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Our Ref: 1811d

16 May 2023

MREH Pty Ltd

C/- Philip Galloway Syncline Energy Via email: phil@synclineenergy.com.au

Dear Phil,

Re: Revised Report - Targeted Growling Grass Frog Survey and Habitat Assessment, Growling Grass Frog Impact Mitigation Protocol, Melton Renewable Energy Hub, 77-347 Holden Road, Plumpton

In June 2020, Ecolink Consulting Pty Ltd was engaged by Syncline Energy to undertake a Biodiversity Assessment for the proposed Melton Renewable Energy Hub (MREH) located at 77-347 Holden Road, Plumpton (the study area: Figure 1) (Ecolink Consulting Pty Ltd 2021). That assessment found that parts of the study area retained potential habitat and a moderate likelihood that up to three fauna species listed on the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) may occur within the study area:

- Growling Grass Frog Litoria raniformis;
- Golden Sun Moth Synemon plana; and
- Striped Legless Lizard Delma impar.

Further assessments of these species were recommended to understand the likely impact of the proposed works on any populations that reside or may visit the study area. This report presents the results of the targeted surveys for Growling Grass Frog. Other targeted survey reports were prepared for Golden Sun Moth and Striped Legless Lizard.



A targeted Growling Grass Frog survey was undertaken at a dam within the study area (but not, at that stage, proposed to be impacted) by Ecolink Consulting in November and December 2020. Growling Grass Frogs were not recorded. The findings were presented to the Department of Agriculture, Water and the Environment (now the Department of Climate Change, Energy, the Environment and Water (DCCEEW)) in a referral under the EPBC Act (referral number EPBC 2021/8908) and approval is being sought through Preliminary Documentation pursuant to the Act.

As part of this approval process, DCCEEW sought further information on the habitat features for Growling Grass Frogs at other dams located approximately 80 metres from the proposed access track to the proposed MREH from Holden Road (Figure 1).

Most recently, the applicant has sought an alternative powerline easement and connection into the power substation to the east of the proposed plant sire. The new power line alignment will extend south of the MREH, along the northern boundary of 27 Highwood Drive, Hillside, and into the substation (Figure 1). The substation compound contains an additional dam, which warrants a Growling Grass Frog survey.

Due to 2021 and 2022 La Nina weather conditions, and the duration of time since the previous Growling Grass Frog surveys, it was determined that Growling Grass Frog surveys should be updated at all dams located in the vicinity of the proposed MREH and powerline connection. To this end, the purpose of the current report is to provide the results of the previous Growling Grass Frog surveys undertaken in 2020 and 2021, as well as the current Growling Grass Frog surveys undertaken in December 2022.

Background

1-75 Holden Road, Plumpton

Growling Grass Frogs are known to occur on the neighbouring site, to the east of the study area, at 1-75 Holden Road (Department of Environment Land Water and Planning 2021; Rail Infrastructure Alliance 2019). This property was proposed to be developed into a passenger train, stabling yard and maintenance yard facility and surveys for the species were undertaken as part of the approvals process for this facility.

In 2010/11 Growling Grass Frogs were recorded in the north-eastern corner of the property, associated with a tributary to Jacksons Creek, as well as the south-eastern portion of the property, associated with a tributary to Taylors Creek (Rail Infrastructure Alliance 2019). Targeted surveys completed in 2013/14 did not detect the species, nor were they recorded onsite by ecologists during pre-construction vegetation clearance surveys for Stage 1 Works or by ecologists during general walkover surveys in 2018 or early 2019 (Rail Infrastructure Alliance 2019).

Development of the property was deemed to be a controlled action by DCCEEW in September 2013. This required the preparation and implementation of a Growling Grass Frog Conservation



Management Plan to mitigate impacts to the species (Rail Infrastructure Alliance 2019). The property has since been developed into the stabling yard facility.

The Study Area

The study area includes a small dam in the north-eastern corner of the study area (hereafter Site 1; Figure 1). The current proposal will require the removal of this dam (Figure 1). Site 1 was the location of the initial Growling Grass Frog survey undertaken in November and December 2020.

Further north, the western-most portion of an unnamed low-lying drainage line that is a tributary to Jacksons Creek and extends through the northern portion of the study area (Figure 1). An access track is proposed to bisect this drainage line, although waterbodies are not proposed to be impacted. The tributary contains three dams, none of which are proposed to be impacted, but which were assessed for the current assessment (hereafter Survey Sites 2, 3 and 4; Figure 1). Habitats that currently occur within these dams are not discernible from other agricultural and farmland, which is used for cropping and grazing, despite its historic formation as a creek (Plates 1 and 2). Growling Grass Frog habitat assessments have been completed at these dams, as requested by the DCCEEW, through the Preliminary Documentation process, even though these dams are at least 80 metres from the MREH infrastructure.



