> <li>▪ Flammable and combustible substances are stored, handled, separated and signed as required by the Flammable and Combustible Liquids Regulations and AS1940.</li> <li>▪ Transportation of dangerous goods will be in accordance with the Regulations and with AS 1678, AS 2809 and AS 2931.</li> <li>▪ A qualified person will be appointed as Site Safety Officer.</li> <li>▪ An on-site set of the relevant MSDS for all flammable and combustible substances and dangerous goods used during construction will be maintained and available.</li> <li>▪ Waste flammable and combustible substances which cannot be recycled will be transported to a designated disposal site as approved by Local Government.</li> <li>▪ No refuelling of plant and equipment over or within 100m of watercourses.</li> <li>▪ Spill kits containing absorbent and containment material (e.g. absorbent matting) will be available where hazardous materials are used and stored and personnel trained in their correct use.</li> <li>▪ Spills of flammable and combustible substances will be rendered harmless and collected for treatment and / or remediation or disposal at a designated site, including cleaning materials, absorbents and contaminated soils and reinstatement made to the affected area.</li> <li>▪ Personal protective equipment (PPE) appropriate to the materials in use will be provided.</li> </ul>

<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>No hazardous goods will cause contamination of the environment.</li> <li>Ensure appropriate remedial action has been implemented for any spills.</li> <li>Major incidents reported to relevant authorities and their directions followed.</li> <li>Spill kits and PPE available and used as appropriate.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>Photographic records will be maintained of all works and all corrective actions.</li> <li>Regular inspection of storage facilities and work practices in the handling of flammable and combustible substances or other dangerous substances.</li> <li>Daily Check Sheets while works are being undertaken– completed and reviewed by manager / supervisor</li> <li>Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>MEWF Operations Manager</li> <li>Environmental Officer</li> <li>Site Safety Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>Hydrocarbon and Hazardous Substance Plan (<b>Appendix M</b>)</li> </ul>

## 6.5 Noise

<b>Policy</b>	To minimise the impact of noise nuisance from wind farm maintenance activities to nearby residences.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>Minimise noise nuisance generated by operation and maintenance activities.</li> <li>Compliance with project specific noise criteria at noise sensitive receptors</li> </ul>
<b>Management Strategy</b>	<ul style="list-style-type: none"> <li>Provide advance notice of any scheduled maintenance activities to nearby residents.</li> <li>Schedule noisy maintenance activities to appropriate times.</li> <li>Maintain liaison with nearby residents.</li> <li>Advise nearby residents in advance if any planned noisy activities are to be undertaken.</li> <li>Conduct noise impact monitoring of operation within three months of commencement and review mitigation measures as necessary</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>Number of noise related complaints received from residents.</li> <li>Exceedance of noise limits conditions contained in Conditions 4, 5, 6 of the Ministerial (DILG) Decision Notice (18/12/2015)</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>Complaints Register</li> <li>Noise monitoring will occur at the source of a valid noise complaint as agreed with the regulatory authority to investigate a noise complaint.</li> <li>Independent audit every year (years 1-3) then every two years.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>Site Manager</li> <li>MEWF Operations Manager</li> </ul>

## 6.6 Waste Management

<b>Policy</b>	To minimise waste generation and maximise reuse and recycling of waste products.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>Minimise impacts related to waste management.</li> <li>No evidence of litter or refuse generated from maintenance activities.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>Collecting and removing waste oil and solvents for recycling, reuse or disposal at approved locations.</li> <li>Where practical, wastes will be segregated and reused / recycled (e.g. scrap metal).</li> <li>All maintenance personnel shall be instructed in waste management practices as a component of their induction process.</li> <li>Ensure wastes are not accessible by stock or wildlife.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>Percentage of waste recycled</li> <li>Litter left onsite after maintenance activities</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>Maintain regulated waste tracking records where required.</li> <li>Regularly review waste management strategies to maximise recycling.</li> <li>Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> </ul>

<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> <li>▪ Environmental Officer</li> </ul>
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## 6.7 Fire

<b>Policy</b>	To minimise the potential for vegetation to catch fire from operation activities.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ No fires deliberately lit or allowed to remain alight along the WTG line or other project related infrastructure.</li> </ul>
<b>Management Strategies</b>	<p>Conduct procedures in accordance with the <i>Bushfire Management and Emergency Evacuation Plan (Section 5.8 and Appendix N)</i>.</p> <ul style="list-style-type: none"> <li>▪ Open fires will be banned on the project. Fires include open barbeques, billy fires, brush burning and rubbish burning.</li> <li>▪ Adoption of lightning protection measures for both turbines and substations.</li> <li>▪ Emergency Response Plan shall include details on local contacts for firefighting assistance.</li> <li>▪ Ecological Fire Management Strategies undertaken by a bushfire specialist.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Fire frequency not above natural fire event.</li> <li>▪ Emergency Response Plan in place.</li> <li>▪ Permits and approvals as required.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Monitor work areas for appropriate fire extinguishers; build-up of dry fuel, or other dry combustible materials (paper etc.).</li> <li>▪ Daily monitoring of local fire hazards/bans during bushfire season.</li> <li>▪ Annual pre-season review of bushfire hazards on MEWF site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i>.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Bushfire Management and Emergency Evacuation Plan (Appendix N)</i></li> </ul>

## 6.8 Access and Landholder Relationships

<b>Policy</b>	To minimise the impact on surrounding landholders.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise impacts to adjoining native flora and fauna.</li> <li>▪ Eliminate the likelihood of the spread of weeds off site.</li> <li>▪ Minimise disruption to landholder activities along Kippen Drive.</li> <li>▪ Maintain regular liaison with landholders along the route.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Restrict site entry to designated access track.</li> <li>▪ Maintain regular liaison with landholders.</li> <li>▪ Landholder concerns are addressed promptly.</li> <li>▪ Fire control measures will be maintained as required.</li> <li>▪ Weed and Pest control measures will be maintained as required.</li> <li>▪ Ensure gates are locked where access can be obtained from a road (to ensure unauthorised users are excluded).</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ 0-3 complaints from land owners annually</li> <li>▪ Fire, and Weed and Pest control measures are performed as required.</li> </ul>
<b>Monitoring &amp; Reporting</b>	<ul style="list-style-type: none"> <li>▪ Complaint Register</li> <li>▪ Easement inspection check sheet monitored quarterly.</li> <li>▪ Independent audit every two years.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Bushfire Management and Emergency Evacuation Plan (Appendix N)</i></li> <li>▪ <i>Weed and Pest Management Plans (Appendix J)</i>.</li> </ul>

