RATCH Australia Corporation Ltd

Statement of Commitments

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Name	Signature	Date

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1.0 Environmental Management

The following Statement of Commitments (SoC) for Mt Emerald Wind Farm Pty Ltd provides the terms of environmental management and monitoring to mitigate potential adverse environmental impacts and gain a net environmental benefit from the establishment of the Mt Emerald Wind Farm (MEWF). The draft SoC is a compilation of the various mitigation measures developed from the detailed Environmental Impact Assessment (EIS) undertaken on identified key environmental issues. The SoC is presented as a set of measures arranged according to environmental issues by project phases, with the desired environmental outcomes, and responsibilities for implementation clearly identified.

This SoC will inform the preparation of the Project Environmental Management Plan (PEMP); Construction Environmental Management Plan (CEMP); Operational Environmental Management Plan (OEMP); and associated sub-plans that provide more site and project phase-specific details regarding the environmental management and monitoring measures to be implemented.

The Preliminary Environmental Management Plan which forms the basis of the Plans referred to here is detailed in the EIS in **Chapter 20** and **Appendix 31**.

1.1 Project Environmental Management Plan

The Project EMP is a management document prepared by the Proponent that expands on the final SoC and other project approval conditions into more detailed outcomes. The PEMP will provide the basis for:

- Meeting all environmental requirements;
- Assignment of environmental management responsibilities between the Proponent and contractors;
- Inclusion of environmental requirements into tender documents; and
- Continuing management and evaluation of the environmental performance of the project.

The PEMP will be an integral element of the detailed design phase and will form part of any contractual requirements. The PEMP will identify or describe:

- Processes for the environmental evaluation of the proposal;
- Environmental risks which may be managed respectively by the Proponent and the contractor;
- The promotion of environmental awareness among employees, contractors and the community;
- The requirements for review and/or audit of environmental documents such as contractors' Environmental Management Plans.

1.2 Construction Environmental Management Plan

The CEMP will be prepared by the primary contractor, in consultation with the Proponent, based on the former's proposed work methods and the environmental outcomes required for the Proposal.

The main aim of the CEMP will be to avoid, minimise and manage any potential environmental impacts arising from construction activities for the Proposal. It will describe in a more detailed and site-specific manner the management measures to be carried out for the activities at various stages of construction. This will include the definition and allotment of responsibilities among the Proponent, the primary contractor and its sub-contractors. It will also cover the conduct of ongoing stakeholder engagement, system of notification and complaints management during construction.

The CEMP will contain a suite of sub-plans to describe detailed management procedures for key environmental issues. Among the sub-plans projected for development for the construction phase are the following:

Threatened Species Management Plan (TSMP) – this plan will describe measures to minimise the impacts on threatened species of flora and fauna, including identification and marking of exclusion zones on site;

Weed and Pest Management Plan (WPMP) – This plan will detail the protocols for the management of noxious and environmental weed species on the site, with the objective of minimising the potential of risk of introducing such weeds and pests into the site or spreading them across and/or beyond the development footprint;

Rehabilitation Plan – this plan will provide guidelines to integrate appropriate landscape rehabilitation strategies and methods into the management of disturbed land. The Rehabilitation Plan will complement the WPMP (above), and outline recommendations for incorporating rare and threatened plants and the reinstatement of groundlayer and other fauna habitats.

Habitat Clearing and Management Plan – this plan will provide management strategies involved in mitigating the impacts of habitat clearing on susceptible fauna, including the induction of all workers and for wildlife spotters and catchers in involved in habitat clearing

Cultural Heritage Management Plan – this plan documents the procedures to be followed for impact avoidance or mitigation, and will be developed in consultation with an archaeologist, and the traditional owners of the land, being the Bar Barrum People and Muluridji People.

Traffic Management Plan (TMP) – the TMP, to be prepared in consultation with Department of Transport and Main Roads, will outline traffic movements to and from the site as well as within the construction zones. The TMP will describe measures that promote traffic safety for local and regional traffic, construction personnel and landowners who may need to access the project site. The TMP will also establish protocols for construction deliveries, especially of large loads (*e.g.* cranes, turbine infrastructure);

Bushfire Risk Management Plan – this plan, to be prepared in consultation with the Queensland Fire and Rescue Service and will identify and manage bushfire risks which may arise due to construction activities on site, and will describe protocols for responding to a fire during the construction phase. The plan will also identify regulatory requirements relating to fire safety in accordance with the relevant Workplace Health and Safety Requirements (*e.g.* relevant specifications for chemical storage and refuelling) and will be based upon the draft Fire Management Plan submitted with the Development Application;

Ecological Fire Management Plan – this plan will detail the management strategies to be implemented in order to maintain an appropriate fire regime (extent, intensity, frequency) for the various fauna and flora habitats represented on the site.

Emergency Evacuation Plan (EEP) – this plan will outline site protocols in the event of an emergency (*e.g.* chemical spill), including lines of communications among construction personnel and affected residents, safe evacuation routes and muster points, and coordination procedures with State Emergency Response personnel who may respond on site.