Plate 1. The area located to the immediate north of Survey Sites 2 and 3 is used to store farm equipment. As with the dams, it is regularly grazed by horses and sheep (August 2021).





Plate 2. Looking east from Survey Site 4 along the unnamed drainage line that acts as a tributary to Jacksons Creek. This area is used for farming practices, and provides poor quality habitat for Growling Grass Frog (August 2021).

The tributary to Taylors Creek (which contained the confirmed Growling Grass Frog habitat at 1-75 Holden Road) does not enter the study area at all.

The results of this Growling Grass Frog survey and habitat assessment, as well as the Conservation Management Plan prepared for the stabling facility at 1-75 Holden Road, have been used to prepare a Growling Grass Frog Impact Mitigation Protocol for Growing Grass Frog. The Growing Grass Impact Mitigation Protocol is provided as Appendix 1 to this report.

Growling Grass Frog Conservation Status and Biology

The Growling Grass Frog is listed as Vulnerable on both the Commonwealth EPBC Act and the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) (Plate 3).

The Growling Grass Frog is a relatively large and mobile species that inhabits a diverse range of wetlands such as swamps, marshes, slow flowing rivers/streams, lakes, drainage lines and artificial waterbodies (e.g. farm dams, reservoirs and former quarry pits). The species generally breeds in permanent or near-permanent waterbodies, but has also been recorded breeding regularly in ephemeral waterbodies, where they hold sufficient water during the breeding season (Heard et al. 2004; Ecology Australia 2006).

Several key habitat attributes significantly influence the presence and/or breeding success of the Growling Grass Frog, including:



- Connectivity to occupied sites;
- Hydroperiod (i.e. water permanence);
- Cover of aquatic vegetation;
- Water quality, particularly salinity;
- Terrestrial vegetation, including overshading by trees and shrubs; and
- Absence of predatory fish (Ecology Australia Pty Ltd 2006; Heard et al. 2004; Heard and Scroggie 2009; Heard et al. 2010; Heard et al. 2012).

With regard to the hydroperiod of waterbodies, larger and more permanent waterbodies are more likely to be occupied and sustain populations over a longer period. The Growling Grass Frog is a highly aquatic frog. As such, the drying out of waterbodies can increase the chance of local extinctions (Heard and Scroggie 2009); however, periodic drying of wetlands can also be potentially beneficial through reducing impacts from predatory fish and/or amphibian chytrid fungus *Batrachochytrium dendrobatidis*, which has caused the decline of amphibians worldwide, including the Growling Grass Frog (Clemann and Gillespie 2012).

The cover of aquatic vegetation has a strong positive relationship with habitat occupancy; aquatic vegetation is characterised as submerged, floating or emergent vegetation types. The microhabitat provided by the vegetation is important for the Growling Grass Frog (Heard and Scroggie 2009), with the species showing marked preferential use of submerged and floating vegetation during nocturnal activity (Heard et al. 2008), while emergent vegetation provides sheltered perching sites for basking during the day and for ambushing prey (Pyke 2002). These plants also provide important microhabitat for aquatic larvae and are likely to serve as a refuge from predatory fish (Heard and Scroggie 2009; Webb and Joss 1997).



Plate 3: Growling Grass Frog Litoria raniformis (Ecolink Consulting Pty Ltd)



A number of studies have demonstrated that connectivity is a critical factor for the ongoing persistence of Growling Grass Frog populations in a given area (e.g. Heard and Scroggie 2009; Heard et al. 2010). The likelihood of a site being colonised by the species is strongly linked to connectivity, specifically the number of suitable wetlands in close proximity to the site (e.g. within approximately 1,000 metres). This connectivity is essential as the species has been shown to operate under a 'metapopulation' paradigm, where sites vary in occupancy year to year, driven by local conditions and the processes of localised extinction and colonisation (Heard et al. 2013).

The Growling Grass Frog spends the non-breeding season (approximately May to September) sheltering in terrestrial environments (e.g. rocks, fallen timber, soil cracks or dense ground vegetation) some distance from water (Pyke 2002; Wassens et al. 2008; Wilson 2003). Terrestrial habitat surrounding waterbodies is important not only for providing shelter and overwintering refuge, but also to provide a buffer from surrounding land uses (existing and future); a minimum buffer area of 200 metres is recommended around occupied wetlands (DEWHA 2009), however, subsequent modelling suggests buffers of 200 metres or less may materially increase the risk of local extinction in certain situations (Heard and McCarthy 2011). Buffer distances aim to account for distances moved by the frog during foraging at night and also movement to overwintering sites.