## 7.0 Decommissioning Phase

### 7.1 Flora and Fauna Management

<p><b>Policy</b></p>	<p>To minimise additional impacts and effects on vegetation and habitat for flora and fauna during the decommissioning of the wind farm, including infrastructure such as turbine pads, camps and yards and laydown areas and the access tracks.</p>
<p><b>Performance Objectives</b></p>	<ul style="list-style-type: none"> <li>▪ Prevent impacts to native vegetation and rehabilitation and conservation areas.</li> <li>▪ Prevent weeds from entering the site. Continue application of <i>Weed and Pest Management Plans (Appendix J)</i> and wash down facilities.</li> <li>▪ Prevent the spread of weeds, and plant pest diseases within the site as a result of decommissioning activities. The site will be left free of serious weeds (environmental and declared, as well as introduced pasture grasses).</li> <li>▪ Where practicable, avoid disturbance to threatened and poorly known flora species that have regenerated adjacent to or present in original construction zones.</li> <li>▪ Avoid all impacts to these types of plants and habitats outside of the original construction zone.</li> <li>▪ No net loss of habitat connectivity or additional habitat fragmentation to occur.</li> <li>▪ Offset Program for threatened plants has been successful and the objectives have been met as outlined in respective Management Plans.</li> </ul>
<p><b>Management Strategies</b></p>	<ul style="list-style-type: none"> <li>▪ A post-decommissioning survey undertaken to identify threatened species within the decommissioning zone.</li> <li>▪ Flag individual significant plant species (including habitat trees) which are located in the decommissioning zone so they may be avoided where practicable during decommissioning work.</li> <li>▪ Placement of physical barriers around significant vegetation areas in order to restrict access and avoid further disturbance.</li> <li>▪ Harvesting seeds for replacement use in rehabilitation zones as per <i>Rehabilitation Plan (Appendix K)</i>, where natural regeneration was not successful.</li> <li>▪ Ensure adequate measures are in place to safeguard and assist the movement of fauna from the decommissioning zone. Refer to the <i>Habitat Clearing and Management Plan (Appendix I)</i> for Spotter Catcher details.</li> <li>▪ All weeds established within the site are to be recorded in a decommissioning weed survey.</li> <li>▪ Control environmental and declared weeds within and adjacent to the decommissioning zone. This should be performed in accordance with the methods and control measures detailed in the <i>Weed and Pest Management Plans (Appendix J)</i>;</li> <li>▪ Implement management strategies for the continued health and population growth of threatened flora and fauna are implemented and have a success rate that meets criteria detailed in respective species' management plans.</li> </ul>
<p><b>Performance Indicators</b></p>	<ul style="list-style-type: none"> <li>▪ Vegetation, ecosystems, habitats and conservation significant species of flora and fauna are not suffering from adverse impacts,</li> <li>▪ Threatened Species are maintained in their current condition with negligible declines in population dynamics and the numbers of species present on the site.</li> <li>▪ Minimal disturbance to flora and fauna has occurred as a result of decommissioning.</li> <li>▪ Restoration (successful rehabilitation) has resulted from progressive rehabilitation and environmental management of the wind farm site.</li> <li>▪ Vegetation communities have recovered with a major proportion of the flora comprising native species.</li> <li>▪ No failure or irreversible decline of rehabilitation measures.</li> <li>▪ The dominant ground cover adjacent to tracks and turbine pads comprises native species and not introduced pasture grasses or legumes.</li> <li>▪ No damage to threatened species or designated conservation zones without relevant approval and supervision.</li> <li>▪ Ensure relevant permits are effective before removing any protected species.</li> <li>▪ Declared plants and environmental weeds within the WTG line are adequately controlled, and no fauna pests are introduced into the site.</li> <li>▪ Plant species planted for the Offset Program are self-sustaining and do not require human assistance to survive. Rehabilitated plant communities should be persistent in the landscape able to function without intervention.</li> </ul>



<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Photographic records to be maintained.</li> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Regular inspections, audits and reviews (non-compliance and incident reporting) undertaken in accordance with EMP and recommendations and corrective actions implemented.</li> <li>▪ Undertake a Decommissioning Weed Survey to identify all weeds that have established on the site.</li> <li>▪ Offset planting to be monitored for a period of three years following rehabilitation to ensure survival and replacement of mortalities.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Environmental Officer</li> <li>▪ External Ecological Consultant</li> <li>▪ MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Threatened Plant Management Plan (Appendix G)</i></li> <li>▪ <i>Rehabilitation Plan (Appendix K)</i></li> <li>▪ <i>Weed and Pest Management Plans (Appendix J)</i></li> <li>▪ Offset Area Management Plan (RPS, 2016)</li> <li>▪ Implementation Plan (Bare-rumped Sheath-tailed Bat/Spectacled flying Fox) (2017, TBA)</li> <li>▪ Northern Quoll Outcomes Strategy (Burnett, 2016)</li> </ul>

## 7.2 Erosion, Sediment and Stormwater Control

<b>Policy</b>	<p>To provide effective erosion and sediment practices to mitigate the potential effects of construction on watercourses, land use and the general environment.</p>
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise soil erosion.</li> <li>▪ Minimise sedimentation of land.</li> <li>▪ Minimise modification to drainage patterns.</li> <li>▪ Prevent as far as practical, sediment transport to adjacent watercourses.</li> </ul>
<b>Management Strategies</b>	<p>Conduct all earthworks in accordance with an updated and detailed <i>Erosion, Sediment and Stormwater Management Plan (Appendix L)</i>.</p> <p>Management strategies include:</p> <ul style="list-style-type: none"> <li>▪ Install clean water diversions upslope of sloping Wind Turbine Generation (WTG) sites to direct clean stormwater away from work/bare areas. Where possible, runoff from access tracks will also be directed away from WTG sites;</li> <li>▪ Direct all uncontaminated (clean) stormwater to stable land, ensuring water is dispersed/diffused to prevent erosion.</li> <li>▪ Strip topsoil (~200mm depth) separately and retained for rehabilitation/stabilisation activities. It is important to ensure separate soil horizons are retained in separate stockpiles and not mixed. These stockpiles must be located away from drainage lines and have appropriate controls to ensure sediment is not lost (e.g. sediment fence/geotextile covers);</li> <li>▪ Respread/cover tower and permanent pad batters with topsoil and rehabilitate as soon as practicable on completion of pads;</li> <li>▪ Stabilise pad surfaces using methods such as topsoiling and revegetation or gravelling, where there is a risk of erosion of the pad;</li> <li>▪ Do not carry out clearing activities within 50 metres of a watercourse; where required, improve or develop appropriately designed watercourse crossings that prevent erosion;</li> <li>▪ Maintain vegetation cover along hardstands and access tracks where possible. Reduce damage to grass cover and sensitive heath vegetation types by limiting vehicle movements to work areas and approved access tracks;</li> <li>▪ Sediment fences and temporary drain crossings should be constructed/maintained as per the <i>Erosion, Sediment and Stormwater Management Plan</i>.</li> <li>▪ Minimise disturbance, stage and revegetate disturbed areas to achieve a ground cover of at least 70% on completion of construction in each area.</li> </ul>