Erosion and Sediment Control Plan (ESCP) – prepared in accordance with the Institute of Engineers Australia Queensland ESC Guidelines, the ESCP will describe temporary and permanent sediment control procedures and methods to minimise erosion during the construction of the project, covering discrete construction areas and which will account for the changing surface configuration at various stages of construction

Construction Waste Management Plan (CWMP) – this plan will describe measures to minimise waste generation onsite and maximising opportunities for recycling and reuse.

Construction Dust Management Plan – this plan will describe measures for dust mitigation, control and monitoring using dust gauges.

Stormwater Management Plan (SWMP) – related to Erosion and Sediment Control Plan, the SWMP will prepared in accordance with Queensland Urban Drainage Manual, with specific reference to waterway crossings and stormwater outlets for all turbine pads and access tracks (where applicable) to ensure water quality is maintained.

1.3 Operation Environmental Management Plan

An Operational Environmental Management Plan (OEMP) will be prepared by the Proponent to describe the environmental management measures to be implemented during the operational phase of the project. This plan will cover not only the operational and maintenance requirements of the wind farm but will also address ongoing monitoring and maintenance of the project site to minimise ecological impacts and to promptly respond to potential community amenity issues.

The OEMP will include the following:

- key operational and maintenance activities;
- identification of statutory obligations and planning approval commitments;
- description of the roles and responsibility of site personnel and visiting contractors;
- monitoring of the following key environmental issues;
  - noise;
  - fauna impacts;
  - flora and vegetation impacts;
  - dust emissions (from bare ground within the development footprint);
  - stormwater quality and sedimentation
  - fire risks; and
  - operational traffic impacts.

The OEMP will be prepared and submitted for approval to the Council no later than one month prior to the commencement of operation of the wind farm.

1.1 Statement of Commitments

The Proponent has voluntarily prepared a draft Statement of Commitments (SoC) outlining the suite of mitigation measures to avoid, minimise and manage potential environmental impacts resulting from the construction (C), operation (O) and decommissioning (D) of the Proposal.

The elements of the Proponent's draft SoC which have been described throughout the EIS and the Development Application, after the detailed assessment of the key issues are compiled in **Table 1**.

Table 1 Draft Statement of Commitments

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
					PC	C	O	D
1.0	**Visual & Landscape**							
1.01	**Visual impact from contrast between turbines and rural landscape**	Reduce visual contrast	An off-white or grey colour for the structures will be considered to reduce visual contrast between turbines and the viewing background (this is subject to final turbine selection).	Proponent			✓	
1.02	**Visual impact**	Provide screening through landscape planting	The Proponent will undertake landscape planting where screening is deemed appropriate and in accordance with the outcomes of the assessment process and in consultation with landowners, taking into consideration that the location and design of screen planting used as a mitigation measure is very site specific and requires detailed analysis of potential views,	Proponent			✓	
1.03	**Visual impact from scarring of landscape**	Reduce occurrences and extent of landscape scarring	▪ Disturbed soil areas will be reinstated immediately after completion of construction, including re-contouring and re-seeding with appropriate plant species. ▪ Tracks have been designed to follow contour lines and existing roads will be used as much as possible, which will minimise cut-and-fill and the potential landscape scarring. ▪ Revegetation and offset planting will be undertaken on site in consultation and agreement with landholders.	Contractor and Proponent	✓	✓	✓	
1.04	**Visual impact from construction activities**	Reduce visibility of construction activities from outside the site.	▪ Safeguards will be enforced to minimise dust emissions during construction. ▪ Height of stockpiles will be restricted.	Contractor	✓	✓		
1.05	**Visual impact from night-time lighting**	Minimise light spill from project site	Activities (such as aviation lighting) that may require night-time lighting will be minimised and, if necessary, low lux (intensity) lighting designed to be mounted with the light inwards to the site will be used to minimise glare.	Proponent	✓	✓	✓	
1.06	**Visual impact from contrast between site infrastructure and the rural landscape**	Site infrastructure sympathetically with the nature of the locality	Substation and other ancillary infrastructure will be sited sympathetically with the nature of the locality and away from major roads and residences where possible to mitigate visual impact. The majority of electrical connections within the site (i.e. cables between the turbines) have been designed to be located underground (where possible), in order to further reduce potential visual impacts.	Proponent	✓	✓	✓	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
1.07	**Visual impact from contrast between site infrastructure and the rural landscape**	Select appropriate materials and colours	Appropriate materials and colours, together with consideration of their reflective properties, will be selected for ancillary structures and built elements associated with the Proposal.	Proponent	✓	✓		
2.0	**Noise**							
2.01	**Construction Noise**	Minimise noise impact on receivers	Construction and decommissioning activities will be carried out within the following periods only: ▪ Monday – Saturday– 6am to 6pm, ▪ No work or deliveries will be carried out on Sundays and public holidays, except for the following activities, associated with the construction and decommissioning, which may need to occur outside standard working hours such as: - delivery of oversize loads or materials as requested by Police or other authorities for safety reasons; - completion of concrete pouring past the standard hours of work due to climatic considerations; - Any works that do not cause a noise nuisance at nearby dwellings; - Emergency work to avoid injury, property damage and/or to prevent environmental harm.	Contractor	✓	✓		✓
2.02	**Construction Noise**	Minimise noise impact on receivers	In accordance with the, *Environmental Protection Policy (Noise) 2008* and relevant Local Laws*;* all the feasible and reasonable standard work practices would be employed to minimise construction noise impacts	Contractor	✓	✓		✓
2.03	**Construction Noise**	Minimise noise impact on receivers	Notification and ongoing consultation with potentially affected receivers will be carried out, especially where potentially noisy works are anticipated.	Proponent and Contractor	✓	✓		✓
2.04	**Noise from Construction Traffic**	Minimise noise impact on receivers	The timing of deliveries will be regulated and notification to residents carried out when deliveries of large loads are scheduled.	Proponent and Contractor	✓	✓		✓
2.05	**Construction Noise**	Minimise risk	Construction plant will be selected on the basis of low inherent potential to generate noise and vibration. Regular and ongoing maintenance of plant equipment and machinery will be undertaken to ensure operational noise do not exceed typical levels.	Contractor	✓	✓		✓

