

3 April 2020

Our ref: 15706

CWP Renewables
PO Box 731
Jamison Centre
ACT 2614

Attention: Patric Millar

Dear Patric,

RE: Crudine Ridge Wind Farm Access Track Redesign

INTRODUCTION

Eco Logical Australia (ELA) was engaged by CWP Renewables Pty Ltd, on behalf of Crudine Ridge Wind Farm (CRWF) Pty Ltd to assess any potential change in biodiversity impacts from the proposed realignment of access tracks within the CRWF.

CWP Renewables are proposing to redesign access tracks between Wind Turbine Generators (WTG) A35 to WTG A38 and between WTG A43 to WTG A44, replacing the existing approved 1,590 m of access track with two proposed shorter sections of track totalling 730 m. The two new proposed sections of track fall outside of the CRWF approved Development Corridor and have not previously been subject to biodiversity assessment.

Condition 19 (b) of Development Consent (DC) SSD-6697 issued for the CRWF requires CRWF Pty Ltd to implement all reasonable and feasible measures to minimise the clearing of native vegetation and fauna habitat, including hollow-bearing trees (HBTs). Therefore, an assessment of the two new proposed track sections was required to confirm that no increases in clearing would occur as a result of the change in design.

METHODS

A desktop review was undertaken of the existing approved track area to determine the mapped vegetation type and presence of any mapped habitat features or threatened species records.

An ecological survey of the two new proposed track sections was undertaken on 16 January 2019 by ELA ecologists Cheryl O'Dwyer and Rebecca Croake, with assistance from CRWF Pty Ltd and the landowner Tony Price. The survey area consisted of 10 m either side of the proposed access tracks. The survey included an assessment of vegetation type, identifying and recording habitat features

including HBTs, large woody debris (LWD), rock habitat, active nests or burrows. Threatened flora or fauna species were actively looked for and their locations logged with a handheld GPS.

The species of any HBT and approximate number and size of hollows within each HBT were recorded. Incidental observations of any non-threatened fauna species were also recorded.