	<p>Stormwater Diversion</p> <ul style="list-style-type: none"> <li>In areas which are subject to erosion potential (slopes &gt;5%), stormwater diversion banks / drains (whoa-boys) should be placed diagonally across the tracks to divert stormwater to adjacent undisturbed grassed areas following completion of construction. Spacing of such diversion drains can be approximately 50 m to 70 m apart. Where slopes are &gt;5%, then more frequent spacing is required.</li> <li>Adequate monitoring and follow-up work following construction to ensure any initiated erosion is arrested early.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>No large scale erosion or sedimentation caused to adjacent land uses as a result of construction activities.</li> <li>No evidence of additional sedimentation in watercourses as a result of erosion from decommissioning activities.</li> <li>Reinstatement of watercourses to original profile – removal of crossings where required.</li> <li>Adequate spacing of stormwater diversion drains in areas of erosion potential.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>Photographic Records</li> <li>Complaints Register – recorded and closed out.</li> <li>Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>Regular inspections, audits and reviews (non-compliance and incident reporting) undertaken in accordance with EMP and recommendations and corrective actions implemented.</li> <li>Decommissioning audits will include all watercourse crossings.</li> <li>A post-construction audit which will evaluate revegetation, erosion control, weed control, water course bank stability will be conducted annually for two years following completion of decommissioning.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>Environmental Officer</li> <li>External Environmental Consultant</li> <li>MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li><i>Erosion, Sediment and Stormwater Management Plan (Appendix L)</i></li> </ul>

### 7.3 Management of Flammable and Combustible Substances

<b>Policy</b>	To ensure that storage and handling of flammable and combustible substances onsite does not cause environmental harm or harm to persons.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>To minimise potential for land, surface water and groundwater contamination.</li> <li>To ensure the on-going safety of construction personnel.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>A <i>Hydrocarbon and Hazardous Substance Plan (Appendix M)</i> and Emergency Evacuation Plan shall be in place and employees inducted in its application.</li> <li>Flammable and combustible substances are stored, handled, separated and signed as required by the Flammable and Combustible Liquids Regulations and AS1940.</li> <li>Transportation of dangerous goods will be in accordance with the Regulations and with AS 1678, AS 2809 and AS 2931.</li> <li>A qualified person will be appointed as Site Safety Officer.</li> <li>An on-site set of the relevant MSDS for all flammable and combustible substances and dangerous goods used during construction will be maintained and available.</li> <li>Waste flammable and combustible substances which cannot be recycled will be transported to a designated disposal site as approved by Local Government.</li> <li>No refuelling of plant and equipment over or within 100m of watercourses.</li> <li>Spill kits containing absorbent and containment material (e.g. absorbent matting) will be available where hazardous materials are used and stored and personnel trained in their correct use.</li> <li>Spills of flammable and combustible substances will be rendered harmless and collected for treatment and / or remediation or disposal at a designated site, including cleaning materials, absorbents and contaminated soils and reinstatement made to the affected area.</li> <li>Personal protective equipment (PPE) appropriate to the materials in use will be provided.</li> <li>Relevant Local Government permits will be held and conditions of permits met.</li> </ul>

<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ No environment harm caused on site due to hazardous goods contamination</li> <li>▪ Cut off flowpath to drains/watercourses e.g. sand bags, earthen bund, in the event of a spill.</li> <li>▪ Ensure appropriate remedial action has been implemented for any spills.</li> <li>▪ Major incidents reported to relevant authorities and their directions followed.</li> <li>▪ Spill kits and PPE available and used as appropriate.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Photographic Records</li> <li>▪ Regular inspection of storage facilities and work practices in the handling of flammable and combustible substances or other dangerous substances.</li> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> <li>▪ Environmental Officer</li> <li>▪ Site Safety Officer</li> </ul>
<b>Associated Documentation</b>	<i>Hydrocarbon and Hazardous Substance Plan</i> ( <b>Appendix M</b> )

## 7.4 Noise and Vibration

<b>Policy</b>	To minimise the impact of decommissioning noise nuisance and vibration to nearby residences.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise noise nuisance generated by construction activities.</li> <li>▪ Minimise any vibration nuisance to nearby residences.</li> </ul>
<b>Management Strategy</b>	<ul style="list-style-type: none"> <li>▪ Provide advance notice of any scheduled atypical noise events to nearby residents.</li> <li>▪ Ensure camp sites are located a sufficient distance from residences to limit any noise nuisance.</li> <li>▪ Equipment maintained in accordance with manufacturer's specifications.</li> <li>▪ Schedule atypical noise events for appropriate times.</li> <li>▪ Any blasting is to be carried out in accordance with current practice standards with particular reference to AS 2187.</li> <li>▪ Maintain liaison with nearby residents.</li> <li>▪ Noisy construction activities in proximity to homesteads to be limited to 7.00 am to 6.00 pm Monday to Saturday.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Less than 3 noise related complaints received from residents during decommissioning.</li> <li>▪ Repair and replace faulty equipment as soon as possible.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Noise monitoring will occur at the source of the noise complaint as directed by the regulatory authority to investigate a noise complaint. Monitoring will be undertaken in accordance with the latest edition of DEHP Noise Management Manual Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Preconstruction audit of any premises located in areas containing hard rock.</li> <li>▪ Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> <li>▪ Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪</li> </ul>