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
2.06	**Construction Noise**	Minimise noise emission from construction plant	Construction vehicles will be fitted with mufflers and low noise emission reversing alarms.	Contractor	✓	✓		✓
2.07	**Construction and Operational Noise**	Management of Noise Impacts	Establishment of Complaints Hotline to allow affected residents to register noise complaints and response within reasonable timeframe	Proponent	✓	✓	✓	✓
2.08	**Construction Noise**	Monitoring of noise levels at affected receivers	When noise complaints are received, the affected resident will be contacted to identify the source of noise and any remedial measures that may be required.	Proponent and Contractor	✓	✓		✓
2.09	**Operational Noise**	Manage noise impact on specific Receiver/s	Augment existing buildings to alleviate noise and ensure compliance with relevant noise policy base criterion (if required)	Proponent			✓	
2.10	**Operational Noise**	Reduction of turbine numbers as required to ensure compliance with noise criteria	The wind farm layout will be determined by the chosen turbine model. Turbine locations will be removed from the layout in the vicinity of any residence where necessary to achieve compliance with the relevant noise policy base criterion if required.	Proponent	✓	✓	✓	
2.11	**Operational Noise**	Monitor compliance with noise criteria	Within the first twelve months of operation, monitoring of wind farm noise emissions would be undertaken at representative residences including the closest non-involved residences to assess compliance with noise criteria. The monitoring will cover all prevailing wind conditions.	Proponent			✓	
2.12	**Operational Noise**	Address any non-compliance with noise criteria	Where operational noise monitoring indicates the Proposal exceeds noise limits set in the development approval conditions, the following noise mitigation measures shall be implemented: ▪ using active noise control functions of turbines; ▪ rectify any manufacturing defects or control settings so that noise can be reduced to be in accordance with the contracted specifications; or ▪ if excesses still occur, acoustic treatment of non-involved receiver dwellings.	Proponent			✓	
2.13	**Operational Noise**	Monitoring the effectiveness of operational noise mitigation measures	Should any of the measures in item 2.12 be adopted, their effectiveness will be verified through noise monitoring during the first 12 months of operation.				✓	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
3.0	**Flora and Fauna**							
3.01	Bare – rumbed Sheathtail bat Turbine Collision & Barotrauma	Turbine operation curtailment (increased cut-in speed & targeted turbine shut-down during high risk conditions or detected collision mortality	1) Continue and expand ultrasonic call surveys; sample within Rotor Swept Area (RSA) (higher towers & balloons) 2) Collect weather and insect abundance/height data 3) Identify high-risk conditions/times and seasons 4) Conduct radar utilisation at call survey locations sampling at RSA; quantify abundance and flight heights 5) Conduct numerical risk modelling (for *S. saccolaimus* only or for entire microchiropteran bat community – depending on radar data quality) **Output: Microchiropteran Bat Management Plan.**	External Ecologist / Specialist (inc. Biostatistician)	x			
3.02	Spectacled Flying-fox / Grey-headed Flying Fox - Turbine Collision	Turbine curtailment during high-risk conditions (active) or excessive mortality events (reactive)	1) Conduct radar utilisation surveys 2) Support CSIRO researchers to conduct satellite telemetry of more individuals from nearest colonies to site (Mareeba and Tolga Scrub) 3) Conduct numerical collision risk modelling (using radar/telemetry data) **Output: Flying Fox Management Plan**	External Ecological / Specialist	✓			
3.03	Northern Quoll Habitat Loss	Avoid clearing high-quality denning and foraging habitats	1) Undertake additional telemetry studies on the project site to determine whether proposed turbine ridge habitats are used preferentially, particularly females with young; and offsite, to collect data on dispersion rates to refine the PVA (to assess the significance of potential impacts) 2) Redesign infrastructure layout to avoid high quality foraging or maternal denning habitat and/or inform **Quoll Management Plan**	External Ecological / Specialist	✓			
3.04	Northern Quoll Habitat Degradation (late dry season wild fires and weed invasion)	1) Weed monitoring and control 2) Implementation of Ecological Fire Management (to avoid extensive wild fire in late dry season)	1) Fire-scale mapping using Landsat imagery 2) Control of existing weed infestations (especially invasive grasses along Kippen Drive and access tracks) **Output: Weed Management Plan and Fire Management Plan**	External Ecological/Specialist	✓			

