

2.6 RELOCATE BOULDERS AND PLANTS

AECOM

CONSULTANT AECOM New Zealand Pty Ltd NZ.B.N 942 903 209 1335 www.aecom.com

PROJECT MT CASS WIND FARM EARLY WORK DESIGN



PROJECT MANAGEMENT INITIALS PRELIMINARY

1

REFER TO ADJOINING SHEET 0012



1:1250 (A1) / 1:2500 (A3)

DATUM NZVD2016 SURVEY NZTM2000

A MARKAN CALL AND A	
LEGEND	
VISIBILITY IMPACT:	
HIGH VISUAL IMPACT	
MEDIUM VISUAL IMPACT	
LOW VISUAL IMPACT	
LANDSCAPE RESTORATION:	
CUT & FILL EARTHWORKS REINSTATION - TOPSOIL AND VEGETATE	9999
MOUNDING	
LIMESTONE CUT SLOPES	
BOULDERS	\$224
TREES AND VEGETATION	\$226
LIMESTONE PAVEMENT PROTECTION	
GENERAL:	
PROPERTY BOUNDARY	
MT CASS CMA BOUNDARY	• •••• •
WALKING TRACK	
TRANSMISSION LINE	P P
EXCLUSION ZONE	
DISPOSAL SITES	
LAYDOWN AREAS	

ISSUE/REVISION B 3/11/2020 EXPERT PANEL REVIEW A 16/10/2020 PRELIMINARY DESIGN //R DATE DESCRIPTION

PROJECT NUMBER 60642250

SHEET TITLE

EARTHWORKS LANDSCAPE REHABILITATION SHT 11

SHEET NUMBER

CI-0011





AECOM New Zealand Pty Ltd NZ.B.N 942 903 209 1335 www.aecom.com MT CASS WIND FARM EARLY WORK DESIGN



PRELIMINARY

PROJECT MANAGEMENT INITIALS

 PM
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 DESIGNER
 CHECKED
 APPROVED

m **PROJECT DATA**

DATUM NZVD2016 SURVEY NZTM2000

	A CONTRACTOR OF A CONTRACTOR	Constant States
	LEGEND	
	VISIBILITY IMPACT:	
	HIGH VISUAL IMPACT	
-	MEDIUM VISUAL IMPACT	
	LOW VISUAL IMPACT	
	LANDSCAPE RESTORATION:	
200	CUT & FILL EARTHWORKS REINSTATION - TOPSOIL AND VEGETATE	9999
Str.	MOUNDING	
A COLUMN T	LIMESTONE CUT SLOPES	
	BOULDERS	\$124 V
	TREES AND VEGETATION	\$224
145	LIMESTONE PAVEMENT PROTECTION	
No.	GENERAL:	
	PROPERTY BOUNDARY	Sand States
	MT CASS CMA BOUNDARY	
	WALKING TRACK	
	TRANSMISSION LINE	
	EXCLUSION ZONE	
	DISPOSAL SITES	
1.4	LAYDOWN AREAS	

PROJECT NUMBER
60642250

SHEET TITLE

EARTHWORKS LANDSCAPE REHABILITATION SHT 12

SHEET NUMBER

CI-0012



Mt Cass: Utilities Area Landscape Drawing List

PLANTING PLAN KEY 02.00_ Planting Plan Key

TREE PLANS 03.01_Tree Plan 03.02_Tree Plan

SHRUB AND REVEGETATION PLANTING PLANS

04.01_Shrub Planting Plan 04.02_Shrub Planting Plan 04.03_Revegetation Planting Plan

DETAILS 05.01_Revegetation Planting Details

10/12/2020



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DATE: 10/12/20



GLASSON HUXTABLE LANDSCAPE ARCHITECTS



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03.01 TREE PLAN

PROJECT NUMBER 1822

REVISION

This Tree Planting Plan shall be read in conjunction with:

All elements shall be installed in accordance with the above documentation.

Contractor shall use cable locators to accurately determine location of electrical cables. The Contractor shall be responsible for locating and protecting all services on site and protecting

All native trees and plants shall be eco-sourced where possible. The trees and shrubs will have been propagated from seed sources on site in a separate contract and held in a nursery ready

All trees and plants to be planted as per the CCC CSS7.

- All plants are to be planted in a triangular planting pattern.
- No trees shall be closer than 700mm to parking areas or road kerbs.
- All shrubs are to be set back 500mm from edge of mulch. Smaller shrubs are to be set at the front of the bed and larger shrubs towards the middle of the bed.
- The Contractor shall assess all topsoil depths and top up with good quality topsoil to achieve

Importation of clean topsoil will be required to achieve required depths. Topsoil shall be free

All amenity planting areas are to receive 100mm depth Cambium Grade Bark mulch or equivalent, ensuring the base stems of shrubs and trees are not covered. Contractor to ensure 100 mm mulch thickness after consolidation and shall allow for topping up to required depth.