## 7.5 Air Emissions

<b>Policy</b>	To complete the decommissioning of each WTG line in a manner to maintain ambient air quality of the local area.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ To maintain acceptable limits of vehicular and machinery operating emissions.</li> <li>▪ To receive zero complaints from local landholders regarding air quality.</li> <li>▪ To minimise the generation of fugitive dust emissions produced during decommissioning.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Vehicles and machinery shall be maintained in accordance with manufacturer's specifications.</li> <li>▪ Watering of construction site and access tracks will be carried out on an as required basis, particularly on dry and windy days and especially near residential homesteads.</li> <li>▪ Avoid smoke generation by a strict no burning policy.</li> <li>▪ Implement fire control measures during welding operations. Hot Works Permits must be obtained for all works which may result in ignition of a fire (for example welding, grinding or anything that may cause a flame or spark). This will set out procedures to be followed regarding where the work is undertaken, firefighting equipment, and personnel to be in attendance and timing for the work to be undertaken.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Visual observations of dust emissions during windy/dry periods.</li> <li>▪ No dust nuisance complaints from nearby residents.</li> <li>▪ No excessive visible dust during construction activities.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Photographic Records</li> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager.</li> <li>▪ Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪</li> </ul>

## 7.6 Waste Management

<b>Policy</b>	To minimise waste generation and maximise reuse and recycling of construction (decommissioning) waste products.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise impacts related to waste management.</li> <li>▪ No evidence of litter or refuse generated from construction related activities.</li> <li>▪ No contamination of land, air or water as a result of inappropriate waste management.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Waste separated for reuse, recycling and rubbish, with transport and disposal of waste by appropriately licensed contractors.</li> <li>▪ Stockpiling and salvaging reusable and recyclable wastes, such as timber skids, pallets, drums and scrap metals.</li> <li>▪ Collecting and removing waste oil and solvents from site for recycling, reuse or disposal at approved locations.</li> <li>▪ Disposing of sewage and sullage from camp site via a packaged mini sewerage treatment plant (greywater may be discharged to land in accordance with local approvals).</li> <li>▪ Collection of chemical wastes in 200 L drums (or similar sealed container), appropriately labelled, for safe transport to an approved chemical waste depot or collection by a liquid waste treatment service.</li> <li>▪ All binding material and dunnage from transport vehicles and unloading areas is to be collected and transported off the easement to designated disposal areas.</li> <li>▪ Collecting and transporting general refuse to a Local Government approved disposal site.</li> <li>▪ Ensure wastes are not accessible by stock or wildlife.</li> <li>▪ Refuse containers will be located at each worksite.</li> <li>▪ Where practical, wastes will be segregated and reused/recycled (e.g. scrap metal).</li> <li>▪ All personnel shall be instructed in project waste management practices as a component</li> </ul>

	<p>of the environmental induction process.</p> <ul style="list-style-type: none"> <li>▪ Spraying of declared plants and disposal to regulated landfill.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Clean and waste-efficient construction site.</li> <li>▪ Percentage of waste recycled.</li> <li>▪ No litter left onsite during construction.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Maintain regulated waste tracking records.</li> <li>▪ Photographic Records.</li> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Regular housekeeping checks and a waste audit to be conducted. The camp site area is to be inspected after relocation.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i>.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> <li>▪ Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ Material Safety Data Sheets</li> </ul>

## 7.7 Fire Management

<b>Policy</b>	To minimise the potential for bushfires from decommissioning activities.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ No fires deliberately lit or allowed to remain alight along the WTG line or other project related worksites.</li> <li>▪ No build-up of flammable material during construction near hot work areas.</li> </ul>
<b>Management Strategies</b>	<p>Conduct procedures in accordance with the <i>Bushfire Management and Emergency Evacuation Plan (Appendix N)</i>.</p> <ul style="list-style-type: none"> <li>▪ Open fires will be banned on the project. Fires include open barbeques, billy fires, brush burning and rubbish burning.</li> <li>▪ Hot Works Permits must be obtained for all works which may result in ignition of a fire (for example welding, grinding or anything that may cause a flame or spark). This will set out procedures to be followed regarding where the work is undertaken, firefighting equipment, and personnel to be in attendance and timing for the work to be undertaken.</li> <li>▪ Adoption of lightning protection measures for both turbines and substations.</li> <li>▪ Unnecessary build-up of flammable material near working areas will be prevented, with vegetation and other flammable material being stockpiled well clear of hot work activities.</li> <li>▪ Water trucks (also used for dust suppression) will be available for use as fire trucks in the event of fire.</li> <li>▪ All vehicles will be equipped with portable fire extinguishers.</li> <li>▪ Fire extinguishers and a water cart will be available to the welding crew. All appropriate crew members will be trained in the use of firefighting equipment.</li> <li>▪ Emergency Response Plan shall include details on local contacts for firefighting assistance.</li> <li>▪ Construction management liaison with local Rural Fire Service personnel during high fire periods.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Fire frequency.</li> <li>▪ Ignition from lightning strikes</li> <li>▪ Build-up of flammable material near hot work areas.</li> <li>▪ Emergency Response Plan in place.</li> <li>▪ Permits and approvals as required.</li> </ul>



<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Monitor work areas for appropriate fire extinguishers, build-up of dry fuel, or other dry combustible materials (paper etc.).</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Environmental Officer</li> <li>▪ MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Bushfire Management and Emergency Evacuation Plan</i> (<b>Appendix N</b>).</li> </ul>

