

Response to the Section 46 Completeness Reports (Invertebrates) for the Proposed Nova Energy Solar Farm, Twizel

Contract Report No. 6620dii

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Response to the Section 46 Completeness Reports (Invertebrates) for the Proposed Nova Energy Solar Farm, Twizel

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Report No:	6620d-ii		
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Introduction

This memorandum responds to comments from Canterbury Regional Council on the completeness of the Applicant’s Substantive Application (**the application**) under the Fast-track Approvals Act 2024 (**FTAA**) in relation to terrestrial invertebrates for the Twizel Solar Farm project (**the project**).

Terrestrial invertebrate values, effects, and effects management have been addressed in the Assessment of Ecological Effects (the **AEE**; Wildland Consultants 2026a) and the draft Terrestrial Invertebrate Management Plan (the **TIMP**; Wildland Consultants 2026c). Environment Canterbury (**ECan**) has provided comments on the application.

Summary of Comments

A summary of the key comments related to terrestrial invertebrates from *Attachment 5: Indigenous Biodiversity Technical Advice* is as follows:

- II. **Concern regarding invertebrate effects management.** *It is unclear whether the AEE has appreciated the level of disturbance to the site the proposal will have, and therefore the level of effects on invertebrates. Nor if the habitat areas proposed for invertebrate enhancement are sufficient, and whether limiting their protection to the duration of the consent is appropriate. These areas may need to be secured in perpetuity to provide an enduring ecological outcome.*

Regardless of successful mitigations, the AEE considers residual effects on invertebrates will remain. For this, I recommend upfront offsetting or compensatory provisions. This is in light of uncertain and delayed effects management outcomes.

Summary of Response

The level of disturbance and habitat loss at the site of the proposed solar farm (**the site**) has been fully considered as part of the AEE. In Section 12.5.3, “Mortality and disturbance to invertebrates” addresses all conceivable causes of mortality and disturbance resulting from the project, including disturbance from construction and minor earthworks. Paragraph reads “All earthworks, including for the placement of trenching wires and the cut-fill earthworks for establishing contours, will cause the removal and destruction of any notable invertebrates present on the surface of the ground during works. This is likely to affect the Tekapo ground wētā particularly, if any burrows are unearthed during works”. The amount of mortality likely to be caused and the size of the effect has been considered based on the survey results and known and possible distributions of important invertebrate habitat and populations.

Effects management is adaptive depending on results of monitoring. If monitoring shows reduced activity or abundance of invertebrates due to the solar farm development, further management, including compensation, is triggered. The compensation amount will be determined in accordance with conditions of consent and the Terrestrial Invertebrate Management Plan, and will be dependent upon monitoring results. This adaptive



management based approach accounts for the smaller size of the planned habitat enhancement in comparison to the grasshopper and wētā habitat that will be lost and/or modified, and the uncertainty of the habitat requirements of the species affected, as if declines are detected due to the solar farm project compensation is triggered. After the solar farm has been decommissioned at the end of its life, the habitat on site is expected to return to its previous state over several years.

A predator-proof fence is unlikely to be more cost efficient, or have more benefits to invertebrates, than a site-wide pest mammal management plan. The application prioritises the creation of a large area of reduced pest mammal density to benefit populations of invertebrates site-wide, improving connectivity between current and planned off-site pest control programmes, as opposed to a small, fenced area with limited connectivity.

Response to Specific Issues

A summary of the key comments related to terrestrial invertebrates is provided in Table 1 below.

**Table 1 – Invertebrate concerns raised by Environment Canterbury.**

Comments from Environment Canterbury	Comments from Applicant Ecologist
The proposal still relies heavily on uncertain or unproven management responses to address residual effects on terrestrial invertebrates. The efficacy of invertebrate salvage and translocation, and the planned habitat enhancement. The proposal does not address the loss of habitat extent that will result from this development. ECan recommends upfront offsetting or compensatory provisions.	The approach of the TIMP is conservative, with monitoring and adaptive management, including compensation, included to address circumstances where planned effects management does not provide the expected outcomes. The compensation amount will be determined in accordance with the conditions and TIMP, and will be dependent upon monitoring results. The parts of the site known to be inhabited by minute (<i>Sigaus minutus</i>) and Otago short-horned (<i>Phaulacridium otagoense</i>) grasshoppers are small and mostly avoided by the project. Tekapo ground wētā (<i>Hemiandrus fabella</i>) is found within the proposed panel area and avoiding its habitat is not possible, noting that the impacts of the solar panels on Tekapo ground wētā are not known. They are likely to have similar requirements to minute and Otago short-horned grasshoppers, in that dryland environments with short vegetation are preferred, though the only study available, combined with evidence on site, suggests they may be more tolerant of ground cover including long grass (Van Wyngaarden 1995). We therefore consider that offsetting or compensation up-front is not appropriate, but that compensation may be triggered as part of adaptive management. This is because the trend shown by Tekapo ground wētā populations in response to construction and operation of the solar farm cannot be predicted and up-front compensation may be a more onerous management strategy than is necessary on top of the rest of the invertebrate effects management package, or the amount agreed may not be enough if large declines are detected in response to the solar farm.
Terminology and structure should be made consistent across management plans. Management plans should have: a. measurable performance standards; b. monitoring methods linked to those standards; c. trigger levels or thresholds;	a) Section 5.3.3 in the TIMP, under the heading “Monitoring and adaptive management”, describes the performance standards (increase in the number of Otago short-horned grasshopper and/or minute grasshopper within the enhancement areas, and no decline in the number of Tekapo



