Mt Cass Wind Farm
Construction Ecology Management Plan

Revision 7 – 31 July 2026

Revision History

Version	Description	Date	Prepared by	Approved By
Rev 1	Draft	03 Mar 2021	HW	
Rev 2	Draft	20 Apr 2021	CS, HL	
Rev 3	MCD Input	01 Dec 2022	DK	AH
Rev 4	MCD Amendments post reviewer comments	23 Dec 2023	DK	MC
Rev 5	Post CLG review and issue to HDC	23 Mar 2023	MC	GG
Rev 6	Project refresh, contact details update, exclusion zone fencing, permit and proposed walkway	25 Jun 2024	MC	MC
Rev 7	CMP Review	31 Jul 2026	LB	JC

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1. Introduction

1.1 Purpose

The purpose of this plan is to inform people involved in the Mt Cass Wind Farm (MCWF) project how to control potential construction-related ecological impacts and to comply with the requirements of the resource consent and any other regulatory requirements during the construction works. The plan covers the construction phase of the wind farm. This plan forms part of the Construction Management Plan (CMP) and must be read in conjunction with the CMP. The project description, roles and responsibilities, training and complaint procedures are contained in the CMP.

1.2 Existing Site Conditions

The Project site has been recognised for unique, diverse, and well established ecological and indigenous habitats. It is located within a limestone ecosystem which is a rare ecosystem type with ecologically significant indigenous forest remnants and regenerating shrublands that comprise distinct assemblages of plants associated with limestone rock landforms. A large collection of ecological surveys and assessments have been completed in support of resource consent applications and the development of the CMP and the EMP.

Key species located within the Project site that are to be protected and will be supported through the development of the Mt Cass Conservation Management Area include:

- Indigenous vegetation communities e.g. Tōtara – (matai)/kōwhai – māhoe/kawakawa forest, Broadleaf – five-finger – (māhoe)/(ongaonga) forest and tussock grassland.
- Nationally Endangered McCaskill's hebe and Canterbury Limestone Wheatgrass, and other plant species considered Nationally Vulnerable or Declining.
- 18 native bird species, including the South Island pied oystercatcher and NZ pipit which are At Risk – Declining and the NZ Eastern Falcon which is Nationally Vulnerable.
- Waitaha gecko and southern grass skink are two reptile species classified as At Risk: Declining.

2. Consent Conditions

The following Table contains the consent conditions relevant to this plan:

HDC RC250117 Consent Conditions		Control for Consent Conditions
6	No construction activities authorised by this consent shall occur within the exclusion zones identified in the Golder Associates plans referred to in conditions **[3]** and **[4]** and the Mt Cass Wind Farm plans referred to in condition **[5]**, except for fencing, the walking track referred to in condition **[143]** and any stabilisation of rocks.	The footprint design avoids these zones. The exclusion zones will be physically segregated from construction activities when they take place within distances dictated in condition 7.
7	Those parts of the boundaries of the exclusion zones identified on Golder Associates plans CG161.3-166.3 dated 20 December 2010 (being parts of those exclusion zones within 10 metres of proposed activities authorised by this consent) shall be physically identified and marked on the ground prior to any construction activities taking place within 50 metres of those areas.	Under the Environmental Authority to Proceed process, these zones will be excluded with waratahs and rope prior to authority being granted to work in the zone.
9	The final position of the activities referred to in conditions **[3]**, **[4]** and **[5]** may be the subject of minor adjustment (also known as micrositing) provided that any such adjustment shall not result in the maximum limits set out in condition **[13]** being exceeded.	Micrositing has been completed and these areas will be taken into account in the design of the project and any disturbance accounted for under the consent limits. Should micro sitting be required due to unsuitable foundations then the disturbance limits in condition 13 will be taken into account prior to agreeing the new location.
10	In undertaking the micrositing process, the Consent Holder shall engage: a. A suitably qualified and experienced ecologist; and b. A suitably qualified and experienced expert in karst landscapes (both to be approved by the Manager Environmental Services of the Hurunui District Council) to advise (in consultation with a representative of the Department of Conservation) on the final placement of turbines and the final location of those activities referred to in **[3]**, **[4]** and **[5]**.	RMA Ecology has been engaged as the project ecologist. James Muirson of Aurecon has been engaged as the karst expert.