The presence of predatory fish, such as Eastern Gambusia *Gambusia holbrooki*, has been implicated in the decline of Growling Grass Frogs, although, waterbodies with an extensive cover of aquatic vegetation may provide sufficient refuge and shelter for aquatic larvae to persist even in the presence of predatory fish (Heard and Scroggie 2009).

Methods

Targeted Growling Grass Frog Survey – Survey Site 1 (November to December 2020)

The targeted Growling Grass Frog survey included two days of nocturnal surveys and a diurnal survey at Survey Site 1. The diurnal survey and one of the nocturnal surveys were undertaken on 27 November 2020. The second survey was a nocturnal survey only and was completed on 13 December 2020.

Both surveys included active searching, call playback and tadpole surveys:

- Active surveys included the assessors actively searching on and under floating debris and organic matter, down cracks and under rocks surrounding the fringes of the wetland.
- The call playback survey methodology meant that the assessors undertook ten minutes of quiet listening, followed by approximately five minutes of call play back/mimicry followed by a further ten minutes of quiet listening.

The frog species and the number of observed individuals, as well as the approximate numbers of calling males, were recorded during each survey.



The survey effort is considered adequate as Heard *et al* (2010) demonstrates that a threshold of 95% detection probability, at least two surveys are required when surveys are conducted in October–December, whereas three are required in January–March.

Weather conditions were appropriate for frog detection with mild weather on each of the survey days (Table 1).

Table 1. Weather conditions during diurnal and nocturnal frog surveys at the study area duringthe 2020 surveys.

Survey #	Diurnal	Nocturnal 1	Nocturnal 2
Date	27 Nov 2020	27 Nov 2020	13 Dec 2020
Start time	19:30	20:30	21:00
Finish time	20:30	21:15	21:50
Temperature (°C)	22.0	21.5	18.0
Humidity (%)	68	65	25
Wind speed average (km/h)	24	19	25
Wind direction	N	N	NE
Rain (mm)	0	0	0
Cloud cover (Octaves)	6/8	6/8	7/8
Preceding 24 hour rain (mm)	0	0	0

To reduce the risk of infection and spread of amphibian disease, particularly chytrid fungus, the handling, collection and preservation was to follow standards used by the NSW National Parks and Wildlife Service (Department of Environment and Climate Change (NSW) 2008).

Growling Grass Frog Habitat Assessment – Survey Sites 1, 2, 3 and 4 (August 2021)

Growling Grass Frog habitat assessments were then undertaken in consultation with DCCEEW (through the Preliminary Documentation period). Targeted surveys could not be completed, as it was not the breeding season for the species and frogs were likely to be unresponsive and cryptic. Habitat assessments were completed only.

The following habitat variables were measured and recorded during Growing Grass Frog habitat assessments. The habitat assessment was completed at Site 1 concurrently with the Growling Grass Frog survey described above. The Growling Grass Frog habitat assessments for Survey Sites 1, 2, 3 and 4 was undertaken on 17 August 2021.

At all four sites, habitat conditions at the ponds were measured including:

- The location of potentially suitable habitat (Australian Map Grid co-ordinates);
- An analysis of the percentage cover of emergent, submerged, floating and fringing vegetation and terrestrial vegetation at both occupied (including sites where successful breeding is occurring) and unoccupied sites;



- Percentage cover and composition of terrestrial refuge sites (e.g. rocks, logs, debris) surrounding waterways and wetlands;
- Basic water chemistry analysis (dissolved oxygen, electrical conductivity, pH, turbidity, temperature, salinity);
- Information regarding water levels at sites;
- The type of surrounding habitat within 30 metres of each site;
- The location of potential dispersal routes and linked habitat; and,
- The presence and overall abundance of aquatic (Plague Minnow and other fish) and terrestrial predators (e.g. foxes, cats, birds).

Water chemistry was measured using a Horiba U-10 multi-parameter water quality analyser system on 27 November 2020, during the diurnal assessments.

General comments on the presence of pollutants, rubbish, refuse, or other threatening processes were made. A photograph of the waterbody was taken.

Targeted Growling Grass Frog Survey - Survey Sites 1, 2, 3, 4 and 5 (December 2022)

Targeted Growling Grass Frogs were then undertaken across all five surveys sites (Sites 1–5) in December 2022. As stated, a fifth survey site was added to include Site 5 in the substation compound. It was determined that all five survey sites should be surveyed again due to the time which had elapsed since the previous surveys.

The diurnal survey was completed on 2 December 2022. Nocturnal site surveys were completed on 10 and 18 December 2022. Weather conditions were appropriate for frog detection, with mild weather on each of the survey days (Table 2).