## 7.8 Access

<b>Policy</b>	<ul style="list-style-type: none"> <li>▪ Existing cleared areas and access tracks shall be used to access the WTG's so as to minimise the impact on vegetation and existing land use and minimise potential for weed invasion.</li> <li>▪ Safely manage the transportation of wind turbine components in accordance with the Traffic Management Plan.</li> </ul>
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise impacts to native flora and fauna.</li> <li>▪ Minimise impacts to soil and water.</li> <li>▪ Avoid adverse impacts on cultural and historic heritage sites.</li> <li>▪ Reduce the likelihood of the spread of weeds and fauna pests.</li> <li>▪ As far as reasonably practicable, prevent movement of pest animals across declared barrier fences.</li> <li>▪ Safely manage the transportation of WTG elements.</li> <li>▪ Minimise any new access tracks and the number of access tracks.</li> <li>▪ Minimise disruption to landholder activities and third parties.</li> <li>▪ Manage road and track usage, and achieve satisfactory road and site rehabilitation.</li> <li>▪ Minimise damage to existing road networks.</li> <li>▪ Stakeholder consultation plan implemented.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Existing roads and tracks will be used where practicable.</li> <li>▪ New access tracks and any diversions will generally be avoided, but if necessary, will be selected to minimise impacts on sensitive vegetation, erosion-prone soils and watercourse crossings; avoid any significant cultural heritage sites in accordance with the CHMP and HHMP and minimise noise to nearby residents. New access tracks and diversions will only be used by agreement with the landholder.</li> <li>▪ Consultation shall occur between Site Manager and senior police management at Mareeba and Atherton to ensure any potential cumulative impacts are mitigated.</li> <li>▪ Disturbance (including access) to No-go areas shall be avoided. These shall be marked with flagging tape, paraweb fencing or equivalent.</li> <li>▪ Wash down of plant and equipment (including vehicles) following work in any declared plant area.</li> <li>▪ Erosion and sediment control measures will be used as and where required.</li> <li>▪ Speed and weight restrictions will be applied to project vehicles as appropriate.</li> <li>▪ Any damage to existing roads and tracks shall be repaired regularly.</li> <li>▪ Safely manage the transport of WTG components in accordance with the TMP to be developed in conjunction with local governments, QPS and DTMR.</li> <li>▪ Undertake a road condition survey of roads used by the Project.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Access readily manageable and able to be rehabilitated using standard techniques.</li> <li>▪ Complaints from land owners, authorities and public are minimised.</li> <li>▪ Erosion and sediment control in place.</li> <li>▪ Condition of existing roads and tracks are maintained.</li> <li>▪ WTG components managed in line with transport management plan.</li> <li>▪ Road condition not deteriorated as a result of project activities or made good following deterioration caused by project activities.</li> </ul>

<b>Monitoring, reporting and corrective actions</b>	<ul style="list-style-type: none"> <li>▪ Photographic records</li> <li>▪ Complaint Register – complaints recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Regular inspections, audits and reviews (non-compliance and incident reporting) undertaken in accordance with EMP and recommendations and corrective actions implemented.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Environmental Officer / Community Liaison Officer</li> <li>▪ MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ Alignment Sheet</li> <li>▪ Biosecurity (including weeds) Management Strategy</li> <li>▪ Decommissioning Safety Management Plan</li> <li>▪ Road condition assessment</li> <li>▪ Maps of access tracks</li> </ul>

## 7.9 Construction Compounds and Laydown Areas

<b>Policy</b>	To minimise the impact on the environment from the decommissioning contractors compounds providing workspace and provisions for construction teams.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimal impact on the natural environment.</li> <li>▪ Compliance with Local Government requirements for provision of infrastructure and waste disposal.</li> <li>▪ Reinstatement of site to equivalent surrounding conditions following Project use.</li> <li>▪ Functional waste minimisation, segregation and recycling systems operational at all worksites.</li> <li>▪ Ensure activities do not encourage feral animals or mosquito breeding or the spread and introduction of weeds.</li> <li>▪ High standard of site management and general housekeeping.</li> <li>▪ Stakeholders will be adequately consulted.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Construction compounds will be located following agreement with landholders and / or local government.</li> <li>▪ Construction compounds will not be established in floodplains or any other location vulnerable to extreme weather conditions.</li> <li>▪ Construction compounds will be selected to minimise impacts on sensitive vegetation, erosion-prone soils and watercourse crossings; avoid any significant cultural heritage sites and to minimise noise to any nearby residents.</li> <li>▪ Effluent to be treated in a packaged sewage treatment plant.</li> <li>▪ All other wastes will be disposed of in accordance with the requirements of the local government.</li> <li>▪ Total petroleum hydrocarbon (TPH) soil testing of the area containing temporary fuel storages will be conducted following removal of these storages.</li> <li>▪ Following use, camp sites and construction compounds will be reinstated and revegetated to as near as practical to their original, natural condition.</li> <li>▪ Waste will not be burnt.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Clean and tidy site.</li> <li>▪ Waste management, waste disposal and waste recycling measures in place.</li> <li>▪ Construction compounds successfully rehabilitated following completion of the Project.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Photographic records.</li> <li>▪ Complaint Register – complaints recorded and closed out.</li> <li>▪ Daily Check Sheets– completed and reviewed by manager / supervisor.</li> <li>▪ Regular inspections, audits and reviews (non-compliance and incident reporting) undertaken in accordance with EMP and recommendations and corrective actions implemented.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the MEWF Operations Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol</i> (<b>Appendix D</b>)</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ MEWF Operations Manager</li> <li>▪ Environmental Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ Site design plans, SCP</li> </ul>

## 7.10 Watercourse Management

<b>Policy</b>	To avoid degrading water quality and to minimise the impact to watercourses and the riparian environment.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise impacts on riparian and aquatic flora and fauna.</li> <li>▪ Minimise erosion and sedimentation.</li> <li>▪ Maintain existing water quality and water flow regimes.</li> <li>▪ Maximise rehabilitation success of achieving long-term site stability.</li> <li>▪ Prevent the spread of noxious and environmental weeds.</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Existing crossings are to be used and no new crossings are to be constructed as part of the decommissioning stage.</li> <li>▪ Watercourse crossings will ideally be at right angles to the direction of water flow to minimise scour potential. This will include vehicular and maintenance tracks.</li> <li>▪ Any vegetation clearing will be kept to a minimum. Advice should be sought from the supervising botanist.</li> <li>▪ Watercourse banks will be reinstated as near as possible to their former profile, stabilised and revegetated as necessary to prevent scouring.</li> <li>▪ Any weed establishment is to be controlled in accordance with the methods detailed in the <i>Weed and Pest Management Plan (Appendix J)</i>.</li> <li>▪ Meteorological forecasts (e.g. BoM website) will be monitored for storm and heavy rain events and no works will occur during heavy rainfall events or when the watercourse is in flood or carrying above normal flow</li> <li>▪ Stormwater diversion banks / drains (e.g. whoa-boys) are to be placed near to the top of the banks of the watercourse (refer to <b>Appendix L</b>).</li> <li>▪ Additional stormwater diversion banks / drains (e.g. whoa-boys) are to be placed at a distance of 10 m back from each side of the top of the watercourse embankment.</li> <li>▪ No introduced species of plants are to be used in rehabilitation of watercourse banks. Strict advice should be sought from the supervising botanist and the <i>Rehabilitation Plan (Appendix K)</i></li> <li>▪ Consideration will be given to the use of rock stabilisation to the channel and embankments to prevent scour.</li> <li>▪ Construction of watercourse crossings will be completed promptly and with due regard to the weather.</li> <li>▪ The disturbance corridor for the bed, bank and approaches to watercourses will be the narrowest practicable for safe construction.</li> <li>▪ Where an access track is required through a watercourse, this should be placed on the downstream side of the pipeline to minimise the potential for future erosion over the pipeline.</li> <li>▪ All large trees will be retained. If clearing of shrubs is to occur, then all rootstock will be retained for soil stabilisation of the banks.</li> <li>▪ In the event of flooding, remedial action will be taken in accordance with the <i>Bushfire Management and Emergency Evacuation Plan</i> where necessary.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ Watercourse banks and channels effectively reinstated to prevent scouring.</li> <li>▪ Watercourse flows and channel crossings not altered.</li> <li>▪ Erosion and sediment control techniques implemented onsite where necessary.</li> <li>▪ Water quality control maintained.</li> <li>▪ Success of rehabilitation measures.</li> <li>▪ Records maintained of all actions and controls.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Photographic records</li> <li>▪ Complaints Register – recorded and closed out.</li> <li>▪ Daily Check Sheets – completed and reviewed by manager / supervisor.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i></li> <li>▪ Post-construction audit to be conducted annually for two years to evaluate revegetation, erosion control, weed control, watercourse integrity and success of bed and bank re-profiling.</li> </ul>