<table>
<tr><th colspan="2">HDC RC250117 Consent Conditions</th><th>Control for Consent Conditions</th></tr>
<tr><td>11</td><td>In undertaking the micrositing process provided by condition [10] the Consent Holder shall have particular regard to any advice received from the ecologist and the expert on karst landscapes. In any instance where the Consent Holder is unable to follow the advice from the ecologist or the expert on karst landscapes due to other micrositing factors, the Consent Holder shall provide the reasons in writing in a report to the Hurunui District Council, 40 working days prior to construction commencing.</td><td>Refer to Section 4.5</td></tr>
<tr><td>12</td><td>Any indigenous vegetation or limestone features outside the exclusion zones which are able to be avoided as a result of the micrositing process provided for in condition [8] shall be physically identified prior to construction activities taking place in that location.</td><td>Refer to Section 5.4</td></tr>
<tr><td>13</td><td>The total area of indigenous shrubland and forest clearance and limestone pavement and boulder field disturbance due to pre-construction geotechnical investigations and construction activities shall be minimised, but in any event must not exceed the following:
<table>
<tr><th colspan="2">Exposed limestone disturbance (hectares)</th></tr>
<tr><td>Pavement and boulder field</td><td>2.32</td></tr>
<tr><td>Pavement</td><td>1.17</td></tr>
<tr><th colspan="2">Vegetation Clearance (hectares)</th></tr>
<tr><td>Indigenous shrubland</td><td>0.71</td></tr>
<tr><td>Indigenous forest</td><td>0.08</td></tr>
</table>
For the avoidance of doubt the limits set out in the above table do not include the impact from fencing and the construction of the walking track referred to in condition [143].</td><td>Refer to the Landscape Management Plan for controls on Limestone Pavements and Boulder Fields.

The wind farm permanent footprint complies with these limits. Disturbed areas will be monitored and reported via the fortnightly construction progress reports to HDC. To accurately track disturbed areas, they will be reported when construction is completed in that area.</td></tr>
</table>

HDC RC250117 Consent Conditions		Control for Consent Conditions
14	When constructing and maintaining fences within the exclusion zone and the walking track referred to in condition [14] of the Consent Holder shall minimise effects on vegetation and limestone by adopting the following approaches: a. Finalising the detailed alignment of the walking track by providing an outline plan to be certified by the Manager Environmental Services of the Hurunui District Council at least one month prior to any construction activities occurring. b. Hand cutting of indigenous vegetation. c. Avoiding the use of wheeled mechanical equipment or tracked vehicles (such as tractors or excavators) on in situ limestone pavement; and d. Otherwise, minimising disturbance to limestone surfaces. <u>But in any event</u> The maximum extent of vegetation clearance for the construction of the walking track referred to in condition **[143]** shall not exceed 0.25 ha of indigenous shrubland and 0.05 ha of indigenous forest.	Section 4.6 of this plan.
19	Every two weeks during construction the Consent Holder shall provide written confirmation to the Hurunui District Council of the total extent of clearance of indigenous shrubland and forest and impacts on limestone pavement and boulder field and confirmation that the limits set out in condition **[13]** have not been exceeded. If required, the Consent Holder shall facilitate site inspections and provide access to relevant GIS information to assist in the independent assessment of compliance with condition **[13]**.	Survey controls will be used to ensure that the areas constructed to design and only the minimum areas are disturbed. This is be reported via the fortnightly construction progress reports to HDC
20	Following the completion of the works authorised by this consent, the Consent Holder shall provide the Hurunui District Council with as-built plans showing the location of all constructed turbines, access roads, substations, buried cables, transmission lines and all other works. The Consent Holder shall also provide the Hurunui District Council with independently verified written confirmation that the maximum limits of shrubland and forest clearance and disturbance of limestone landforms set out in condition **[13]** have not been exceeded, and the areas identified in accordance with condition **[12]** have been avoided.	Refer Section 7 Reporting. A 3rd party surveyor will check the contractors as-built survey in the areas identified in the GIS as being applicable to consent condition 13.