Table 2. Weather conditions during diurnal and nocturnal frog surveys at the study area duringthe 2022 surveys

Survey #	Diurnal	Nocturnal 1	Nocturnal 2
Date	2 Dec 2022	10 Dec 2022	18 Dec 2022
Start time	16:00	21:00	21:00
Finish time	18:30	23:30	23:00
Temperature (°C)	22.0	18.0	17.5
Humidity (%)	37	41	69
Wind speed average (km/h)	6	12	17
Wind direction	ESE	ESE	E
Rain (mm)	0	0	0
Cloud cover (Octaves)	2/8	2/8	7/8
Preceding 24 hour rain (mm)	0	0	0

The survey and habitat assessment methodology undertaken during the most recent surveys follows the description above. This report presents the most recent results only, although the 'Discussion' includes findings from the previous reports.



Results

There are three historical records of Growling Grass Frogs, including a total of five individuals, within three kilometres of the study area, based on a review of the Victorian Biodiversity Atlas (Figure 2) (Department of Environment Land Water and Planning 2021). Both records of Growling Grass Frogs to the east of the study area were each of only one individual, and were recorded in 2010. As, stated, Growling Grass Frogs have not been recorded at that site since 2010, despite targeted surveys being completed in 2013/14 and subsequent site assessments by ecologists (Rail Infrastructure Alliance 2019). A further record of three frogs, approximately two kilometres south-east of the study area, dates back to 1986 (Figure 2) (Department of Environment Land Water and Planning 2021).

The Survey Sites are all artificial dams. A list of the characteristics of each site is provided as Table 3.

Survey Sites 1–4 (Plates 4–7) provided generally poor quality habitats for Growling Grass Frog on the basis that:

- They were disturbed by livestock, with hoof prints present around and within the waterbodies, and generally turbid water;
- They lacked in-stream vegetation, including submerged and floating vegetation, with only a very small amount of emergent vegetation;
- The fringing vegetation included weeds which are not recognised as preferred habitats for Growing Grass Frog, including Wild Oats Avena sp., Barley Grass Hordeum sp., Serrated Tussock Nassella trichotoma, Rye-grass Lolium sp., Chilean Needle-grass Nassella neesiana and Toowoomba Canary Grass Phalaris aquatica. Taller species included African Boxthorn Lycium ferocissimum and Artichoke Thistle Cynara cardunculus, which were recorded around the perimeters of the Survey Sites.
- A sparse cover of native vegetation was also only present at Survey Sites 1 and 4. This vegetation included a low cover abundance of Rushes *Juncus* sp., and Common Spike-sedge *Eleocharis acuta*;
- Whilst no predatory fish were recorded when dip netting, or observed during nocturnal surveys, and no tadpoles were recorded. Only Spotted Marsh Frog *Limnodynastes tasmaniensis* and Common Froglet *Crinia signifera* were recorded during the current assessments;
- Predatory species were observed and other predators including foxes and cats are likely to be present (Table 3).

Survey Site 5 (Plate 8) provided moderate quality habitat for Growling Grass Frog because is supported a greater cover of aquatic emergent and fringing vegetation.

Dam	Variable measured	Survey Site 1	Survey Site 2	Survey Site 3	Survey Site 4	Survey Site 5
Assessment date		Dec 2022	Dec 2022	Dec 2022	Dec 2022	Dec 2022
Plate Ref.		4	5	6	7	8
Description	Approx. size (m ²)	730	380	1,700	1,000	1,556
Livestock present		Sheep	Sheep, horses	Sheep, horses	Sheep, horses	No
	Type of waterbody	Artificial dam	Ephemeral depression	Artificial dam	Artificial dam	Artificial dam
	Water level (%)	100	90	90	60	70
Vegetation	Floating vegetation (%)	100	0	0	0	0
	Submerged vegetation (%)	0	0	0	0	0
	Emergent vegetation (%)	5	0	0	2	60
	Fringing vegetation (%)	50	50	10	40	50
	Terrestrial vegetation (%)	100	70	90	70	90
Terrestrial refuge s	sites (%`cover)	15	5	5	5	
Water chemistry	Dissolved oxygen (mg/L)	7.3	10.8	7.8	7.9	10.4
	Electrical conductivity (mS/cm)	1.9	1.2	0.8	1.6	1.8
	рН	7.4	7.5	7.3	7.1	7.2
	Turbidity (FTU)	120	100	120	80	80
	Temperature (°C)	17.0	17.5	16.5	16.5	17.5
	Salinity (ppt)	0.11	0.18	0.21	0.23	0.33
Predators	Aquatic	No	No	No	No	No
	Terrestrial	Yes, ducks, livestock impacts	Yes, livestock impacts	Yes, ducks, livestock impacts	Yes, ducks, livestock impacts	Yes, ducks

 Table 3. Habitat variables measured to determine the suitability of dams at the study area.