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
3.05	Sarus Crane-Turbine Collision	Turbine curtailment during high-risk conditions (active) or excessive mortality events (reactive)	1) Conduct radar utilisation surveys 2) Support CSIRO researchers to conduct satellite telemetry of more individuals from nearest colonies flocks 3) Conduct numerical collision risk modelling (using radar/telemetry data) – updated from EIS **Output: Bird Adaptive Management Plan**	External Ecological/ Specialist	✓			
3.06	Clearing of Conservation Significant Plants	Avoidance and micro-siting of turbines.	Avoidance of disturbance to key plant habitats (see next point). Detailed plant survey of south-west montane heath habitat - GPS mapping of avoidance patches. Micro positioning of turbines to minimise clearing and disturbance to conservation significant plants and important vegetation types. Presence of Botanical advisor in pre clearance team. Instigate site-based seed and propagule collection for future rehabilitation work. **Output:** **Final site-based floristic records.** **Records of seed collections as per Rehabilitation Plan.** **Conservation Significant Plant Management Plan**	External Botanist	✓	✓	X	
3.07	Clearing of Conservation Significant Plants	Translocation and revegetation strategies	Prepare Significant Plant Management Plans including : Research propagation of Homoranthus porteri, Melaleuca uxorum, Plectranthus amoenus and Grevillea glossadenia. Conduct Revegetation trials. Investigate plant successional traits. **Output:** **Conservation Significant Plant Management Plan** **Annual Revegetation Trial report**	External Botanist	✓	✓	X	
3.08	Aquatic Flora and Fauna - reduced downstream water quality	Maintenance of downstream water quality through water monitoring and management in accordance with a detailed Erosion and Sediment Control Plan	Conduct preconstruction water quality monitoring to inform construction water quality targets Prepare Detailed Erosion And Sediment Control Plan (ESCP)	Pre-construction - External Specialist Construction- Environmental Officer	✓	✓	X 1st yr	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
4.0	**Indigenous Heritage**							
4.01	**Damage or disturbance to sites or items of Indigenous heritage significance**	Minimisation of potential impacts on sites or items of potential indigenous heritage significance	While no sites have been found to occur to date within the project area, the assessment of likely occurrence is moderate and as such, a strategy of avoidance of impacts will be adopted. In regard to the previously recorded Aboriginal objects identified in previous studies which are located within the study area, but outside areas of proposed impact, these areas will be avoided during construction, operation and decommissioning of the wind farm. Steps will be taken to ensure that inadvertent impacts to these locales do not occur.	Proponent and contractor in consultation with technical specialists and the local Aboriginal Community	✓			
4.02	**Damage or disturbance to sites or items of Indigenous heritage significance**	Minimisation of potential impacts on sites or items of potential indigenous heritage significance	Ground disturbance impacts associated with the Proposal will be kept to a minimum and that areas of work will be defined so as to ensure as little impact as possible to objects of Aboriginal cultural and heritage value which may occur on site.	Proponent and Contractor	✓	✓		
4.03	**Damage or disturbance to sites or items of Indigenous heritage significance**	Assess the potential Indigenous heritage impacts in development areas which have not been previously assessed	Additional archaeological assessment will be conducted in any areas proposed to be disturbed which have not been surveyed during the assessment completed to date prior to work commencing.	Proponent in consultation with Technical Specialists	✓	✓		
4.04	**Damage or disturbance to sites or items of Indigenous heritage significance**	Minimisation of potential impacts on sites or items of potential indigenous heritage significance	In consultation with an archaeologist, the relevant Aboriginal communities, an Indigenous Heritage Management Plan (IHMP) will be prepared as a component of the CHMP to document the procedures to be followed for impact avoidance or mitigation to ensure that all recorded Aboriginal objects identified in previous studies, which are located in the development envelope, but outside areas of proposed impact, are avoided during construction and operation of the wind farm.	Proponent in consultation with Technical Specialists	✓	✓	✓	
4.05	**Damage or disturb areas/items of Indigenous Heritage**	Management of undiscovered items of Aboriginal and/or archaeological significance	If during the course of the construction works any items of aboriginal cultural heritage or significance (i.e. archaeological items) are uncovered, works shall cease (within vicinity to the item) and DERM notified of the findings. An appropriate assessment and salvage strategy will be determined and implemented prior to the recommencement of construction works within the area. Should human remains be found during the proposed earthworks works will cease and the police notified immediately.	Contractor in consultation with the Proponent and DECCW	✓	✓		✓