HDC RC250117 Consent Conditions		Control for Consent Conditions
	Construction - Construction Management Plan	
31	The objective of the Construction Management Plan shall be to set out the practices and procedures to be adopted to ensure compliance with consent conditions and to meet the following objectives:	
	a. To minimise the overall area of disturbance (by cuts, fills and placement of cover) of karst limestone features and indigenous vegetation, but in any event to ensure compliance with the maximum levels of indigenous shrubland and forest clearance and disturbance of limestone pavement and boulder field set out in condition **[13]**;	To meet condition 13 MCWFL will conduct a presurvey of the site identifying the areas of indigenous vegetation, shrub and exclusion areas using an ecologist. The design team will take these areas into account during their design to ensure that the limits set in condition 13 are met. This will be communicated in the Pre-construction Plan issued to HDC. The limits will be communicated to the project team through site inductions and specific training given to machine operators working on the project. Survey control will be used to ensure that the areas constructed to design and only the minimum areas are disturbed. This will be reported fortnightly and verified by an independent party.
	b. Avoid disturbance of vegetation and limestone features within exclusion zone as set out in condition **[6]**;	The exclusion zone identified in the Golder Associates plans will be marked out prior to construction commencing. Avoidance of disturbance of vegetation and limestone features will be discussed site inductions and toolbox talks.
	k. To identify threatened indigenous flora within the construction zone and provide for their relocation as required by condition **[32.n]**;	Construction sites will be searched by a qualified botanist prior to construction for threatened or at-risk plant species (as per the Environmental Management

HDC RC250117 Consent Conditions		Control for Consent Conditions
		Plan). All occurrences will be recorded using GPS. All threatened flora will be relocated prior to construction works occurring. Advice will be sought from appropriately experienced nursery people on the most appropriate methods at the time such relocations are required. MCWF will operate a permit to work system whereby a permit to start construction in designated zones will be required ensuring that all pre-construction requirements have been met prior to construction starting in a zone.
	l. To identify Canterbury gecko and other lizard species within the construction zone and provide for their relocation as required by condition **[79]**;	Experienced herpetologists will be used for the rescue and relocation of geckos and lizards. All geckos and lizard species that are detected and captured by the project Herpetologist will be removed from the construction zone and relocated immediately to a pre-determined release site (refer to Environmental Management Plan). This will take place prior to construction starting on site by MCWFL. The permit to work system will have this consent condition being actioned as a condition prior to starting work.
	m. Minimise potential for disruption to any active New Zealand falcon nest identified within 200 m of any construction or earthwork area;	A 200 m construction setback will be implemented (as far as practicable) from any identified New Zealand falcon nests. No construction activities (earthworks etc.) or construction vehicles will encroach within 200 m of these nests (as far as practicable).

HDC RC250117 Consent Conditions		Control for Consent Conditions
		This will be discussed in site induction training making the project team both aware of the condition and providing basic training on Falcon identification.
32	The Construction Management Plan shall include, but not be limited to:	
	c. Details of a training programme for machinery operators working on the site who will be involved in indigenous vegetation or limestone pavement or boulder field disturbance. The training programme will include, but not be limited to, education on using least impact techniques when disturbing or clearing limestone or indigenous vegetation.	Refer to section 6 of this Plan for training requirements and further details in the Landscape Management Plan.
	n. Methods for the relocation of threatened indigenous flora (as defined by de Lange et al (2009)) identified within the construction zone, and where practicable, At-Risk indigenous flora (defined by de Lange et al (2009)) identified within the construction zone.	Threatened and at-risk indigenous flora will be relocated (where practicable) prior to commencement of construction. Advice will be sought from appropriately experienced nursery people on the most appropriate methods at the time such relocations are required. Further detail provided in Environmental Management Plan (EMP).
	o. Methods for location and relocation of lizards as required by condition **[79]**.	All geckos and lizard species that are detected and captured by the project Herpetologist will be removed from the construction zone and relocated immediately to a pre-determined release site (refer to Environmental Management Plan). The capture for the relocation programme will involve daily surveys using multiple techniques over five consecutive days per site. This will happen prior to construction and a permit to work system will control that it has.