Fencing is to be installed around the area to be planted. Please note that fencing is to be deer proof and prevent other browsing animals, to ensure survival of the plants.

The amenity garden area is to be irrigated. Allow for a design build automated static sprinkler





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1822



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04.01 SHRUB PLANTING PLAN

1822

1:200 @ A3 1:100 @ A1 DRAWN: SP

DATE: 10/12/20



Scale: 1:200

04.02



SHRUB B	EDS SCHEDULE PLAN TWO				
Bed No	Plant species	Spacing (m)	Planting density (plants per m2)	Bed Area	Numbe
17	Coprosma virescens	1	1.2	14.0	17
18	Phormium cookianum	1	1.2	29.0	34
19	Coprosma lucida	1.5	0.8	41.0	32
20	Olearia avicenniaefolia	1	1.2	29.0	34
21	Phormium cookianum	1	1.2	36.0	42
22	Coprosma propinqua	1.5	0.8	50.0	39
23	Olearía avicenniaefolia	1	1.2	25.0	29
24	Phormium cookianum	1	1.2	35.0	41
25	Phormium cookianum	1	1.2	47.0	55
26	Coprosma lucida	1.5	0.8	25.0	20
27	Coprosma virescens	1	1.2	19.0	22

SHRUB BEDS SCHEDULE PLAN THREE					
Bed No.	Plant species	Spacing (m)	Planting density (plants per m2)	Bed Area	Number
28	Phormium cookianum	1	1.2	39.0	46
29	Coprosma virescens	1	1.2	31.0	36
30	Olearia avicenniaefolia	1	1.2	25.0	29

1

1

1.2

1.2

31 Coprosma propingua

Phormium cookianum

32

plants.

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0	1	2	4

Scale: 1:200

GLASSON HUXTABLE LANDSCAPE ARCHITECTS

MT CASS WIND FARM

04.02 SHRUB PLANTING PLAN

32

41

27.0

35.0

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PROJECT NUMBER 1822

REVISION -

NOTES

and:

- This Amenity Planting Plan shall be read in conjunction with:
- 02.00 Key Planting Plan
- 03.00 Tree Plans
- 04.00 Shrub and Revegetation Planting Plans
- 05.00 Revegetation Details
- **Planting Specification**
- **Planting Schedules**
- All elements shall be installed in accordance with the above documentation.
- Contractor shall use cable locators to accurately determine location of electrical cables. The Contractor shall be responsible for locating and protecting all services on site and protecting the same for the duration of the contract.
- All native trees and plants shall be eco-sourced where possible. The trees and shrubs will have been propagated from seed sources on site in a separate contract and held in a nursery ready to be planted.
- All trees and plants to be planted as per the CCC CSS7.
- All plants are to be planted in a triangular planting pattern.
- All trees are to be 6m from any light poles.
- All trees are to be 1.5m from sewer laterals.
- No trees shall be closer than 700mm to parking areas or road kerbs.
- All shrubs are to be set back 500mm from edge of mulch. Smaller shrubs are to be set at the front of the bed and larger shrubs towards the middle of the bed.
- The Contractor shall assess all topsoil depths and top up with good quality topsoil to achieve the following specification:
- 1000 mm for trees
- 400 mm for shrubs
- Importation of clean topsoil will be required to achieve required depths. Topsoil shall be free of stones, weeds and weed propagules
- All amenity planting areas are to receive 100mm depth Cambium Grade Bark mulch or equivalent, ensuring the base stems of shrubs and trees are not covered. Contractor to ensure 100 mm mulch thickness after consolidation and shall allow for topping up to required depth.
- Fencing is to be installed around the area to be planted. Please note that fencing is to be deer proof and prevent other browsing animals, to ensure survival of the
- The amenity garden area is to be irrigated. Allow for a design build automated static sprinkler or drip irrigation system.