Plate 4. Survey Site 1 was generally fringed with exotic vegetation, but also included native Sedges and Rushes. Emergent and submerged vegetation was absent, but the dam was covered with Azolla (December 2022).



Plate 5. Survey Site 2 is a small ephemeral depression. It was fringed by Artichoke Thistle, Serrated Tussock and Annual Meadow-grass *Poa annua*, and was heavily impacted by livestock (December 2022).





Plate 6. Survey Site 3 was a large artificial dam. As with all artificial dams, the stockpiled soil for the dam wall provides little refuge for frogs (December 2022).



Plate 7. Survey Site 4 was a large artificial dam (December 2022).





Plate 8. Survey Site 5, located within the substation compound, contained a relatively high cover abundance of emergent native vegetation (December 2022).

No Growling Grass Frogs were detected during any of the three surveys (Table 4). No Growling Grass Frog tadpoles were recorded during the assessment.

One other frog species was heard during the surveys: Spotted Marsh Frog *Limnodynastes tasmaniensis*. This species is common to the local area, and throughout the majority of Victoria.

Species		Diurnal Survey	Nocturnal Survey #1	Nocturnal Survey #2
Litoria raniformis	Growling Grass Frog	-	-	-
Limnodynastes tasmaniensis	Spotted Marsh Frog	1	4	5

Table 4. Results of targeted Growling Grass Frog surveys at Survey Site 1 in 2020.

No frogs were heard during the diurnal surveys undertaken in 2022 (Table 5). Low numbers of frogs were recorded at each survey site, although not on all occasions. Striped Marsh Frog *Limnodynastes peronii* and Common Froglet *Crinia signifera* were also recorded during the nocturnal surveys. Again, Growling Grass Frog was not recorded during the surveys.



Common Name	Survey Site 1 (10 & 18 Dec)	Survey Site 2 (10 & 18 Dec)	Survey Site 3 (10 & 18 Dec)	Survey Site 4 (10 & 18 Dec)	Survey Site 5 (10 & 18 Dec)
Growling Grass Frog	0&0	0&0	0&0	0&0	0&0
Striped Marsh Frog	0 &5	3 & 0	0&0	0&0	0&3
Spotted Marsh Frog	3 & 2	0&0	5&0	0 & 2	3 & 5
Common Eastern Froglet	2 & 2	0&0	0 & 0	0&0	5 & 5

Table 5. Results of targeted Growling Grass Frog surveys at Survey Sites 1-5 in 2022.

Discussion

The quality of Growling Grass Frog habitats within the study area was low due to the disturbance of the dam by livestock, including sheep and horses, an absence of submerged and emergent vegetation, and turbid water.

Whilst Growling Grass Frogs have been recorded on the property to the east in 2010, they have not been recorded since that time. Growling Grass Frogs were not recorded at any of the Survey Sites and are deemed unlikely to occur due to their absence during the targeted surveys, and the generally poor quality habitats provided by the Surveys Sites.

Still, Growling Grass Frogs can have eruptive population increases during favourable conditions and colonise new waterbodies when males disperse seeking females to mate with. There is a small chance that Growling Grass Frog males could disperse along the unnamed tributary of Jacksons Creek, from an unknown source population, towards the study area. Such an event would require an eruptive population increase from a source population associated with Jacksons Creek. Growling Grass Frogs would then find themselves on the very limit of suitable habitat, as the tributary terminates to the west of the study area at Site 4. Other dams located in the vicinity are "offline" dams, fed by overflow from undulating land. Due to the absence of female Growing Grass Frogs, and due to the lack of suitable habitat, these populations are unlikely to persist.

Self-assessment for Impacts to Matters of National Environmental Significance

A Referral to DCCEEW is required where any action is likely to have a significant impact on any Matter of National Environmental Significance described within the EPBC Act. Guidance on determining if an impact is likely to be significant is provided in the 'Significant Impact Guidelines 1.1; *Environment Protection and Biodiversity Conservation Act 1999*' (Department of the Environment 2013).

The Significant Impact Criteria for impacts to Growling Grass Frog and our 'Self-assessment' response are provided in Table 6.