RESULTS AND DISCUSSION

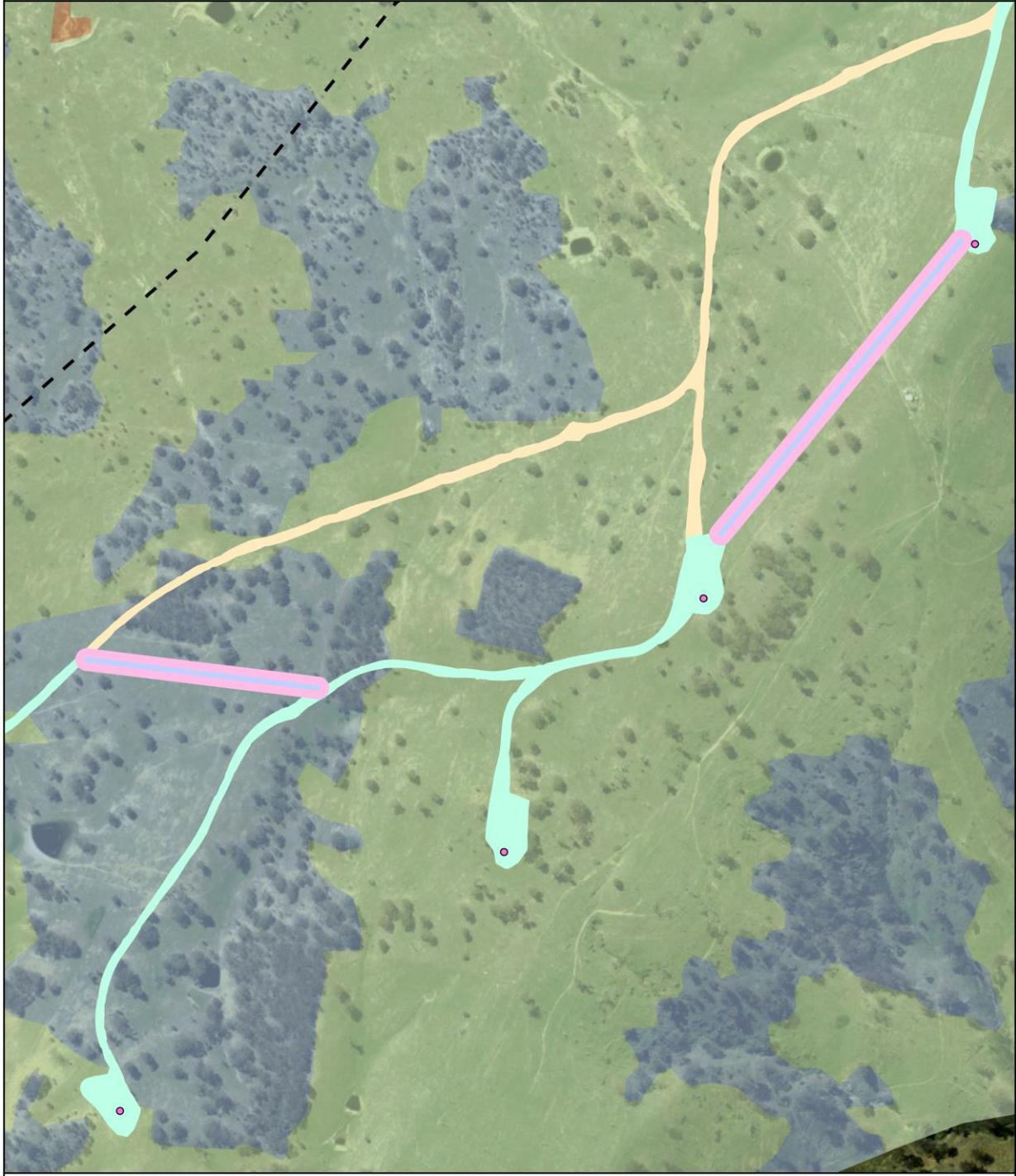
A comparison was undertaken between the existing approved access track and the two new proposed track sections, shown below in **Figure 1**.

The 1,590 m existing approved access track would comprise a total disturbance area of 0.95 ha, mapped as Plant Community Type (PCT) 290; *Red Stringybark – Red Box – Long-leaved Box – Inland Scribbly Gum tussock grass shrub low open forests on hills in the southern part of the NSW South Western Slopes Bioregion* (previously assigned Biometric Vegetation Type CW176). The existing access track would cross four gullies.

The two new proposed sections of track would comprise 730 m with a total disturbance area of 0.45 ha, assuming a track width of just over 6 m. The vegetation was found to be consistent with the already approved area, mapped to PCT 290, and included *Eucalyptus macrorhyncha* (Red Stringybark), with *E. polyanthemos* (Red Box), *E. rossii* (Inland Scribbly Gum) and *E. mannifera* (Brittle Gum) as scattered paddock trees or in small clumps along ridges. The ground layer was characterised by mainly native grasses with a few native herbs (Figure 2).

A flora list for the species identified within the two new proposed sections of track is provided in **Appendix A**. No threatened flora species were recorded during the survey of the proposed access tracks.

CWP Renewables Access Track Redesign - Vegetation Communities



Legend

- Disturbed terrain, Low
- PCT 290 Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest, Moderate to Good, Pasture
- PCT 290 Red Stringybark-Scribbly Gum-Red Box-Long-leaved Box shrub-tussock grass open forest, Moderate to Good, Trees
- Turbines
- Proposed Access Tracks
- Current Access Tracks
- ELA Survey Area
- Existing Civil Works
- - - Internal Overhead Transmission Line

0 50 100 200
 Metres
 Datum/Projection:
 GDA 1994 MGA Zone 55

eco logical
 AUSTRALIA
 A TETRA TECH COMPANY
 Prepared by: EK Date: 03-Apr-20

Figure 1: Vegetation community within the current and proposed access tracks



Figure 2: PCT 290 Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass shrub low open forests on hills in the southern part of the NSW South Western Slopes Bioregion