<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Environmental Officer and Community Liaison Officer</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Erosion, Sediment and Stormwater Management Plan (Appendix L)</i></li> <li>▪ <i>Weed and Pest Management Plans (Appendix J)</i></li> </ul>

## 7.11 Clean up and Rehabilitation

<b>Policy</b>	To restore the land to a status that is comparable to the condition of the pre-construction environmental characteristics.
<b>Performance Objectives</b>	<ul style="list-style-type: none"> <li>▪ Minimise soil erosion</li> <li>▪ WTG line stable</li> <li>▪ Minimise modification of drainage patterns</li> <li>▪ Minimise weed invasion</li> <li>▪ Minimise visual impact</li> <li>▪ Minimise adverse impacts on other land uses</li> </ul>
<b>Management Strategies</b>	<ul style="list-style-type: none"> <li>▪ Visual markers used to identify clearing boundaries and sensitive features, will be removed.</li> <li>▪ Hollow-bearing logs and coarse woody debris are to be repositioned on decommissioned sites to provide habitat for fauna.</li> <li>▪ Where ground conditions allow, compaction relief will be undertaken where required by scarifying soils along the contours.</li> <li>▪ Former turbine pads will be re-profiled according to the nearest and most appropriate landform (i.e. additional slopes will not be created).</li> <li>▪ Erosion and sediment control measures will be installed where necessary. Existing soil erosion measures will be reinstated to a condition at least equal to the pre-existing state.</li> <li>▪ All waste materials and equipment will be removed from the site following decommissioning.</li> <li>▪ Soil material is to be returned to the same general area from which it was extracted to minimise the risk of the spread of weeds, pests and diseases.</li> <li>▪ Where disturbed areas are to be re-planted or re-seeded, only local provenance native species sourced from a local seed bank will be used. If direct-seeding is recommended for particular situations as detailed in the <i>Rehabilitation Plan (Appendix K)</i>, the seed mixtures will be formulated for the conditions of the area.</li> <li>▪ Where applied, seed will be evenly spread over the entire disturbed area.</li> <li>▪ Direct-seeding will take place as soon as practicable during clean up and when ground conditions are most conducive to seed germination.</li> <li>▪ Fertilisers and soil supplements will be used only if prescribed in the Rehabilitation Plan or approved through specific expert advice.</li> <li>▪ Two monitoring sites for each Regional Ecosystem to be rehabilitated are required to be established as a benchmark from which to measure performance of rehabilitation.</li> </ul>
<b>Performance Indicators</b>	<ul style="list-style-type: none"> <li>▪ No new weed species introduced.</li> <li>▪ Weed Management implemented.</li> <li>▪ Groundcover re-established.</li> <li>▪ No change in drainage pattern leading to soil erosion.</li> <li>▪ Stable landforms.</li> </ul>
<b>Monitoring, Reporting and Corrective Action</b>	<ul style="list-style-type: none"> <li>▪ Photographic records from monitoring sites.</li> <li>▪ Complaints Register – recorded and closed out</li> <li>▪ Check Sheets (recorded at monitoring sites) – completed and reviewed by manager / supervisor.</li> <li>▪ Environmental monitoring check sheet (<b>Appendix F</b>) to be completed by Environmental Officer monthly for all construction areas of the site and signed off by the Construction Manager. This will be filed on site.</li> <li>▪ Report all incidents and near misses in the <i>Incident Report Protocol (Appendix D)</i>.</li> <li>▪ Post Construction Audits to evaluate success.</li> <li>▪ Regular Easement Inspections.</li> </ul>
<b>Responsible Person</b>	<ul style="list-style-type: none"> <li>▪ Environmental Officer</li> <li>▪ MEWF Operations Manager</li> </ul>
<b>Associated Documentation</b>	<ul style="list-style-type: none"> <li>▪ <i>Rehabilitation Plan (Appendix K)</i></li> </ul>

## 8.0 Implementation Schedule

### 8.1 Environmental Records

The EMP must include a timetable for implementation of all programs of works referred to in the above programs and plans. A number of environmental records are required to be documented and kept for this project (**Table 4**). They are the responsibility of the Construction Manager, Site Manager and Environmental Officers on site, however it is important for all employees to be aware of these documents.

**Table 4** provides the timetable for works over the construction and operations of the MEWF project.

**Table 4 Environmental Records**

Document	What is it used for?	When required
Environmental Management Plan	Details control strategies to mitigate against the potential impacts to the environment as a result of the project. Plan to be amended during project to address changes in design and methodology.	Prior to works commencing
Site Specific Environmental Induction	Addresses environmental management needs and constraints applicable to the project.	Delivered to all new personnel to site
Permits, Licences and Approvals	Details which approvals have been obtained and their conditions.	Duration of project
Environmental Inspection Checklists (incl. Environment and Heritage Inspection Checklist)	Inspection of the site and controls to ensure that management measures are adequate.	Fortnightly
Induction Register	Register of all personnel that have undertaken environment and cultural heritage training and induction prior to commencement.	Ongoing
Waste Transport Certificate	Required under legislation to keep official receipts of disposed regulated and trackable wastes.	Waste collected by Contractor
Weed Hygiene Declaration Forms	Weed seed control: weed hygiene declarations are required for all plant and vehicles (subcontractors) arriving & leaving site.	Plant/Vehicles arriving & leaving site
Water Extraction Log	Record details of water extraction.	When water is being extracted
Monitoring Results Log	This will document the results of water quality monitoring i.e. pH and turbidity	Post monitoring
Audit Reports	Details compliance with contracts, systems and lists and identifies the requirements of corrective actions.	After audit has been completed
Cultural Heritage Monitor Timesheets	Document the working hours of any Cultural Heritage Monitors that work on site (use localised form).	During Monitoring
Fill Agreement	Manages the risks associated with spoiling on private property	Prior to spoiling
Project diary	Daily site inspections to verify compliance with the EMP, licences, permits and approvals and other environmental performance requirements specified within the Contract.	Daily