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
4.06	**Damage or disturb areas/items of Indigenous Heritage**	Management of Aboriginal Cultural Heritage	Personnel involved in the construction management phases of the project will be trained in procedures to implement recommendations relating to cultural heritage where necessary.	Proponent and Contractor	✓	✓		
5.0	**European Heritage**							
4.07	**Damage or disturb areas/items potentially involving unexploded Ordnance**	Management of European History (specifically World War II)	▪ Prior to construction, undertake an investigation of presence of unexploded ordnance within the project site in accordance with Department of Defence and DERM requirements ▪ Undertake remediation measures in accordance with findings of the investigation report ▪ Personnel involved in the construction phase of the project will be trained in appropriate procedures to report findings of UXO which include: - Ensuring the object is left in situ; - Marking the general area to ensure no further disturbance can occur; - Note appearance, dimensions and location of object; - Notify the police immediately.	Proponent and Contractor	✓	✓		
	Damage or disturbance to sites and areas of European Cultural Heritage	Minimisation of potential impacts on sites or items of potential European heritage significance	Ground disturbance impacts associated with the proposal will be kept to a minimum and that areas of work will be defined so as to ensure as little impact as possible to objects of European cultural and heritage value which may occur on site.	Proponent and Contractor	✓	✓		
	Damage or disturbance to sites or items of Eurpoean heritage significance	Assess the potential Indigenous heritage impacts in development areas which have not been previously assessed	Additional archaeological assessment will be conducted in any areas proposed to be disturbed which have not been surveyed during the assessment completed to date prior to work commencing.	Proponent in consultation with Technical Specialists	✓	✓		
	Damage or disturbance to sites or items of European heritage significance	Minimisation of potential impacts on sites or items of potential indigenous heritage significance	Prepare CHMP to document the procedures to be followed for impact avoidance or mitigation to ensure that European objects found during investigations are avoided during construction and operation of the wind farm.	Proponent in consultation with Technical Specialists	✓	✓	✓	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
	Damage or disturb areas/items of European Heritage	Management of undiscovered European Cultural Heritage	If during the course of the construction works any items of European cultural heritage or significance (i.e. archaeological items) are uncovered, works shall cease (within vicinity to the item) and DERM notified of the findings. An appropriate assessment and salvage strategy will be determined and implemented prior to the recommencement of construction works within the area.		✓	✓		
5.0	**Traffic and Transport**							
5.01	**Adverse impact on local and regional traffic during the construction and decommissioning phases**	Minimisation of impact to local and regional traffic	Large oversize materials would be transported overnight to reduce impacts on road network (subject to DTMR approval). No oversize or large trucks associated with the construction would operate on the Kennedy Highway or Channel/Springmount Roads during the school bus hours of 7:30am and 8:50am, and between 2:30pm and 4:30pm on school days. Once more detail is known about the exact type of transport vehicles and routing for the delivery of turbine components to site, more detailed swept path analysis would be undertaken along the truck route to identify any road widening and road furniture relocation works that may be required.	Contractor in consultation with Traffic Management Specialists, RTA and ULSC	✓	✓		✓
5.02	**Traffic safety risks from construction vehicles**	Minimise traffic safety risks from movement of construction vehicles	Upgrade Kippen Drive and Springmount Road intersection, to accommodate oversize vehicles during the construction phase. Upgrade of Kippen Drive to a standard required to accommodate expected vehicle types, including sealing to reduce dust and noise at nearby properties. Traffic controllers on Kippen Drive and Springmount/Channel Road intersection will be provided to help assist large trucks exiting the site and manage any safety risks. Advance warning signs would be placed on each approach, 200 metres from the access road with “Prepare to stop” warnings when traffic controllers are present; A relatively significant increase of traffic volume on Kippen Drive, Channel and Springmount Roads could increase the risk of accidents with vehicles. Therefore, lower speed limits would be enforced on Springmount and Channel Roads and internal access roads at all times during construction.	Proponent and Contractor	✓	✓		