1:200 @ A3 1:100 @ A1 DRAWN: SP

APPVD: CG DATE: 10/12/20



Scale: 1:1000

CUNE A · MATTYE REVEOLTATION AREA MIA · FUREDI							ZONE 82 -	NATIVE REVEGETATION AREA	MIX - SHRU	BS AND SMA	ALL TREES		
Bed No.	Plant species	Spacing (m)	Planting density (plants per m2}	Percentage	Total bed Area (m2)	Number	Bed No.	Plant species	Spacing (m)	Planting density (plants per m2)	Percenta		
	Coprosma propinqua	1.5	D.8	20	1472.0	227		Coprosma crassifolia	1.5	0.8	5		
	Coprosma virescens	1.5	0.8	10	1472.0	113		Concos ma acordionua	15	ne	10		
	Griselina littoralis	1.5	D.8	10	1472.0	113	13 57 13 13 70 57 13 57 13 57 13 57 13 57 13 57 13 57 13 57 13 57 13 57 13 57 13 13 13 13 13 13 13 13 13 13	Coprosina propringos	1.0	0.0	10		
	Myoporum laetum	15	0.8	5	1472.0	57			Coprosina virescens	1.5	0.0	15	
	Olearia avicenniaefolia	1.5	D.8	10	1472.0	113			113	Griselina i ttoralis	15	08	20
A	Phurmium coukianum	1.5	0.8	10	1472.0	113			Hoheria angustitolia	1.5	0.8	5	
								Kunzea robusta	1.5	0.8	15		
	Pittosporum tenufolium	1.5	D.8	15	1472.0	170		Olearia av cenniaefolia	1.5	0.8	10		
	Podocarpus totara	1.5	0.8	5	14/2.0	57		Phormium cookianum	1.5	0.8	10		
	Pseudopanax ferox	1.5	D.8	5	1472.0	57							
	Sophora microphylla	1.5	0.8	10	14/2.0	113		Pittosporum tenufolium	1.5	0.8	10		

Planting density

clants p

m2)

D.8

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0.8

0.8 0.8

0.8

0.8

0.8

10

15

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10

10

Spacing (m)

1.5

1.5

1.5

15

1.5

15

1.5

1.5

ittosparum tenufolium 1.5 0.8

iotal be

lrea (m2)

607 N

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667.0

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6C7.0

607.0 47

23

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70

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23 70

47

47

Plant species	5pacing (m)	density (plants per m2)	Percentage	Total bed Area (m2)	Number
Coprosma crassifolia	1.5	0.8	5	593.0	23
Coprosma propinqua	1.5	0.8	10	593.0	46
Coprosma virescens	1.5	0.8	15	593.0	68
Griselina l'Itoralis	15	08	20	5930	91
Hoheria angustifolia	1.5	0.8	5	593.0	23
Kunzea robusta	1.5	0.8	15	593.0	68
Olearia avicenniaefolia	1.5	0.8	10	593.0	46
Phormium cookianum	1.5	0.8	10	593.0	46
Pittosporum tenufalium	1.5	0.8	10	593.0	46

C - NATIVE REVEGETATION AREA MIX - FOREST						
d No.	Plant species	Spacing (m)	Planting density (plants per m2)	Percentage	Total bed Area (m2)	Number
	Coprosma Lucida	1.5	0.8	10	2930.0	226
	Coprosma virescens	1.5	0.8	5	2930.0	113
	Griselina ittoral's	1.5	0.8	10	2930.0	225
	Hoheria angustifolia	1.5	0.8	10	2930.0	225
~	Myoporum aetum	1.5	0.8	5	2930.0	113
L	Pittosporum eugenioides	1.5	0.8	5	2930.0	113
	Pittosporum tenuifolium	1.5	0.8	20	2930.0	451
	Plagianthus regius	1.5	0.8	10	2930.0	226
	Podocarpus totara	1.5	0.8	10	2930.0	226
	Sophora microphylla	1.5	0.8	15	2930.0	338

BED D - NA	BED D - NATIVE REVEG AREA MIX - LARGER FOREST SPECIES							
Bed No.	Plant species	Spacing (m)	Planting density (plants per m2)	Percentage	Total bed Area (m2)	Number		
	Coprosma ucida	1.5	0.8	15	2688.0	310		
	Coprosma virescers	1.5	0.8	5	2688.0	103		
	Griselina littoralis	1.5	8.0	20	2688.0	414		
	Myoporum laetum	1.5	0.8	5	2688.0	103		
_	Pittosporum eugenicides	1.5	8.0	5	2688.0	103		
U	P ttosporum tenuifolium	1.5	0.8	5	2688.0	103		
	P agianthus regius	1.5	0.8	10	2688.0	207		
	Podocarpus totara	1.5	08	15	2688.0	310		
	Pseudopanax arboreus	1.5	0.8	10	2688.0	207		
	Sophora microphylia	1.5	0.8	10	2688.0	207		