### 8.3 Implementation Schedule

**Table 5** provides the schedule of works for delivery of all Environmental sub-plans under the Environmental Program.

**Table 5 Implementation Schedule – Environmental Sub-plans**

Task	2016	2017				2018				2019
Activity	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Construction and Worksite Operational Management Plan (CEMP)										
Sediment, Erosion and Stormwater Management Plan										
Hydrocarbon and Hazardous Substance Plan										
Bushfire Risk Management Plan and Emergency Evacuation Plan Ecological Fire Management Plan										
Northern Quoll (Significant Species) Management Plan										
Threatened Plant Management Plan										
Weed Management Plan										
Pest Management Plan										
Rehabilitation Plan										
Habitat Clearing and Management Plan										
Cultural Heritage Management Plan										
Environmental Management Plan Training Program										
Environmental Management Plan Reporting Program										
Northern Quoll Outcomes Strategy										
SFF/BRSF Implementation Plan										

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## 9.0 References

Burnett, S (2016) Outcomes Strategy prepared for prepared for Ratch Australia Pty Ltd, Brisbane.

RPS Australia East (2016) Offset Area Management Plan prepared for Ratch Australia Pty Ltd, Brisbane.

## 10.0 Glossary

Term	Description / Definition
AADT	Annual Average Daily Traffic
Access Roads	Roads connecting public roads to the Site and the Site Roads
ACH Act	<i>Aboriginal Cultural Heritage Act 2003</i>
Aquifer	A water-saturated geologic unit that is capable of transmitting significant or usable quantities of groundwater under ordinary hydraulic gradients.
Arboreal	Living in trees.
ASL	Above Sea Level (referring to altitude).
Assembly Area	Areas on site where rotor blades are attached to the hubs prior to the installation of the complete rotor to the nacelle. The area is only relevant for the rotor assembly installation method.
ATSIHPA	<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>
Bagasse	A by-product of sugar cane
Batching plant	Operational area where concrete and other aggregated materials are prepared.
Biodiversity	Totality of genes, species, and ecosystems of a region. A contraction of biological diversity.
Biological diversity	The totality of genes, species, and ecosystems of a region.
Bioregion	An area of land that comprises broad landscape patterns that reflect major structural geologies and climate, as well as major floristic and faunal assemblages (from Sattler and Williams 1999).
Biota	All the plant and animal life of a particular region.
Buffer	Area of vegetation providing protection from disturbance.
Catchment	The term used to describe the area which is drained by a river. It is sometimes called the river basin or watershed. The catchment is the most significant factor determining the amount or likelihood of flooding.
CHMP	Cultural Heritage Management Plan
Climate Change	Any long-term significant change in the 'average weather' that a given region experiences. Average weather may include average temperature, precipitation and wind patterns. It involves changes in the variability or average state of the atmosphere over durations ranging from decades to millions of years.
Community	A number of definitions depending on the context: a) Used to describe that stakeholder group which is comprised of both individual community members and community groups. Community groups are regarded as members of the public or a group of citizens that have united to form an identifiable group, due to a common interest (as defined in the Social Impact Assessment chapters). b) Group of populations of plants and animals in a given place (as defined in the terrestrial ecology chapters).
Compound for substation and control building	The base area for the site management and technicians. The area consists of restroom facilities, parking, site offices, tools and spare parts containers
Consequence	Outcome or impacts of an event. There can be more than one consequence from one event. Consequences can range from positive to negative. Consequences can be expressed qualitatively or quantitatively. Consequences are considered in relation to the achievement of objectives ( <i>AS/NZS ISO 3100:2009 Risk management - Principles and guidelines</i> ).
Conservation significance	Species or community listed as endangered, vulnerable, rare, near threatened or migratory under either the EPBC Act or the NC Act
Construction Area	The part of the Installation Area located at each WTG foundation position which is required for assembling the cranes and area for operating cranes, containers for lifting equipment, generator unit, working area with tools and containers etc.
Corridor	A continuous link of suitable habitat between vegetation patches allowing movement by fauna.

Term	Description / Definition
Connectivity	The connectedness between patches of suitable habitat for an individual species or group of species
Crane Hard Stand	An improved / stabilized area with a prepared surface where plant and cranes can operate, vehicles can be parked and material can be stored.
Cultural heritage	The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.
Culverts	Reinforced structures (usually concrete) to provide sealed access over watercourses.
DEHP	Department of Environment and Heritage Protection (Queensland)
Development envelope	The area of the project site in which the wind farm infrastructure (turbines, hardstands, access roads, electrical cables and substation) could potentially be sited, comprising an area of approximately 57 ha.
Development footprint	The final locations of the wind farm infrastructure. This includes the infrastructure footprint - the area occupied by turbines, access tracks, substation etc. during the operational phase - and other areas that will be affected by construction (for example, cable trench easements, construction phase access track width, construction compound, crane pads) which can be rehabilitated post-construction.
DNRM	Department of Natural Resources and Mines (Queensland)
DotE	Department of the Environment (Federal)
Ecologically sustainable development	The environmental component of sustainable development. It can be achieved partially through the use of the 'precautionary principle', namely that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
Ecology	The scientific study of the distribution and abundance of life and the interactions between organisms and their environment. The environment of an organism includes physical properties, which can be described as the sum of local abiotic factors such as insolation (sunlight), climate, and geology and biotic factors, which are other organisms that share its habitat.
Economic Impact Assessment	Assessment of the measured effect on the economy of a region of an impacting agent.
Ecosystem	A natural unit consisting of all plants, animals and micro-organisms (biotic factors) in an area functioning together with all of the non-living physical (abiotic) factors of the environment.
Ecosystem function	Processes including soil formation and stabilisation, nutrient cycling, water infiltration, pollination and seed production.
Endemic	A species restricted to a particular place or region.
Environmental values	An aspect of the environment that is to be protected.
EIS	Environmental Impact Assessment -An environmental impact assessment is an assessment of the possible impacts that a proposed project may have on the environment, consisting of the environmental, social and economic aspects.
EMI	Electromagnetic Interference -is disturbance that affects an electrical circuit due to either electromagnetic induction or electromagnetic radiation emitted from an external source
EMF	An electromagnetic field is a physical field produced by electrically charged objects. It affects the behaviour of charged objects in the vicinity of the field.
EMP	Environmental Management Plan
Environmental Impacts	Impacts that could be caused to the environment when a development project is constructed; in operation or when decommissioned.
EP Act	Environmental Protection Act 1994
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
Fauna	Animal life