Table 6. Significant Impact Criteria and Responses relating to Growling Grass Frog

Significant Impact Criteria	Response
Lead to a long-term decrease in the size of an important population of a species	The study area does not currently contain a population of this species. Recent targeted surveys indicate that the species is unlikely to occur, and the habitat is poor, within the study area. The unnamed tributary to Jacksons Creek provides the westernmost extent of potential habitat for the species in the study area, as the tributary terminates near Site 4. The study area does not include an important ¹ population for the species, as it may only comprise occasional dispersal habitat, at best.
Reduce the area of occupancy of an important population	The study area does not currently contain a population of Growling Grass Frogs and development is therefore unlikely to reduce the occupancy of an important ¹ population of the species.
Fragment an existing important population into two or more populations	The study area does not currently contain an important population of Growling Grass Frogs. Site 4 provides the western- most extent of the tributary to Jacksons Creek and is unlikely to contain Growling Grass Frog based on its current habitat conditions. The proposed development will therefore not fragment any population.
Adversely affect habitat critical to the survival of a species	The study area, and nearby Survey Sites, do contain habitat critical to the survival of a species. Habitat within the study area may be occasional dispersal habitat for Growling Grass Frogs, at best.
Disrupt the breeding cycle of an important population	Development of the study area will occur at least 700 metres from the nearest known record of the species. This record dates back to 2010, and the species has not been recorded within the vicinity of the study area since that time. On this basis, it is unlikely that the records to the east, at 1-75 Holden Road, represent an important population for the species. No waterbodies are proposed to be removed. The project will not disrupt the breeding cycle of an important population.
Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	There is a low likelihood that the study area provides dispersal habitat for this species on occasion, however no impacts to waterbodies are proposed. The creation of a road east of Site 4 (which represents the western-most waterbody along the Jacksons Creek tributary) is unlikely to contribute to the decline of the species.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	The proposed development will not facilitate the introduction or expansion of invasive species. To the contrary, the project is likely to require a Weed Management Plan be implemented, which would reduce the extent of noxious weeds in the area.
Introduce disease that may cause the species to decline	The proposed development will not introduce or facilitate the spread of soil, weed or biological pathogens to any population of Growling Grass Frog largely on the basis that the species is not present. Nonetheless, works proposed to be undertaken in



Significant Impact Criteria	Response
	accordance with the Growling Grass Frog Impact Mitigation protocols will be undertaken by suitably qualified ecologists implementing appropriate hygiene protocols (Department of Environment and Climate Change (NSW) 2008).
Interfere substantially with the recovery of the species	The proposed development will not substantially interfere with the recovery of the species as it does not currently contain a resident population, and the development will not significantly affect other downstream habitats.

Table Notes:

¹An important population is defined as:

- Key source populations either for breeding or dispersal;
- Populations that are necessary for maintaining genetic diversity; or
- Populations that are near the limit of the species range (Department of the Environment 2013).

With reference to the Significant Impact Guidelines, there is unlikely to be a significant impact to the species.

Conclusion

Two of the dams comprising Survey Sites for the current assessment will be directly impacted by the proposed development of the MREH (Survey Sites 1 and 5), and the proposed access track would bisect a drainage line which ultimately leads to Jacksons Creek via an overland flow path. All of the Survey Sites, including Survey Site 1, provide low quality habitats at best, which are unlikely to currently sustain a viable breeding population of Growing Grass Frogs. The implementation of the Growling Grass Frog Impact Mitigation Protocol will avoid impacts to individual frogs, in the unlikely event that they are present.

Based on the above self-assessment, there is unlikely to a significant impact to Growling Grass Frogs by the proposed MREH project.

I trust the above is clear, but please contact me if you have any queries.

Kind regards,

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Simon Scott Principal Ecologist Ecolink Consulting Pty Ltd



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Figure 1: Growling Grass Frog Survey Locations

Melton Renewable Energy Hub, Victoria

Legend

Proposed Developemnt



R35 Transmission Line Easement

Study Area

Construction Footprint (Ecology and Heritage Partners Assessment)

Growling Grass Frog Survey Location





P/N 1811d Figure 1. April 2023. Aerial imagery: Nearmap, 2022, dated 10 Oct 2022





Appendix 1. Growling Grass Frog Impact Mitigation Protocol

Background

Ecolink Consulting Pty Ltd (Ecolink) was engaged by Syncline Energy, to prepare a Growling Grass Frog *Litoria raniformis* Impact Mitigation Protocol for the proposed Melton Renewable Energy Hub (MREH) project located at 77-347 Holden Road, Plumpton (the study area).

The proposed access track extending from Holden Road south, into the facility, bisects a low-lying area which acts as a tributary to Jacksons Creek. The unnamed tributary contains three dams which capture the overflow water and prevent the low-lying area acting as a waterway. The habitat quality of these dams is very poor for Growling Grass Frog. In addition, a small dam is located in the north-western portion of the study area. Targeted surveys for this species undertaken in 2020 did not record this species, and it was concluded that the habitat quality was poor, and that Growling Grass Frogs were unlikely to occur at the dam.