Database searches identified 87 threatened species (21 flora and 66 fauna) as known, likely or having the potential to occur within the proposed new access tracks. Whilst fourteen (14) of these species have been previously recorded across the entire CRWF development footprint, only three (3) species were identified as potentially occurring within the proposed access track locations based on the presence of suitable habitat within these areas. These species were *Climacteris picumnus victoriae* (Brown Treecreeper), *Aprasia parapulchella* (Pink-tailed Legless Lizard) and *Stagonopleura guttata* (Diamond Firetail). All of these species have been previously assessed under the EIS (2011) and it is unlikely that the proposed access track redesign will have a significant impact upon these species.

No threatened fauna species were observed during the survey. However, based on habitat features present within the proposed new access track areas, there is potential habitat present for hollow-dependent species in the form of stags, LWD and rock patches. Two small rocky patches and 18 trees were located, with no hollows within these trees noted. Additionally, 14 stags were identified along the proposed access tracks containing a total of 23 hollows ranging in size from small to large (Table 1). There was approximately 230 m of LWD located within the two new sections of proposed access tracks. Key habitat features along the proposed access tracks are listed in Table 2 below and shown in Figure 3.

Table 1: Hollow-bearing trees within the study area

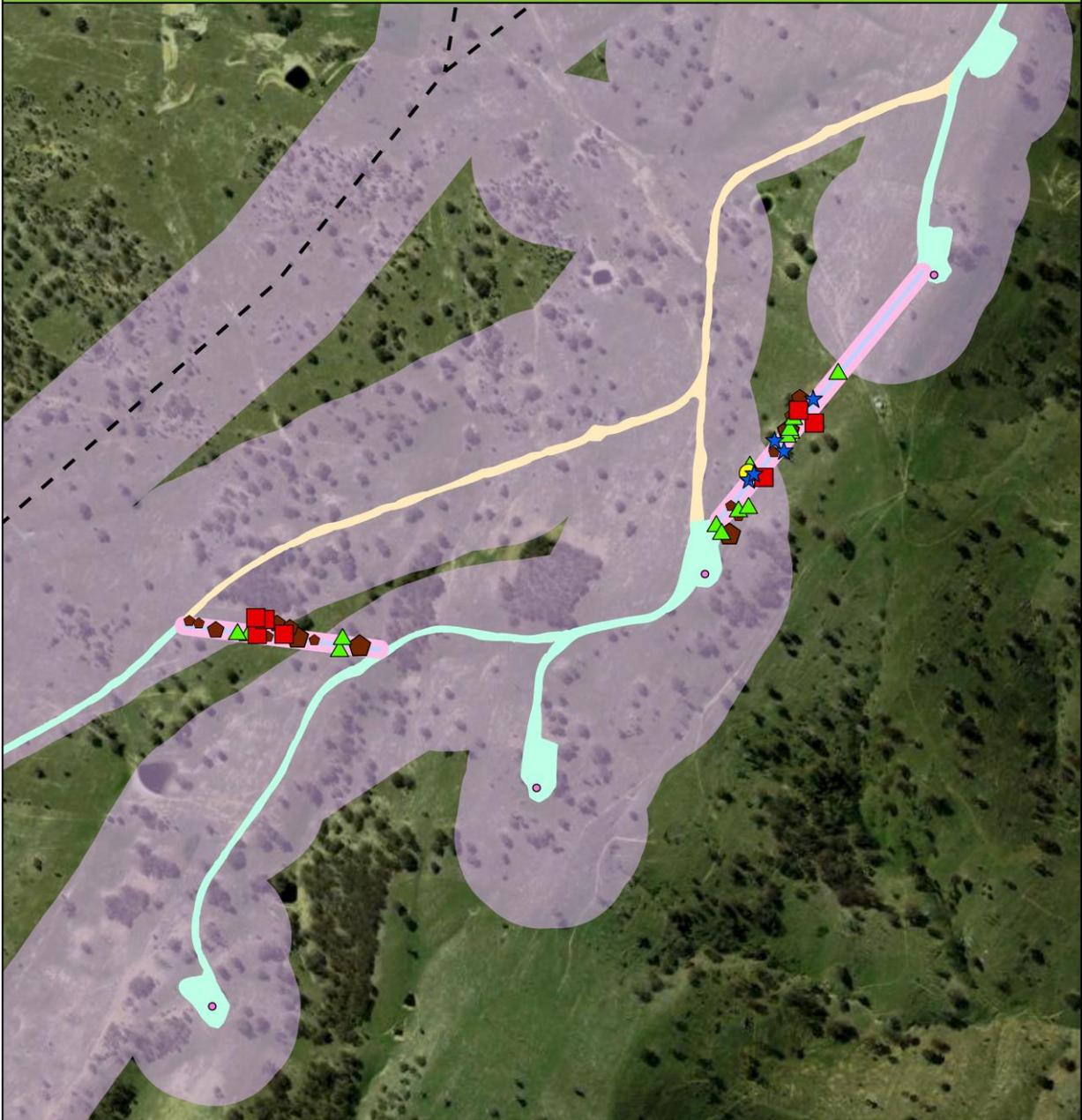
Type	Number of hollows			Total
	Small	Medium	Large	
Stag	11	9	3	23