BED E -

ED E - NATIVE REVEG AREA MIX FOREST AND SHRUBS							
Bed No.	Plant species	Spacing (m)	Planting density (plants per m2)	Percentage	Total bed Area (m2)	Number	
	Coprosma propingua	15	0.8	5	3281.0	126	
	Coprosma virescens	1.5	0.8	10	3281.0	253	
	Griselina littoralis	1.5	0.8	10	3281.0	253	
	Hoheria angustifolia	1.5	0.8	10	3281.0	253	
	Kunzea robusta	1.5	0.8	5	3281.0	126	
	Myoporum laetum	1.5	0.8	5	3281.0	126	
E	Olearia avicenniaefolia	1.5	0.8	10	3281.0	253	
	Phormium cookianum	1.5	0.8	5	3281.0	126	
	Pittosporum eugenioides	1.5	0.8	5	3281.0	126	
	Pittosporum tenuifolium	1.5	0.8	10	3281.0	253	
	Plagianthus regius	1.5	0.8	5	3281.0	126	
	Podocarpus totara	15	0.8	10	3281.0	253	
	Sophora microphylla	1.5	0.8	10	3281.0	253	

NOTES

02.00 Key Planting Plan 03.00 Tree Plans 04.00 Shrub and Revegetation Planting Plans 05.00 Revegetation Planting Details

and:

Planting Specification Planting Schedules

All elements shall be installed in accordance with the above documentation.

Contractor shall use cable locators to accurately determine location of electrical cables. The Contractor shall be responsible for locating and protecting all services on site and protecting the same for the duration of the contract.

All native trees and plants shall be eco-sourced where possible. The trees and shrubs will have been propagated from seed sources on site in a separate contract and held in a nursery ready to be planted.

All trees and plants to be planted as per the CCC CSS7.

All trees are to be 6m from light poles. All trees are to be 1.5m from sewer laterals. No trees shall be closer than 700mm to parking areas or road kerbs.

In the planting revegetation zones, the smaller shrubs are to be set at the edges of the planting areas and the larger shrubs towards the middle of the zone, as occurs in naturally revegetating areas of planting elsewhere on the site. All plants are to be planted in a triangular planting pattern.

Shrubs are to be in groupings of the same species of 10 to 15 plants minimum, to create a drift of plants of the same species, as would occur in natural revegetation patterns seen elsewhere on the Mt Cass site.

Trees are to be planted in groups of 5 to 7 minimum plants of the same species, to likewise create a drift of plants.

Fencing is to be installed around the area to be planted. Please note that fencing is to be deer proof and prevent other browsing animals, to ensure survival of the plants.

Planting shall take place between 1 April and 30 September (the planting season). Planting in the winter months will ensure the establishment of plants, this is particularly vital for the revegetation area where there is no irrigation.

) 30



Plant species

Coprosma crassifolia

prosma propinqu

Coprosma virescens

riselina littoralis

Hoheria angustifolia

Rearia avicenniaefolia

hormium cookia num

unzea robusta

Bed N

MT CASS WIND FARM

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04.03 REVEGETATION PLAN

PROJECT NUMBER 1822

This Revegetation Planting Plan shall be read in conjunction with:



DESIGN: GHLA DRAWN: SP

APPVD: CG DATE: 10/12/20



05.01



NOTES

This Revegetation Planting Detail shall be read in conjunction with:

02.00 Key Planting Plan 03.00 Tree Plans 04.00 Shrub and Revegetation Planting Plans

and:

Planting Specification Planting Schedules

All elements shall be installed in accordance with the above documentation.

site.

All plants are to be planted in a triangular planting pattern, 1.5m apart, as shown in this typical revegetation planting pattern plan.

to create drifts of plants.

Planting shall take place between 1 April and 30 September (the planting season). Planting in the winter months will ensure the establishment of plants, this is particularly vital for the revegetation area where there is no irrigation.

KEY	
\bigcirc	native

REVEGETATION PLANTING PATTERN Scale: 1:100			տու 0	₩ 1 2	3 4
GLASSON HUXTABLE	MT CASS WIND FARM	05.01 REVEGETATION PLANTING DETAILS	PROJECT NUMBER 1822	REVISION	SCALE: 1 :100 @ A3

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In the planting revegetation zones, the smaller shrubs are to be set at the edges of the planting areas and the larger shrubs towards the middle of the zone, as occurs in naturally revegetating areas of planting elsewhere on the

Shrubs are to be in groupings of the same species of 10 to 15 plants minimum, to create a drift of plants of the same species, as would occur in natural revegetation patterns seen elsewhere on the Mt Cass site.

Trees are to be planted in groups of 5 to 7 minimum plants of the same species,



Appendix N

Mt Cass Wind Farm Site Access Work Instruction



Mt Cass Wind Farm Site Access Work Instruction

The information contained herein is confidential to Mt Cass Wind Farm Ltd and may not be reproduced without express permission.

1. Introduction

This document covers the land access protocols and safety issues associated with field work for the Mt Cass Wind Farm prior to the commencement of construction.

2. Land Ownership

Six owners (refer appended plan) are involved in accessing the full wind farm site.