Growling Grass Frogs, have previously been recorded at the property to the east, 1-75 Holden Road, Plumpton. Growling Grass Frogs were recorded at a dam in the north-eastern corner of the property, and at a dam in the south-eastern portion of the study area, in 2010 (Department of Environment Land Water and Planning 2021; Rail Infrastructure Alliance 2019). They were not recorded during any subsequent surveys or site assessments undertaken by ecologists (Rail Infrastructure Alliance 2019). This property was developed as a railway stabling and maintenance facility, and was subsequently referred to the Department of Agriculture, Water and the Environment pursuant to the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). It was deemed a controlled action and a Conservation Management Plan was prepared for Growing Grass Frog at that location (Rail Infrastructure Alliance 2019). The Conservation Management Plan nominated sediment and frog protection fencing on either side of the access track into the property, where it intersected the tributary to Jacksons Creek, and a sediment and frog fence on the northern side of the tributary to Taylors Creek. It also required pre-clearance checks for Growling Grass Frog and restrictions on works near suitable habitats and ongoing monitoring and maintenance. The sediment and frog fences and work restrictions were not required where the proposed construction works were not close to Growling Grass Frog habitats.

Purpose

The purpose of the current Growling Grass Frog Impact Mitigation Protocol is to:

- Prescribe a Growling Grass Frog Impact Mitigation Protocol which is commensurate with the potential impacts to Growling Grass Frogs, based on the proposed construction works and the findings of the Growling Grass Frog surveys and habitat assessments; and
- Ensure that Growling Grass Frog management prescriptions are compliant and consistent with the Growling Grass Frog Conservation Management Plan prepared for 1-75 Holden Road, Plumpton (Rail Infrastructure Alliance 2019).



A Construction Environment Management Plan will also be prepared for the proposed development. As a minimum, this will limit all works and laydown areas to the development footprint. The mitigation measures prescribed in this Growling Grass Frog Impact Mitigation Protocol will form the minimum standards required in the CEMP as they relate to mitigating impacts to this species. Failure to adhere to these prescriptions may result in the requirement for an impact assessment, site remediation or a fine under the EPBC Act.

Growling Grass Frog Status and Biology

The Growling Grass Frog is listed as vulnerable on the EPBC and is therefore nationally significant. It is also listed as Vulnerable on the *Flora and Fauna Guarantee* (FFG) *Act 1988* (Vic).

Ecolink has prepared a Growing Grass Frog Survey and Habitat Assessment which includes a detailed discussion on the biology of the species. A Contractor Identification Sheet is provided as Attachment 1 to this document, which further expands upon this for the purposes of construction.

Growling Grass Frog Impact Mitigation Protocol

Pre-Construction

An induction by a suitably qualified expert will be given to the Site Manager and construction personnel. The induction should include relevant matters of the CEMP, Growling Grass Frog identification and impact mitigation measures (Attachment 1). An induction sheet, the same or equivalent to Attachment 1, will be left with the Site Manager and retained on site at all times.

The areas outside of the works area are deemed "No Go Areas" for the project. These areas will be fenced with 1.5-metre star pickets and high visibility plastic mesh (or equivalent). The fences will form exclusion areas, where access will not be permitted at any time. Signage will be erected on the fence that states 'Conservation Zone - No Work Permitted'. Signs will be erected for every 50 metres of fence, and will be attached to the fences with cable ties.

The fence will be maintained in functional order at all times, with signs clearly visible and maintained. Breaches of this fence will be reported to the Site Manager and remedied as soon as practicable.

The areas within 100 metres of a waterbody are deemed Sensitive Habitat Areas for Growling Grass Frog. Sensitive habitat areas include the dams. There are restrictions on works which may be undertaken within Sensitive Habitat Areas for Growling Grass Frog (as described below).

The fencing of Sensitive Habitat Areas will be modified to include a floppy top "frog fence" attached on the outside of the fence. This floppy-top fence will be erected with a narrow-gauge wire or shade cloth so that it sags at the top, and contain holes no larger than chicken wire, to prevent frogs scaling the fence or passing through fence holes. The frog fence will be securely attached to the ground with pegs or excavated into the ground to prevent frogs from moving under the fence and into the works area (Figure 1).

As well as waterways, areas such as depressions, cracks in soil, rocks, and long vegetation may provide shelter habitats to Growling Grass Frogs. Works areas that contain these habitats will be cleared by hand, or using hand tools (e.g. removing logs, rocks) where practicable prior to



commencement of construction. This will allow frogs to disperse to more preferable habitats and provide a disincentive to their return. Grasses will be mown or slashed no closer than 5 centimetres from ground level. This will improve visibility for Growling Grass Frog salvage work and create a disincentive for the use of these areas by Growling Grass Frogs. In this way, frogs (and other wildlife) are likely to move away of their own accord.