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
5.03	**Damage to existing road infrastructure**	Protect existing road infrastructure	Road and intersection conditions would be established by the use of field surveys and regular site inspections. When required, rehabilitation of the pavement and/or edges of seal, shoulders and verges would be carried out. At the completion of the works the access roads would be in the same or superior condition than at the commencement of the works; Regular road dilapidation surveys will be carried out during construction and decommissioning; Internal roads and turns in the project site are required to be widened up to 10m in order to transport the construction materials and the large turbines to the desired location, and will require surfacing upgrade through grading; and A procedure will be established to ensure the ongoing maintenance of access roads during the operation phase.	Proponent / Contractor	✓	✓	✓	✓
5.04	**Amenity impacts from construction and operation traffic**	Minimise potential amenity impacts from traffic from the Proposal	Procedures will be established to monitor traffic impacts on public and internal access tracks during construction, including noise, dust and travel times, and to implement modified work methods to reduce such impacts where possible.	Proponent, Contractor and Technical Specialists	✓	✓	✓	✓
5.05	**Loss of internal access roads**	Retain and handover internal access roads	Internal access roads will be retained and handed over to the landowners after decommissioning.					✓
6.0	**Aeronautical**							
6.01	**Disruption of flight paths and local aeronautical activities**	Minimise risk	Prior to the commencement of construction and operation the following information shall be provided to the CASA and DoD: ▪ as constructed coordinates in latitude and longitude of each WTG (WGS84 or MGA94); ▪ final height of each WTG in mAHD; and ▪ elevation at the base of each WTG in mAHD.	Proponent in consultation with technical specialists	✓	✓		
6.02	**Disruption of aerial agricultural activities**	Minimise risk	Agreed shutdown protocols with aerial operators when conditions and proximity of aerial spraying operations	Proponent in consultation with local operators			X	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
7.0	**Telecommunications**							
7.01	**Potential interference**	Minimise potential of Proposal infrastructure to interfere with existing telecommunications facilities	Once the final models and locations of wind turbines are known, the locations of communications towers and requirements of licence holders will be confirmed and input into the micro-siting of individual turbines to minimise potential for telecommunications interference.	Proponent and Contractor	✓	✓		
7.02	**Prolonged Interference or disturbance of communication links**	Manage and minimise impacts	At the commencement of operation, the Proponent shall offer to undertake a monitoring program of houses within 5km of the wind farm to determine any loss in television signal strength. If loss of signal occurs and the source of interference can be reasonably attributed to the Proposal, the Proponent shall put in place mitigation measures at each of the affected receivers in consultation and agreement with the landowners.	Proponent			✓	
8.0	**Fire and Bushfire**							
8.01	**Bushfire risk during construction**	Manage bushfire risk	A Bushfire Risk Management Plan will be prepared in consultation with the Rural Fire Service and QLD Fire and Rescue Service. The mitigation measures will include: • Construction personnel will be inducted on bushfire risk management and other fire risks that could be present at the project site. • On total fire ban days, restrictions will be placed on certain activities with the potential to cause fires. • Basic fire fighting equipment at each active site will be provided, including fire extinguishers, knapsacks and other equipment suitable for initial response actions with a minimum of one trained person on-site.	Contractor	✓	✓	✓	✓
8.02	**Bushfire risk during construction**	Maintain coordination with RFS	The QFRS will be provided with the final wind turbine locations, ancillary infrastructure, construction work schedule and locations of additional water supplies for construction, potential landing pads for fire fighting aircrafts and helicopters and access gates for fire fighting services.	Proponent and Contractor	✓	✓		

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
8.03	**Ignition of fire due to mechanical malfunction**	Minimise risk	▪ Dedicated monitoring systems (e.g. SCADA) enable wind turbines to be automatically shut down if ambient temperatures exceed the safe operating range, or if components overheat. ▪ Other remote alarming and maintenance procedures are required for electrical faults, which can still occur within the tower or nacelle and create a fire. ▪ Wind turbines will be shut down if directed by the QFRS in the event of nearby wildfire.	Turbine Manufacturer			✓	
8.04	**Spreading of fire away from wind farm infrastructure**	Minimise risk	▪ The substation would be surrounded by a gravel and concrete area free of vegetation to prevent the spread of fire from the substation and to reduce the impact of any bushfire on the structure. ▪ An Asset Protection Zone (APZ) would be maintained around the control room and substation buildings, compliant with the RFS guidelines. ▪ Areas around each WTG will be managed for fire risk (e.g. regular vegetation clearing and reduction of any fuel loads).	Proponent and Contractor			✓	
8.05	**Ignition of fire due to lightning strike on turbines**	Minimise risk	Lightening arresters will be built into each of the turbines to minimise the potential impacts of fire caused by lightening.	Turbine Manufacture			✓	
8.06	**Restricted movement of fire response vehicles and personnel**	Manage fire vehicle movement	Access roads will be constructed and maintained with suitable width and specifications for the movement of fire management vehicles.	Proponent and Contractor	✓	✓	✓	✓
9.0	**Health and Safety**							
9.01	**Wind farm noise**	Manage community concerns with respect to wind farm noise	The Proponent will establish a complaints management system to be implemented prior to the construction phase and maintained throughout the operation phase of the development to register noise and other health complaints and concerns about the Proposal from the community.	Proponent			✓	