- 1. MainPower owns the 168ha ridge property that covers a 3km length of the ridge from the fence line west of Mt Cass trig to the Dovedale boundary.
- 2. Dovedale Farm Ltd own the next 3km of ridge to just past Oldham Peak
- 3. Hamilton Glens Ltd own the forked ridge to the east of Oldham Peak and all land to the north of the fence along the northern terrace and east of the Omihi forest block
- 4. Organic farm Holdings Ltd owns the part of the wind farm to the west of Mt Cass trig (the Department of Conservation Covenant Area) and the primary access routes via Symonds Road and the Airstrip track. They are lessees of the MainPower land and any Transwaste farm land associated with the Kate Valley Landfill.
- 5. Tiromoana Station Ltd (TSL a Transwaste subsidiary) owns the Kate Valley landfill, the Tiromoana Bush Covenant area and some remaining farmland of the former Tiromoana Station. Entering via the main wind farm access road (off Mt Cass Road to the Airstrip track) crosses a short length of TSL land.

The primary access to the site currently uses Symonds Road and the farm track which traverses round to the Mt Cass walkway and thus crosses land owned by Organic Farm Holdings Ltd.

3. Access Protocol

A. General Provisions

Notification	 Landowners and Mt Cass Wind Farm must be notified when it is intended to visit site. Specific provisions for landowners are noted below. Mt Cass Wind Farm can be notified by phone call or email to Greg Gummer (<u>Greg.Gummer@mainpower.co.nz</u> or Ph: 021 738 995).
Requests from Landowners	Mt Cass Wind Farm and its Contractors will comply with all reasonable requests from Landowners regarding access, including deferring visits where conditions make the visits unsafe or where there is a conflict with farming activities. Access during lambing is to be avoided if possible.
Hazards	Known hazards are outlined in Section 4 below. Mt Cass Wind Farm and its Contractors will advise Landowners of any new hazards they encounter in carrying out their work.
Weed Precautions	The Mt Cass Site is relatively free of noxious weeds and must be kept that way. Mt Cass Wind Farm is operating a weed management programme on its own land and is responsible for any introduced weeds associated with wind farm development. Of particular concern at present is Chilean Needle Grass. Accordingly, Mt Cass Wind Farm and its contractors will ensure that all vehicles, clothing and footwear are free of weed seeds, each day, before entering the site. Further information on weeds can be obtained from the Environment Canterbury website.
General behaviour	 Mt Cass Wind Farm and its Contractors will: Leave all gates as they find them (open or closed); Not take dogs onto the site; Not take firearms or hunt on the site; Not light fires Mt Cass Wind Farm site is a "No Smoking" site. Remove all rubbish; Make good and report any damage to tracks, fences, water supply equipment and other farm assets.
Notification	 Mt Cass Wind Farm must be notified when it is intended to visit site. Specific provisions for landowners are noted below. Mt Cass Wind Farm will then notify the landowners of details of the intended visit. Mt Cass Wind Farm can be notified by phone call or email to Greg Gummer (Greg.Gummer@mainpower.co.nz or Ph: 021 738 995).

Notification	 Prior notification of access is required using the standard form (appended) emailed to Greg Gummer (<u>Greg.Gummer@mainpower.co.nz</u> or Ph: 021 738 995). 				
Signing in/out	A Visitor Book is located outside the portacom offices through the gate and to the right of the yard area in front of the main implement shed at Washcreek Workshop (turn left off Symonds Road). Visitors are to sign in and out in the Visitor Book and review the Hazard Board.				
	Visitors should also text Greg Gummer, Ph: 021-738-995 on entry and exit from site, as well as signing the Visitor Book on site.				
Access Routes	Typically, access is to be via Symonds Road, unless there is a specific need to visit other parts of the farm.				
	Vehicles must keep to the formed tracks and keep to a speed limit of 20km/h, particularly when driving past any farmhouses.				
	Suitable four-wheel drive vehicles appropriate to the site conditions and the work to be carried out are to be used (see requirements at Section 5).				
Lambing	Lambing restrictions can apply from July to October (exact timing must be checked each year) with different parts of the farm affected at different times.				
	Access may be possible during lambing but at the discretion of and under guidance of the Landowner.				

B. Organic Farm Holdings Ltd Land

C. Tiromoana Station Ltd (Transwaste Canterbury Limited)

Notification	Transwaste Canterbury Ltd requires 24 hours' notice by email prior to visiting or working on Tiromoana Station Ltd land. Much of the Tiromoana Station Ltd land is leased by Organic Farm Holdings Ltd therefore access requirements, including requirements during lambing for Organic Farm Holdings Ltd also need to be observed.
Signing in/out	On the day of the visit visitors are to sign in and out in the visitor book and review any hazard notices in the box outside the door to Transwaste's office. Visitors must also sign in at the Washcreek workshop as for Organic Farm Holdings Ltd . Visitors should also text Greg Gummer Ph: 021-738-995
Access Routes	If crossing Tiromoana Station Limited land via the wind farm proposed access route (airstrip track) then an email advising the use of the route 24 hours in advance is all that is required.