HDC RC250117 Consent Conditions		Control for Consent Conditions
60	Prior to undertaking any construction activities, the Consent Holder shall engage a suitable qualified and experienced ecologist to undertake a survey of the vegetation in the areas which are to be disturbed for construction purposes as detailed in condition **[61]**. The results of this survey shall be provided to the Hurunui District Council.	RMA Ecology has been engaged by MCWFL and the required survey completed and provided to HDC.
73	The Consent Holder shall undertake falcon monitoring as follows: a. Surveys for breeding falcons shall be carried out during the breeding season throughout the construction period and for two years post commissioning. This shall include surveys of the Mt Cass ridgeline and all areas of suitable breeding habitat adjacent to the wind farm footprint. b. If at any time, during or post construction there is evidence of falcon breeding on or neighbouring wind farm footprint, or there is evidence of falcon being adversely impacted by the wind farm, then a more intensive monitoring programme for falcon needs to be initiated and continued for at least two years post commissioning. The monitoring programme shall include breeding success, measures of habitat use and the survival of fledglings and adult falcons (through radio-tracking). c. If during construction, a falcon nest is identified on the site, the Consent Holder will ensure that, where practicable, a 200m setback of construction activity from the nest is maintained while it is still active.	A 200 m construction setback will be implemented (as far as practicable) from any identified New Zealand falcon nests. No construction activities (earthworks etc.) or construction vehicles will encroach within 200 m of these nests (as far as practicable).
156	Prior to undertaking any activities authorised by this consent, the Consent Holder shall offer to establish a Statutory Liaison Protocol with the Department of Conservation	A Statutory Liaison Group is established and is managed by MCWFL
157	A representative of the Department of Conservation shall be offered the opportunity to visit the site at regular intervals during construction and to offer comment on the construction process, to attend an annual meeting, and the provision of any information to which the Hurunui District Council is entitled by virtue of these consents.	

Table 1 Ecology Management Plan Consent Conditions

It is noted that conditions and mitigation measures relating to protection of limestone boulder fields, limestone pavements and cut faces are addressed in the Landscape Management Plan and conditions relating to the monitoring and management of avifauna and herpetofauna is addressed in the Project EMP.

3. General Control Measures

The key principles and approaches to be undertaken in relation to ecology management during construction are:

- Developing and maintaining awareness of the ecological values associated with the Project site.
- Delineating and maintaining exclusion zones around areas of identified significant ecological value; and
- The construction scope is designed to ensure that it meets the consent requirements.
- Monitoring and Reporting.

4. Specific Controls

4.1 Pre-Construction Controls

Pre-construction surveys required are:

- Identification and where practical relocation of threatened and at-risk plant species, including the systematic search of construction sites and relocation of specimens.
- Capture and relocation of lizards in accordance with the EMP.
- Tussock areas surveyed and plant relocation considered.

The tussock survey and most of the lizard salvage and rare plant translocation was completed prior to construction starting. The remaining lizard salvage and rare plant translocation will occur in the small areas remaining prior to construction occurring there.

An Environmental Authority to Proceed is required before work can commence in an area.

4.2 Exclusion zones

The exclusion zones are where construction activities are not to take place, except for constructing or maintaining fences and the construction of the Mt Cass Walkway extension. The exclusion zones are mapped on MCWFL's GIS system.

Fencing or delineation similar to that shown in Figure 1 around the exclusion zones is required prior to construction commencing within 50m of an exclusion zone. This delineation is to be always maintained to avoid intrusion into the exclusion zone.

Figure 1 Exclusion Zone Fencing

If a NZ falcon nest is identified during construction, a 200m setback of construction activities is to be implemented. Delineation of the setback is to be provided to ensure construction activities maintain the required distance.