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10.0	**Electromagnetic Fields**							
10.01	**Exposure to EMF**	Minimise unnecessary exposure to EMF	To ensure there would be no unnecessary exposure to EMF from the Proposal, the following mitigation and management measures will be implemented: ▪ electrical cables will be placed below ground where possible to shield electrical fields; ▪ wires will be bundled where possible to reduce the magnetic field emissions; ▪ appropriate security will be placed around emitting structures (e.g. substation) to restrict public access and limit potential exposure; and ▪ non-staff that need to go near the emitting structures will be accompanied by a trained and qualified staff member.	Proponent and Contractor			✓	
11.0	**Water Quality**							
11.01	**Pollution or contamination of aquifers**	Minimisation of pollution or contamination risk to surface and ground water quality	An Erosion and Sediment Control Plan and Stormwater Management Plan will be prepared in line with the FNQROC Development Manual, Institute of Engineers Australia Queensland ESC Guidelines and Queensland Urban Drainage Manual, as part of the CEMP. Both the ESCP and SWMP will address the requirements for: ▪ water retardation and diversion devices around construction areas, including devices to manage surface runoff from hardstand areas and surfaced access tracks; ▪ design of appropriately sized sedimentation basins to capture and treat runoff from construction areas; and ▪ monitoring and maintenance procedures for erosion and sediment control structures.	Proponent and Contractor	✓	✓		
11.02	**Pollution or contamination of local water ways and aquifers**	Minimising risk to groundwater quality and wind farm infrastructure	▪ Where rock anchor foundations are the first choice solution but the resulting risks posed to groundwater could be too high as may be shown in detailed geotechnical studies, alternative footings such as gravity foundations will be designed and implemented. ▪ Suitable perimeter protection and bunding will be provided to the substation transformers to minimise the risk of transformer oil leaks or spills during operation and maintenance.	Proponent in consultation with technical specialists, Contractors and Turbine Manufacturer	✓	✓	✓	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
11.03	**Pollution of local water ways and aquifers**	Minimising risk to groundwater quality	In the instance that belowground infrastructure intercepts the groundwater table, a suitable protective casing (for example a plastic pipe sleeve) would be used to pass through the ground water zone. This sleeve would allow the foundation/pile material to pass through and form a solid foundation without affecting the groundwater zone. Spill kits will be provided at or near the location of oil and fuel storage to contain potential spills and leaks. Concrete and cement carrying vehicles will only be washed out in appropriate wash down facilities. Hazardous material, waste and sewage will be managed in accordance with regulatory requirements. Wastewater produced from temporary on site toilets during construction will be disposed off site.	Contractor and Proponent	✓	✓	✓	✓
11.04	**Alteration to local hydrology**	Minimising adverse impacts on local hydrology	The construction of hardstands and sealed roads may cause minor alterations to drainage patterns due to localised reduction in infiltration resulting in increased runoff. The appropriate drainage structures and erosion controls will be incorporated in hardstands, access roads and tracks to manage run-off and reduce the risk erosion and scour from concentrated flows. Outlet structures will be designed in accordance with the DERM guidelines to minimise construction and operation impacts on watercourse and riparian corridors. Considerations include, but are not limited to: ▪ any stormwater outlets should aim to be 'natural', yet provide a stable transition from a constructed drainage system to a natural flow regime; ▪ All ancillary drainage infrastructure, e.g. sediment and litter traps, should be located outside the riparian corridor. Runoff should be of an appropriate water quality and quantity before discharge into a riparian corridor or watercourse is allowed; ▪ Discharge from an outlet should not cause bed or bank instability.	Proponent, designers and Contractor	✓	✓	✓	✓

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
11.05	**Pollution or contamination of local water ways**	Minimising pollution or contamination risk to surface water quality	▪ Except for drainage line crossings of access tracks and cable trenches, ground disturbance activities, including road construction and track upgrades and the excavation of footings for turbines, crane pads, control buildings and substation, would be located away from natural drainage features where possible. ▪ The storage of oils, fuels and other hazardous chemicals will be appropriately bunded and located away from watercourses. ▪ All trenching works will be rehabilitated immediately following completion and works within drainage lines will be confined to a minimal timeframe to reduce the risk of release of discharge of and accidental spills of oil or fuel from construction plant. ▪ Any spoil stockpiles from foundation excavation and access road construction will be located away from drainage lines, natural watercourses, road surfaces and trees, Stockpiles will be protected against erosion and sedimentation until the material is carted away for reuse or offsite disposal. Stockpiles to be retained longer than four weeks on site will be stabilised. ▪ The extra width of construction roads not required for operational phase access will be stabilised and rehabilitated to reduce the extent of bare ground. ▪ Sediment and erosion controls during various phases of construction will be developed in accordance with the requirements of the Institute of Engineers Australia Queensland ESC Guidelines. ▪ Water quality and erosion and sedimentation control devices will be regularly inspected and maintained to ensure functionality. If erosion is detected as a result of inadequate maintenance of drainage control devices, remedial action will be carried out immediately to avoid reoccurrence of the event.	Contractor	✓	✓	✓	✓
11.06	**Pollution of local water ways**	Manage the disturbance of riparian vegetation throughout the site	Any access tracks (with the exception of creek crossings) and all other works and disturbances will avoid any core riparian zone to avoid impacting on the integrity of the riparian corridors.	Proponent and Contractor	✓	✓		✓