D. Dovedale Farm

In addition to the General Provisions in Section A, the following requirements apply for access to Dovedale Farm:

Who can access	Persons with adequate experience of working on Dovedale Farm, or, all visitors to be accompanied by a Mt Cass Wind Farm representative who has that experience.
Notification	Dovedale are to be given seven days notification by email of any intended access to the site. This should be requested from Mt Cass Wind Farm who will communicate with the landowner. This notification will be updated if dates change (e.g. if weather is unsuitable). On the day of access Dovedale is to be advised by phone message that the access is occurring as planned and are to be phoned again when the party has left the site. Visitors should also text Greg Gummer Ph: 021-738-995
Access routes	Typically access to Dovedale is to be on foot from Mt Cass Wind Farm's land. If there is a particular need to take a vehicle onto Dovedale then this must first be discussed with the owners and then must enter via the Dovedale Homestead and use the main access track.
Signing in/out	Where access is via the main Dovedale access track then signing in and out at the woolshed is required and is acceptable as a substitute for phone calls (sign in book is located in the wall mounted red container in the covered area outside woolshed) Visitors should also text Greg Gummer Ph: 021-738-995
Footrot Precautions	 The requirement for footrot hygiene is to be maintained by all people accessing Dovedale Farm. Specifically: If accessing on foot from Mt Cass, boots are to be cleaned of all mud and sprayed with disinfectant at the boundary fence. Alternatively, a clean pair of boots may be changed into at the boundary. If accessing by vehicle, Dovedale shall be the first farm visited on the day and the vehicle shall be free of mud. If not able to visit Dovedale first, the vehicle shall be waterblasted to remove loose mud. If using an ATV the vehicle shall be waterblasted to remove mud before entering Dovedale.
Lambing	Access during lambing (typically September and October each year) is unlikely to be permitted.

Note that these access protocols are primarily intended for work outside of the immediate wind farm area (for example the groundwater monitoring and five minute bird count sites) however, as a matter of courtesy and good communication these protocols should be used for all access to Dovedale.

4. Known Hazards

Field work has been conducted at all times of year and is at an altitude of approximately 500m. Safety issues are definitely more of a concern in winter but problems can occur at any time of year.

Known site hazards include:

- Traffic (including Kate Valley landfill trucks)
- Fire (in dry conditions)
- Slippery tracks (when wet or icy)
- Wandering stock
- Rough ground and slippery limestone rocks
- Potholes (some scarcely visible at ground surface) or Sinkholes (Tomos)
- Precipitous drops (mainly on northern escarpment)
- Changeable weather, frequent strong winds and severe cold at times
- Sun, heat
- Lack of potable water along the ridge
- Isolation
- Ford at Wash Creek in heavy rain
- Suspended cables and pipes (a hazard if helicopter work is required)
- Trampers on Mt Cass Walkway track
- Onga-onga, Urtica ferox, or tree nettle is common, stings can be severe
- Electric and barbed wire fences
- Patchy Cell Phone Reception

All field staff must be suitably skilled and equipped to deal with the conditions that may be encountered. All contractors shall assess the site hazards and provide Mt Cass Wind Farm Ltd with a copy of their site specific safety plan which addresses the site hazards as applicable to their work. Visitors to the site who are not Mt Cass Wind Farm contractors (or subcontractors) may be asked to provide a site-specific safety plan depending on the purpose of their visit.

5. Hazard Controls

The Health and Safety at Work Act 2015 requires that workers and other persons should be given the highest level of protection against harm to their health, safety and welfare from hazards and risks arising from work as is reasonably practicable. The following controls are recommended for the hazards listed above; these recommended controls shall not be taken to limit the extent of controls that may be put in place by a consultant for its workers.

Hazard	Risks	Control
Traffic (including Kate Valley landfill trucks)	Collision	All workers are to be made aware of the heavy use of the road by large vehicles accessing the Kate Valley Landfill. Extra care is necessary at all times.