4.3 Environmental Authority to Proceed

Prior to disturbance of land in a zone, MCWFL and the relevant contractor will issue an Environmental Authority to Proceed.:

This process confirms that:

- exclusion zone and Condition 13 fencing is installed,
- any remaining rare plants are avoided or translocated as practicable,
- any remaining native lizards are avoided for translocated as practicable,
- there are no falcon nests within 200m of the construction area,
- the protected pavement methodology is suitable (for relevant areas)
- that erosion & sediment controls are in place and suitably managed.

4.4 Limits of Indigenous Vegetation Disturbance

The project is limited to the disturbance limits of indigenous vegetation shown in Table 2

Vegetation Type	Limit (Ha)
Indigenous shrubland	0.71
Indigenous forest	0.08

Table 2 Indigenous Vegetation Clearance Limits

The permanent wind farm footprint has been designed to meet the vegetation disturbance limits.

The design is entered into the civil contractor's machine control, enabling the design footprint to be accurately located.

4.5 Micro Siting

MCWFL have carried out micro-siting as part of the early works phase of the project. Therefore, the only reason that a turbine foundation should have to be micro-sited is if ground conditions encountered during excavation is found to be unsatisfactory. For example, if a large tomo is exposed.

If micrositing is required, this will be reported to HDC and carried out within the conditions of the resource consent.

4.6 Site Fencing and Walking Track Disturbance

The walking track has been designed and the alignment agreed with Hurunui District Council. A copy of the proposed walkway is shown in Appendix A.

Where the fence or walking track traverse through exclusion zones or areas of indigenous shrub and forest the vegetation will be hand cut to minimise disturbance.

The walking track route with be recorded when completed. Condition 14 of the HDC consent specifies limits of disturbance for the walking track as shown in Table 3.

Vegetation Type	Limit (Ha)
Indigenous shrubland	0.71
Indigenous forest	0.08

Table 3 Vegetation Clearance Limits for the Walking Track

The contractor will avoid the use of wheeled mechanical equipment or tracked vehicles (such as tractors or excavators) on in situ limestone pavement to minimise the disturbance to limestone surfaces.

5. Reporting

MCWFL will report the area of disturbance of indigenous shrub and forest via the fortnightly construction progress reports to HDC

The information for this report will be determined by conducting an as-built survey of the areas identified as relevant to this consent condition in the GIS map and comparing it with the design areas.

At the end of project, a report will be issued providing the total area of vegetation disturbed. This will consist of the Contractors as-built survey which if required can be third party verified by an independent assessment.

6. Monitoring and Maintenance During Construction

As part of the control measures, on-going site monitoring by the contractor and wider project team will be undertaken. This will ensure that all the control measures detailed in this plan have been properly implemented and are functioning effectively.