Table 2: Habitat features within the study area

Habitat features	Species
Hollow-bearing trees	Arboreal mammals, Microchiroptera bats, hollow-dependant birds (including owls), and reptiles
Stags	Arboreal mammals, Microchiroptera bats, hollow-dependant birds (including owls), and reptiles
Rocky areas	Reptiles (Pink-tailed worm lizard)
Large Woody Debris	Reptiles, small mammals, birds
Leaf Litter	Reptiles, birds
Feed trees / nectar	Nectar feeding birds, mammals, Koala

The threatened flora species *Swainsona recta* (Small Purple-pea) has previously been recorded along the external overhead transmission line (ELA 2017), approximately 8 km from the study area. This species dies back in summer, surviving as rootstock and therefore would not have been identifiable at the time of the survey (January). Therefore whilst this species was not observed within the new proposed track areas during the field survey, there is potential that this species may occur in the area and the management measures outlined in Section 4.3 of the CRWF Biodiversity Management Plan (BMP) (CWP 2017), including pre-clearing surveys, should be implemented to avoid impacts to this species.

CWP Renewables Access Track Redesign - Habitat Features



Legend

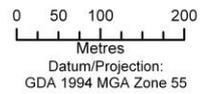
Paddock trees

- *Eucalyptus macrorhyncha*
- *Eucalyptus mannifera*
- ★ *Eucalyptus polyanthemos*
- ▲ Stag

LWD length (m)

- 4 - 10
- 11 - 20
- 21 - 30

- Turbines
- Proposed Access Tracks
- Current Access Tracks
- ELA Survey Area
- Existing Civil Works
- ELA Study Area 2011
- - Internal Overhead Transmission Line



Datum/Projection:
GDA 1994 MGA Zone 55



Figure 3: Habitat features within the proposed access tracks

RECOMMENDATIONS AND CONCLUSION

The proposed track redesign will reduce the area of vegetation clearing and result in a reduction in impacts to biodiversity. The current approved track design would impact 0.95 ha, whilst the proposed access track would reduce the amount of disturbance by 0.5 ha, to 0.45 ha. The proposed access tracks are in the same vegetation type (PCT 290) and comparable condition state to the current approved access tracks. Habitat features and potential habitat for threatened species is consistent between the two areas.

Therefore, it is considered that the change in design by replacing the existing approved 1,590 m of access track with two proposed shorter sections of track totalling 730 m complies with Condition 19 (b) of SSD-6697.