Hazard	Risks	Control
Fire	Environmental damage Smoke inhalation Burns	 Follow any operable fire management plan for the site Be aware of site conditions Vehicles must carry a fire extinguisher and be fitted with spark arresters (except turbo-diesels) Don't park in long grass if conditions are dry Call the Emergency Services if fire is seen Attempt to supress any small fires if it is safe to do so
Rough and slippery (when wet or icy) tracks	Loss of vehicle control Collision	 Workers travelling to the site must check weather conditions before leaving for the site. Four-wheel drive vehicles will be necessary. In some circumstances UTV's will be preferred. Four-wheel drive vehicles are to have suitable tyres for the terrain, low ratio gear box and at least 220 mm ground clearance (e.g. Ford Ranger or Toyota Hi-Lux). Drivers must be appropriately skilled and/or trained (e.g. 4WD training to NZQA Standards). Assess conditions frequently while on route and on the site. Where the risk is considered unacceptably high, DO NOT attempt to proceed.
Wandering stock	Vehicle collision Attack by animal (e.g. bull)	 All persons to be made aware of the possibility of wandering stock. Exercise care at all times when working in the area.
Sun, heat	Sunburn/ Sunstroke	 Carry sun protection cream in vehicles at all times. Wear/ carry appropriate clothing for conditions Take breaks in the shade when working in heat. Stay hydrated.
Rough ground, slippery rock, potholes, sinkholes and precipitous drops	Slips, trips and falls	 All workers to be advised of the nature of the terrain. Watch your step. Wear appropriate footwear. Take no unnecessary risks. If it looks risky, it probably is. Assess the situation and do not proceed unless completely confident it is safe. Do not climb down into sinkholes without the necessary safety systems. Use fall arrest systems where necessary.

Work Instruction

Hazard	Risks	Control
Changeable weather, frequent strong winds and severe cold at times	Hypothermia (resulting from exposure to cold) Hyperthermia (exposure to heat) Frostbite	 Check weather conditions before leaving for the site. Wear clothing appropriate to the weather conditions. Always be prepared for weather changes. Discuss with locals where possible. Carry clothing suitable for wet and cold weather in the vehicle.
Strong Winds	Opening vehicle doors	 Park vehicle facing into the direction the wind is coming from. Use both hands to ensure door is secure while opening If travelling with others in one vehicle, open one door at a time.
Lack of potable water	Dehydration Hygiene	Bring own supply of bottled water.Bring wipes or sanitizer for keeping hands clean.
Isolation	Separation from party (especially if injured)	 All staff are to detail where / when / how / duration for work on isolated sites. Arrange communication system with check in times and clear protocols for missed schedules. Note that cellphones may not work in some areas but reasonable reception is usually found on the ridge crest. Minimise lone working, two forms of communication are required, one being a cell phone and the other being an EPIRB (emergency beacon) or a Satellite phone. Carry a first aid kit at all times. The minimum standard kit required is the fold out St John General type. Wear Hi-Viz vests to aid in finding people if lost.
Onga-onga, Urtica ferox	Stings	 Wear protective clothing and/ or avoid walking through Onga- onga.
Fences	Cuts on barbs (tetanus risk) Electric shock (probably leading to cut on the barbs)	 Use gates where possible. Otherwise cross with care, under or through may be better than over.
Omihi Stream ford – at Wash Creek Workshop (in heavy rain)	Loss of control of vehicle Drowning	 Assess conditions carefully – walk the crossing before driving. Call for assistance or wait for water to recede if it appears dangerous.

6. Mt Cass Wind Farm Site Representative

During periods of intense activity on site Mt Cass Wind Farm may choose to have a Site Representative to support the fieldwork from a Health and Safety and Access Protocol perspective.

Any person coming and going from site during a fieldwork day is to check in <u>and out</u> with Mt Cass Wind Farm's representative and make arrangements for regular scheduled contact (e.g. at lunchtime).

The Site Representative will have a 4WD vehicle equipped with a:

- first aid kit
- cellphone and/or radio
- fire extinguisher.

When people are working on Dovedale the Site Representative will typically station themselves at the Mt Cass Wind Farm Shelter (if accessible by 4WD).

Mt Cass Wind Farm has a heated radio equipment shed just east of the Mt Cass trig. In an emergency this can be used for shelter. The Site Representative will have a key.

7. Key Contacts

Mt Cass Wind Farm Project Director	Greg Gummer	m) 021 738 995 e) greg.gummer@mainpower.co.nz
Mt Cass Wind Farm Snr Project Coordinator	ТВС	p) 03 311 8350 m) e)
Mt Cass Station Ltd	Jackie Taylor David Wooldridge	m) 021 226 2901 m) 027 259 4859 e) <u>office.mtcass@xtra.co.nz</u>
Dovedale Farm	Dean Gardiner Emma Gardiner	p) 03 314 6744 (Farm Office) m) 027 863 8872 (Dean) e) <u>dgardiner@hotmail.co.nz</u> & <u>rm.cm@xtra.co.nz</u>
Hamilton Glens	Leighton Croft Jane Croft	 p) 03 314 5889 m) 027 877 6390 (Leighton) m) 027 2084187 (Jane) e) <u>hamiltonglens@xtra.co.nz</u>
Kate Valley Landfill Manager	Rangi Lord	m) 021 228 4348 p) 03 359 1800 e) <u>rangil@cws.co.nz</u>