Any Growling Grass Frogs that are observed during the pre-construction phase will not be touched. Works will temporarily cease in this location until the frog has moved away.

During the morning prior to construction, a wildlife hander or ecologist will search the development footprint for Growling Grass Frogs. Any frogs encountered will be physically salvaged and relocated to the nearest suitable habitat by the wildlife handler. Sick or injured frogs will not be relocated, but taken to a wildlife specialist for appropriate treatment. Handling of GGF during salvage and relocation will be undertaken in accordance with Hygiene protocols for the control of diseases in Australian frogs (Murray et.al. 2011), or other suitable best practice guidelines, to minimise the risk of Chytrid fungus and the spread of other diseases in frogs.

During Construction

Construction can only commence once the site has been suitably prepared (as described above).

Frogs (and other wildlife) may be injured or drowned by falling into pits and trenches. Pits and trenches will be open for the minimum time practicable to accommodate the works, and will be designed to allow wildlife exit via ramps. The wall of pits and trenches will generally be graded to a slope of approximately 45 degrees at each end. This will allow wildlife that fall into pits to safely move out.

Prior to works commencement each day, pits and trenches will be inspected for wildlife. In the event that wildlife is found, a suitably qualified zoologist/fauna handler will be contacted to remove these species to a suitable location. Works in this location will not re-commence until Growling Grass Frogs have been removed from the area.

Sediment and erosion control measures will be implemented around the exclusion fencing (as recommended in the CEMP). This will prevent damage to Growling Grass Frog habitats.

The following restrictions apply to maintain the integrity of the Sensitive Habitat Areas for Growling Grass Frog:

- No vehicles, machinery, equipment or materials may be leaned against the fence;
- No refuelling within 20 metres of the Conservation Zone;
- No stockpiles within 20 metres of the Conservation Zone;
- No vehicle washdown areas within 20 metres of the Conservation Zone;
- Sediment and erosion control measures will be implemented along the fenceline, as required, to prevent sediment laden runoff, pollutants and weed seed entering the Conservation Zone; and
- Rubbish and refuse that accumulates along the fenceline, and within the study area will be collected on a weekly basis.



Any Growling Grass Frogs that are observed during construction phase will not be touched. A suitably qualified zoologist/fauna handler will be called via phone. Works can recommence once the zoologist/fauna handler has cleared the area and provided approval to proceed. Any zoologist/fauna handler must maintain necessary hygiene protocols to avoid the potential spread of infectious pathogens such as Chytrid fungus. The zoologist/fauna handler must have the necessary animal ethics approvals to treat sick or injured wildlife on-site, or these may be taken off-site to suitably a qualified veterinarian or wildlife shelter.

Post Construction

In the event that Growling Grass Frogs are encountered, the zoologist/fauna handler will make a file note of the situation and remedial actions undertaken (as describe above). This note may be provided to regulatory authorities upon request.



Attachment 1. Growling Grass Frog Contractor Information Sheet

Growling Grass Frog *Litoria raniformis* Contractor Information Sheet





If you see a Growling Grass Frog:

- Stop all earth works immediately;
- Contact the nominated company representative who will contact the salvage contractor;
- The nominated company representative is:
- If the frog is in injured, try to capture it and store it in an aerated, plastic bag in a cool, area. Only put one animal per bag;
- Use plastic gloves whenever frogs are handled and change gloves between handling different frogs.

Species description:

- A large frog up to 100mm long;
- Warty back;
- Upper parts are dark olive to bright emerald green or brown, usually with large blotches of brown, bronze or gold;
- Under parts are pale coloured;
- Call described as a long modulated growl or drone, followed by a few short grunts: "crawark-crawark-crawarkcrok-crok", reminiscent of a motorbike revving;
- Tadpoles are large pinkish grey with yellowish fins, up to 100mm long;
- The green and gold pattern emerges at the end of the tadpole stage.

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Figure 1. Frog Fencing Requirements within the study area.



Figure 1: Growling Grass Frog Fencing Requirements

77-247 Holden Road, Plumpton, Victoria

Legend

Proposed Developemnt



R35 Transmission Line Easement

Study Area

Construction Footprint (Ecology and Heritage Partners Assessment)

Floppy Top Frog Fences

Growling Grass Frog survey location





P/N 1811d Figure 1. April 2023. Aerial imagery: Nearmap, 2022, dated 10 Oct 2022