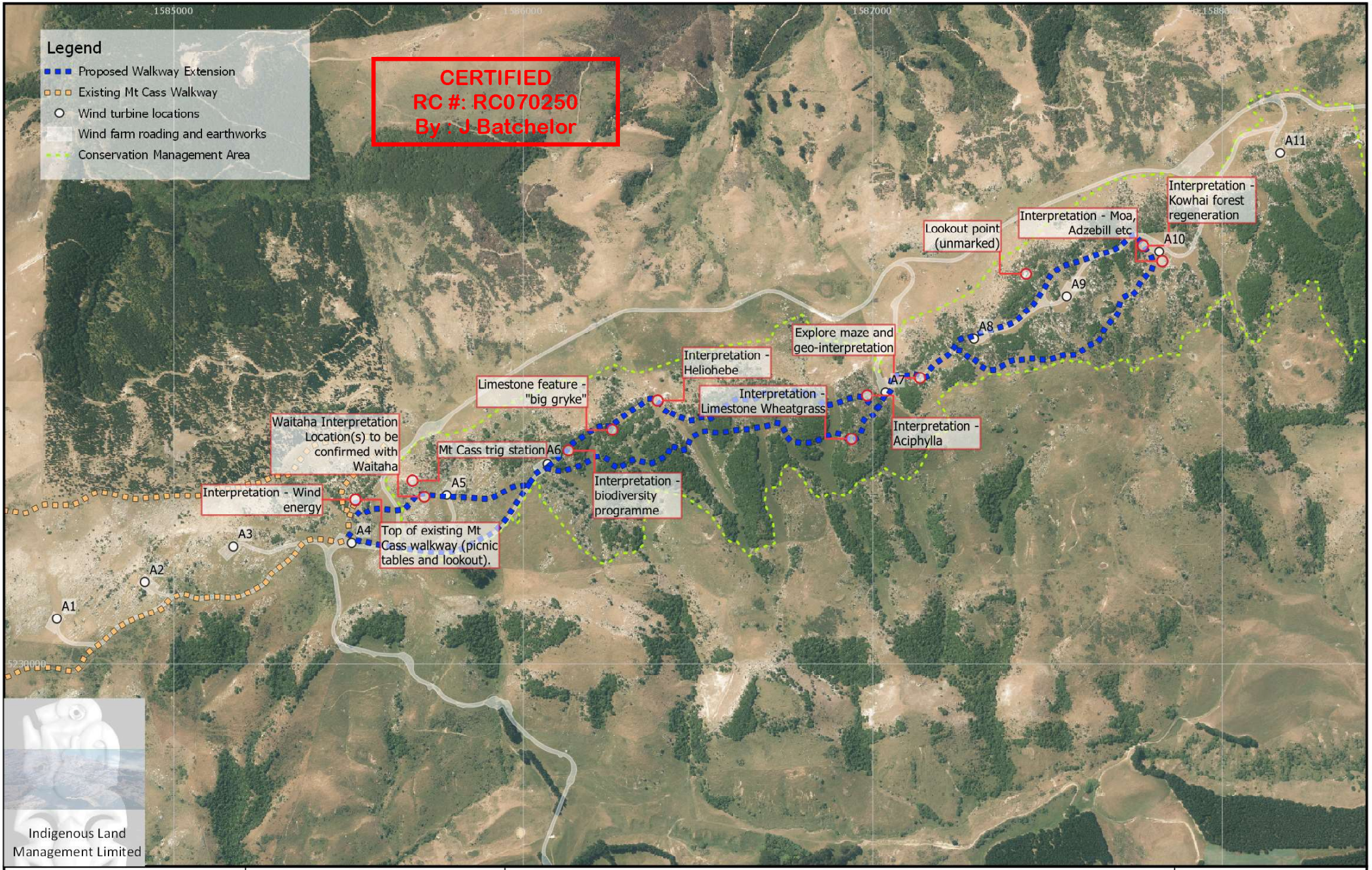
Monitoring shall occur for the full duration of the works. Any control measures requiring maintenance or adaptation to allow construction tasks to occur shall be identified and implemented by the Environmental Manager to ensure continual compliance.

It is noted that significant ecological monitoring is required by the HDC consent conditions and is detailed in the EMP.

7. Appendices

Appendix	Description
A	Walkway Map

Appendix A – Walkway Map


1585000
1586000
1587000
Legend
Proposed Walkway Extension
Existing Mt Cass Walkway
Wind turbine locations
Wind farm roading and earthworks
Conservation Management Area
CERTIFIED
RC #: RC070250
By : J Batchelor
A11
Interpretation - Kowhai forest regeneration
Interpretation - Moa, Adzebill etc
Lookout point (unmarked)
A10
A9
A8
Explore maze and geo-interpretation
Interpretation - Heliohebe
A7
Limestone feature - "big gryke"
Interpretation - Limestone Wheatgrass
Interpretation - Aciphylla
Waitaha Interpretation Location(s) to be confirmed with Waitaha
Mt Cass trig station
A6
A5
Interpretation - biodiversity programme
Interpretation - Wind energy
A4
Top of existing Mt Cass walkway (picnic tables and lookout).
A3
A2
A1
5230000
Indigenous Land Management Limited
Mt Cass Wind Farm
GEOTECH
Background aerial photography captured for 'Environment Canterbury' by Aerial Surveys Ltd, obtained from LINZ under Creative Commons 4.0 License.
Ref. https://data.linz.govt.nz/layer/52602-canterbury-03m-rural-aerial-photos-2014-2015/
MOUNT CASS WIND FARM
PROPOSED WALKWAY
30 April 2020
Scale (at A3) 1:10,000
Drawing 4761 Sheet 1 of 1