8. Case Studies

Accidents and Incidents can happen on this site. Here are a few real situations:

Incident		Response
A. A site archa vehic fairly rest o contr able t his ex	e visit during an peological survey saw a 4WD le slide off the track (in gentle terrain) and come to on a rock. Fortunately a actor working nearby was to rescue the vehicle with acavator.	This event was early in the project investigations. Since then greater emphasis has been placed on suitability of vehicles and driver capability. Greater use has also been made of "all-terrain" vehicles including hire of a 2-seater Rhino and 6-seater Argo for work in adverse weather conditions.
B. On a arrive starte they f track the 4 attem chose walk	night surveys for lizards rain ed after the ecologists had ed work. On leaving site found a steep section of had become too slippery for WD. After one failed npt to climb the hill they e to abandon the vehicle and out to the main road.	In preparing for the migratory shorebird survey (when observers were required to be on site after dark in winter). It was decided to build an emergency shelter near the Dovedale boundary where equipment could be stored, and anybody caught on site could shelter if necessary.
C. A rigg anem thum Acces foot (condi occur walk servic victin helico	ger working on one of the nometer masts had his b caught in a lifting chain. s to the site that day was on because of weather itions) and the accident red too late in the day to back out. Emergency ces were called and the n was taken out by rescue opter.	This is an operational matter for the contractor involved. However, to the extent that fatigue played a part in this incident then the use of all-terrain vehicles for transport may have reduced the risk.
D. A surv turbir	veyor was setting out ne locations and stepped	Bird population surveys have to be carried out in all seasons and to a tight schedule. Delays in walking about

Incide	nt	Response
	between two limestone outcrops. The limestone was slippery and the surveyor fell and badly broke his leg. Again the rescue helicopter was sent to pick up the victim.	the site would make it very difficult to complete the work. The ecologists on this task decided that crampons would be the best option to manage the risk of slipping without slowing themselves down too much.
E.	An SUV drove over some dry tussock which then caught fire (several tussocks burned). This was at another MainPower wind farm site but could easily happen at Mt Cass	The immediate response was to stamp out the fire (fortunately it was spring and the ground was not too dry, also there was no breeze). The longer term response was not to take that vehicle (Mitsubishi Outlander) back to site.

Incidents 3 and 4 resulted in serious "lost time" injuries. We want to avoid these in future.



9. Acknowledgement

All personnel working on site are to sign this sheet as acknowledgement that they have read and understood these instructions. This only needs to be done once unless a significant revision is notified.

Name	Organisation	Contact Number (Cell phone)	Vehicle to be taken on Site*	Designated Driver & 4WD competency	Signature	Date

• Registration number, vehicle type (i.e Ford Ranger 4WD), equipment (i.e fire extinguisher, first aid kit, radio).

10. Appendices (attached)

- A. Mt Cass Station Access Notification Form
- B. Land Ownership Map

Conditions of Entry on to Mt Cass Station

Name of Visitor:	
Address:	
Telephone:	
Proposed Date(s) of Access:	
Proposed Location of Access:	
Reason for Access ("the Purpose"):	
Expected time of entry & exit	

In consideration of being granted access to Mt Cass Station ("the Property"), the Visitor acknowledges and agrees that:

- 1 The Visitor may access the Property solely for the purpose and does so at his/her/its own risk. The Visitor must, at all times, use all due care when accessing and using the Property, and the Visitor shall be:
 - (i) responsible for any person or thing accompanying the Visitor or in the Visitor's possession or control; and
 - (ii) liable for any loss or damage caused by or resulting from any wilful or negligent act or omission of the Visitor or any person or thing accompanying the Visitor or in the Visitor's possession or control.
- 2 The Visitor must notify Mt Cass Station Limited of any persons who may accompany the Visitor on to the Property. Mt Cass Station Limited may notwithstanding anything in these Conditions at any time refuse access to the Visitor and/or any such persons accompanying the Visitor.
- 3 Mt Cass Station Limited is not liable in any way whatsoever for any injury, loss, expense or other damage howsoever incurred or suffered by the Visitor whilst accessing or using the Property.
- 4 Without limiting any of the above conditions, Mt Cass Station Limited will endeavour to advise the Visitor of any hazards on the Property that Mt Cass Station Limited considers may be relevant to the Visitor, but is not under any duty to do so. The Visitor shall do all things necessary to protect himself, herself or itself, and any persons accompanying the Visitor against such hazards.

Date:	Visitor's sig	nature
Access	s Approved:	
Date:	Signature	
•	Please email a copy of access form to Greg Gum	For Mit Cass Station Ltd mer (<u>Greg.Gummer@mainpower.co.nz</u> .