It is recommended that:

- Clearing is to be undertaken in accordance with the procedures outlined in Section 4 of the BMP (CWP 2017).
- Infrastructure should be micro-sited to avoid clearing of vegetation and mature trees where possible. Pruning should be considered.
- Potential habitat features such as LWD and boulders and rock habitat should be salvaged where practicable for use in rehabilitation areas or in adjoining non-disturbed native vegetation areas.
- Any actively nesting birds or mammals should be collected and taken to a wildlife carer. Any suspected roosts should be positioned on the ground with the hollow facing upwards to allow animals to exit overnight.
- Adherence to the recommendations provided for the management of *Swainsona recta*, as identified in Section 4.3 of the BMP (CWP 2017), including undertaking pre-clearance surveys during the flowering season (spring).

Regards,



Dr. Cheryl O'Dwyer
Senior Ecologist

REFERENCES

CWP Renewables (2017). Crudine Ridge Wind Farm Biodiversity Management Plan. CWP Renewables.
https://www.crudineridgewindfarm.com.au/wp-content/uploads/2018/01/CRWF_BiodiversityManagementPlan_Approved.pdf

NSW Development Consent SSD-6697 (2016)

<https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSD-6697-MOD-1%2120190624T132700.815%20GMT>

Eco logical Australia (2017). Crudine Ridge Wind Farm Mapping of Occurrences of *Swainsona recta*. Prepared for CWP Renewables.

Eco Logical Australia (2011). Crudine Ridge Wind Farm Part 3A Ecological Assessment. Prepared for Wind Prospect CWP Renewables.

Appendix A – Flora Species List

Scientific Name	Common Name	Native / exotic
<i>Acacia implexa</i>	Hickory wattle	Native
<i>Acetosella vulgaris*</i>	Sorrel	Exotic
<i>Angophora floribunda</i>	Rough-barked Apple	Native
<i>Anthosachne scaber</i>	Common Wheatgrass	Native
<i>Aristida ramosa</i>	Purple Wiregrass	Native
<i>Aristida vagans</i>	Threeawn Speargrass	Native
<i>Austrostipa scabra</i>	Speargrass	Native
<i>Bothriochloa macra</i>	Red Grass	Native
<i>Briza minor*</i>	Shivery Grass	Exotic
<i>Bromus hordeaceus*</i>	Soft Brome	Exotic
<i>Carthamus lanatus*</i>	Saffron thistle	Exotic
<i>Cheilanthes sieberi</i>	Rock fern	Native
<i>Chloris truncata</i>	Windmill Grass	Native
<i>Chondrilla juncea*</i>	Skeleton Weed	Exotic
<i>Cirsium vulgare*</i>	Spear thistle	Exotic
<i>Dichelachne sp.</i>	Red Plumegrass	Native
<i>Eleusine tristachya*</i>	Goose Grass	Exotic
<i>Eragrostis brownii</i>	Browns Lovegrass	Native
<i>Eucalyptus macrorhyncha</i>	Red Stringybark	Native
<i>Eucalyptus mannifera</i>	Brittle Gum	Native
<i>Eucalyptus polyanthemos</i>	Red Box	Native
<i>Gnaphalium sp.</i>	Cudweed	Native
<i>Goodenia hederacea</i>	Forest goodenia	Native
<i>Hibbertia obtusifolia</i>	Hoary guinea flower	Native
<i>Hypochaeris radicata*</i>	Flatweed	Exotic
<i>Juncus sp A</i>	Rush	Native
<i>Juncus sp B</i>	Rush	Native
<i>Lissanthe strigosa</i>	Peach Heath	Native
<i>Lomandra filiformis</i>	Wattle Mat-rush	Native
<i>Lomandra sp</i>	Mat-rush	Native
<i>Mentha australis</i>	Native mint	Native
<i>Microlaena stipoides</i>	Weeping grass	Native
<i>Oxalis perennans</i>	Oxalis	Native
<i>Petrorhagia dubia*</i>	Velvet Pink	Exotic

Scientific Name	Common Name	Native / exotic
<i>Poa sp.</i>	Tussock-grass	Native
<i>Rytidosperma sp.</i>	Wallaby grass	Native
<i>Solanum sp.</i>	Bush Tomato	Native
<i>Themeda triandra</i>	Kangaroo Grass	Native