Term	Description / Definition
Flora	Plant life
Geotechnical	Technologies and sciences relating to geology.
GQAL	Good Quality Agricultural Land
Gravity Foundations	A standard type of reinforced concrete slab which support the wind turbine tower by gravitational mass. Excavation is required to a depth of approximately 2.5 m.
Greenfield developments	Developments that occur on land that primarily holds natural values (e.g. remnant vegetation, forested, undeveloped with human infrastructure).
LA90	The A-weighted statistical noise level exceeded for 90% over the measurement period (normally 10min), measured in dBA.
LAeq	The A-weighted constant noise level over the time period, equivalent to the actual fluctuating noise level, measure in dBA.
Landscape	Natural and manmade features of the urban, rural or natural environment, such as vegetation, topography and land use elements.
Landscape Character Area	A distinct, recognisable and consistent pattern of elements, be it natural (soil, landform) and/or human (for example settlement and development) in the landscape that makes one landscape different from another, rather than better or worse.
Least Concern	A remnant vegetation conservation status under Queensland's <i>Vegetation Management Act 1999</i> .
Likelihood	Used as a general description of probability or frequency. Can be expressed qualitatively or quantitatively (AS/NZS ISO 3100:2009 Risk management – Principles and guidelines).
LVIA	Landscape and Visual Impact Assessment which is to assess the nature and extent of visual impacts and qualities relating to locations and proposals
MEWF	Mount Emerald Wind Farm
MNES	Matters of National Environmental Significance, as defined under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth).
Microhabitat	A small localized habitat within a larger ecosystem.
Micro-siting	Accurately positioning infrastructure in order to take advantage of least environmental impact areas and positions in otherwise constrained areas.
Moisture Conditioning	Adding water to a soil or construction medium to improve its working/forming capability.
Montane heath	A rare plant community hosting numerous important species and restricted to exposed ridges above 900 m ASL.
MSC	Mareeba Shire Council
MW	Megawatts
Nacelle	The housing for the generating components of the wind turbine. This includes the generator, gear box, drive train and brake assembly.
Narrow endemic	A species with very limited and restricted distribution, and often confined to a unique or poorly represented habitat (e.g. <i>Melaleuca uxorum</i> and montane heath on the site).
NC Act	<i>Nature Conservation Act 1992</i> (Queensland)
NC Plan	Nature Conservation (Protected Plants) Conservation Plan 2006
NTA	<i>Native Title Act 1993</i>
Offsetting	Anything that balances, counteracts, or compensates for something else; providing compensation. For example carbon offsetting is the process of reducing greenhouse gas emissions by purchasing credits from others through emissions reductions projects, or carbon trading schemes.
Of Concern	A remnant vegetation conservation status under Queensland's <i>Vegetation Management Act 1999</i> .
Potable water	Water deemed safe for human consumption/drinking.
Project site	The land within the cadastral boundaries of all properties involved with the Proposal, comprising an area of 2,422 ha.
Proponent (the)	RATCH Australia Corporation Limited (RACL)
QH Act	Queensland Heritage Act 1992



Term	Description / Definition
RACL	RATCH Australia Corporation Limited
RCA	Radio Communications Act 1992
Regional ecosystem	Vegetation communities that are consistently associated with a particular combination of geology, land form and soil in a bioregion.
Regrowth	A native vegetation community that has regrown after clearing, in which native species that would have naturally occurred within this vegetation community dominate but have not reached the height and canopy cover necessary to be regarded as remnant as defined in the Queensland <i>Vegetation Management Act 1999</i> .
Rehabilitation	Relating to mitigating the impacts caused to the environment following disturbance (e.g. removal of vegetation cover, soil profiles, natural land features)
Remnant vegetation	Vegetation which is mapped by the Queensland Department of Environment and Resource Management as being within a remnant endangered regional ecosystem, a remnant of concern regional ecosystem, or a remnant not of concern regional ecosystem map. Vegetation remaining after an area has been cleared or modified.
Revegetation	The practice of direct-seeding or planting tubestock into the ground as part of the landscape rehabilitation process.
Riparian	Any land which adjoins or directly influences or is influenced by a body of water.
Sensitivity	The relative susceptibility to adverse impacts to environments.
Soil profiles	The 'layers' of soil as they are viewed in a vertical projection.
SPA	Sustainable Planning Act 2009 (Queensland)
SPP	State Planning Policy (Queensland)
Sustainable Development	Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Table drains	An erosion and sediment control measure - a flat-bottomed drain constructed adjacent to a road or track to slow down water velocity and reduce the rate of soil erosion, as well as capture transported soil.
Topographical	Relating to the various types of landform and features (e.g. mountains, ridges, watercourses).
TRC	Tablelands Regional Council
Turbine Footing	The stable horizontal platform for the towers sections and elements to be mounted. Foundations will be of either a gravity or rock-anchor type, depending on the geotechnical conditions at each wind turbine site.
Visual impact	Measure of a joint consideration of both visual sensitivity and visual effect that considered together determines the visual impact of a development.
VMA	<i>Vegetation Management Act 1999</i> (Queensland)
vpd	Vehicles per day
Weeds	Plant species that invade native ecosystems and can adversely affect the survival of indigenous flora and fauna. . A species not native to Australia. Sometimes referred to as naturalised species.
WTG	Wind Turbine Generator(s) - A wind turbine is a device that converts kinetic energy from the wind into electrical power.
WTWHA	Wet Tropics World Heritage Area - The Wet Tropics of Queensland World Heritage Site consists of approximately 8,940 km <sup>2</sup> of Australian wet tropical forests growing along the north-east Queensland portion of the Great Dividing Range.