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
12.0	**Soils and Landform**							
12.01	**Ground disturbance**	Minimise alteration to soils and landform especially where beneficial land use post-decommissioning may be restricted	Detailed geotechnical investigations would be undertaken to assess ground conditions and determine the most suitable foundation design for the turbine sites. The foundation design will consider the volume of excavation spoil that would be generated and any opportunities for reuse of the spoil in the construction of other site infrastructure and any constraints in stockpiling the material. Soil compaction resulting from vehicle access and laying of materials will be remediated after construction activities have been completed in the affected area. Where possible, access routes and tracks would be confined to already disturbed areas.	Proponent and Contractor	✓	✓		✓
12.02	**Creation of unstable landforms and loss of topsoil from construction activities and infrastructure layout**	Stabilise steep slopes	Subsoil would be separated from topsoil for reinstatement purposes. On steep slopes, topsoil would be stabilised; Any spoil stockpiles from foundation excavation and access road construction will be protected against erosion and sedimentation until the material is carted away for reuse or offsite disposal. Stockpiles to be retained longer than four weeks on site will be stabilised.	Contractor	✓	✓		
12.03	**Soil Contamination**	Manage any contaminated material from past land uses	The involved property owners will be consulted to identify any potential areas of contamination resulting from past land use. An unexpected finds protocol will be prepared to outline the procedures to manage any contamination identified or disturbed during excavation works.	Contractor and Proponent	✓	✓		
13.0	**Waste**							
13.01	**Inefficient resource use and waste generation**	Promote waste hierarchy	Waste will be managed according to a Waste Management Plan based on the hierarchy principles of resource management as follows: ▪ as a priority, unnecessary resource consumption will be avoided; ▪ avoidance will be followed by resource recovery (including reuse of materials, reprocessing, recycling, and energy recovery); and ▪ disposal will be undertaken as a last resort.	Contractor and Proponent	✓	✓	✓	

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13.02	**Inefficient resource use**	Promote efficient use of water and energy	Energy and water conservation will be promoted through training and use of appropriate signage.	Contractor and Proponent	✓	✓	✓	
13.03	**Missed opportunities for recycling and reuse**	Maximise opportunities for recycling and reuse	Purchasing decisions will be made in consideration of recycled content and increased opportunities for reuse (for example, refillable printer cartridges). Cleared vegetation will be chipped and used as mulch for revegetation works where practical. Bins will be provided in construction and office areas for the collection and segregation at source of wastes and recyclables.	Contractor and Proponent	✓	✓	✓	
13.04	**Potential contamination and OHS risk from improper waste disposal**	Control waste disposal procedures	Liquid and solid waste generated from the wind farm will be classified and disposed of in accordance with a construction waste management plan. Any hazardous waste, including unwashed empty, containers will be stored in appropriate containers on site prior to collection by licensed contractors for disposal to a licensed facility. All noxious weeds and exotic plant species removed would be disposed of at a licensed facility.	Contractor and Proponent	✓	✓	✓	
13.05	**Loss of amenity and potential contamination from waste generation**	Minimise risks from waste generation and waste handling	All working areas will be kept free of rubbish and cleaned up at the end of each work day. Any contaminated waste will be contained then disposed of according to regulatory requirements. Waste generated outside of the project site will not be stored, treated, processed or disposed in the project site.	Proponent and Contractor	✓	✓	✓	
14.0	**Community**							
14.01	**Regional community impacts as a result of the wind farm development, operation and decommissioning.**	Community enhancement and benefit	The Proponent is proposing to establish a Community Investment Fund and contribute to the fund each year. The fund would be maintained throughout the operational life of the project for investment in community infrastructure and services, sustainability initiatives, local economic and tourist developments, community groups and events etc.	Proponent			✓	
14.02	**Community information and project knowledge**	Dissemination of project information	With the exception of confidential documents, the Proponent will make all documents under this EA available for public inspection on request.	Proponent	✓	✓	✓	✓

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
14.03	**Community information and project knowledge**	Dissemination of project information	Regular newsletters and newspaper articles will be disseminated to all relevant parties (including those who have registered as part of our community information sessions), together with website information regarding the progress of the application through to construction	Proponent	✓	✓	✓	✓
14.04	**Community information and project knowledge**	Dissemination of project information	The Proponent will issue newsletters on a quarterly basis throughout the planning approvals and design phase providing information regarding the progression of the project. Detailed newsletters will also be prepared throughout the duration of the construction period up to the operational phase.	Proponent	✓	✓	✓	
15.0	**Land Use**							
15.03	**Risk of degradation of previously inaccessible environmentally sensitive areas**	Minimise degradation of environmentally sensitive areas	Access to previously inaccessible environmentally sensitive locations will be restricted to landowners and authorised personnel only through measures such as the installation of lockable gates on access tracks.	Proponent in coordination with landowners	✓	✓	✓	
15.04	**Impact on amenity of residents and visitors to the area**	Minimise visual, noise and traffic impacts	The design, construction, operation and decommissioning of the Proposal will incorporate the mitigation measures recommended in the visual, noise and other technical assessments so as to minimise any potential impacts on local amenity.	Proponent and Contractor	✓	✓	✓	✓
16.0	**Air Quality**							
	Generation of fugitive dust	Monitor and minimise the generation of dust from ground disturbance, spoil stockpiles and construction traffic	A Construction Dust Management Plan (CDMP) will be prepared as part of the CEMP. Dust deposition gauges will be installed to monitor dust emissions and ensure emissions do not exceed 4 grams per metre squared per month, in accordance with DERM and WPH&S guidelines. Dust levels will be visually monitored dust suppression (e.g., water sprays) would be implemented if required. During dry and windy conditions a water cart or alternative chemical dust suppression will be made available and applied to access tracks and ground disturbance areas. Set appropriate speed limits for construction traffic on internal roads.	Proponent and Contractor	✓	✓		✓