Comments from Environment Canterbury	Comments from Applicant Ecologist
d. adaptive management responses; e. roles & responsibilities; f. timeframes; g. reporting requirements h. audit criteria; and compensation requirements, where relevant (avifauna, lizards & invertebrates).	ground wētā within the panel area or within the enhancement areas). These have been made more explicit in the updated TIMP. b) Section 5.3.3 in the TIMP describes monitoring that is linked to the performance standards it describes. c) Section 5.3.3 in the TIMP, under the heading “Monitoring and adaptive management”, describes exact monitoring results that would trigger adaptive management. d) Section 5.3.3 describes adaptive management responses, including steps taken to discover the reasons behind the failure to meet the performance standards. e) Roles and responsibilities are described in Section 3.2 and Table 2 of the TIMP. f) Section 5.5 of the TIMP describes the timeframe for effects management. g) The TIMP has been updated to include detail on reporting requirements in Section 5.3.3. h) The TIMP has been updated to include detail on audit requirements in Section 5.3.3. i) Compensation requirements are described in Section 5.3.4 of the TIMP.
Edit management plans to adopt “must/will” language rather than “should” directives. This will improve the clarity and enforceability. in addition, ensure condition sets reflect essential details of the management plans.	This comment has been noted and the management plan has been edited to adopt must/will terminology.
Clarify salvage areas in condition 16 as currently unclear.	This comment has been noted and Figures 10 and 11 have been amended to clearly show where construction activities take place in potential/confirmed terrestrial invertebrate habitat.
Habitat removal from earthworks should not be minor as the environment supports notable invertebrates. Further noting that (5.1.2) earthworks will cause “removal and destruction of notable invertebrates”.	Habitat loss is assessed as a minor effect as it does not cause a significant impact. This accounts for the fact that the affected habitat within the panel area is low quality, with much of it having been cultivated. Cultivation disturbs the top layer of soil and vegetation, which is likely to impact Tekapo ground wētā and grasshoppers, as well as general invertebrate biodiversity. In addition, the habitat is likely to return to its current state after the solar farm is decommissioned if weed encroachment is managed by adherence to the Biosecurity and Vegetation Management Plan (Wildlands 2026d). The loss of this low-quality habitat for the duration of the project is unlikely to cause a significant impact on invertebrate ecology in the Twizel area.



Comments from Environment Canterbury	Comments from Applicant Ecologist
	Removal and destruction of individual notable invertebrates constitute a more than minor ecological impact, particularly for the Tekapo ground wētā, but is not likely to be significant in the context of the wider environment and invertebrate populations.
Technical Expert considers that enhanced areas should be protected over the long-term with a covenant or similar agreement put in place so that they are protected in perpetuity irrespective of future changes in ownership or management of the site.	After the solar farm has been decommissioned at the end of its life, the habitat on site will no longer be subject to earthworks, disturbance, and shading related to the project. Populations in the invertebrate enhancement areas will have connectivity with the rest of the site and will be able to slowly move into the areas of habitat as it becomes suitable for them again. Dryland habitat can recover relatively quickly without management, so long as woody weeds do not prevent recovery. Therefore, protection in perpetuity is considered unnecessary as habitat that was modified and lost will become available for invertebrates again. Invertebrate monitoring is now proposed to occur for the remaining lifetime of the project. This will allow any declines in invertebrate communities from the works and subsequent operations to be readily identified and adaptive management approaches to be developed and implemented for the entirety of the project lifespan.
Figure 1 from the Draft terrestrial invertebrate management plan states that it shows the location of the solar panels and rows however it does not.	This comment has been noted and Figure 1 has been updated to show solar panels.
The pest management plan should be expanded upon to consider predator-proof fencing of protected areas, not just hedgehog control. This is in addition to removing predators from these sites.	Hedgehog control is part of the pest mammal management prescribed in the Pest Mammal Management Plan (Wildland Consultants 2026b). Considering the terrain of the ecologically valuable areas of the site, and the likely predator densities, balancing the feasibility of construction of a predator-proof fence and predator eradication within the fence with the need to position it around suitable invertebrate habitat would be difficult. Fencing all of the central southern terrace, for example, would be unfeasible due to the terrain and the shape of the terrace, which will make reinvasion easy. Creating small, isolated predator-proof islands is not conducive to population connectivity and will not improve habitat over large areas. It is also extremely costly to build and maintain a fence in addition to eradication of predators within the fence. Pest suppression over the entire site, as prescribed in the Pest Mammal Management Plan, will be more likely to benefit invertebrate biodiversity in general over a wider area, and increase connectivity with other areas subjected to pest mammal management (possibly including other



Comments from Environment Canterbury	Comments from Applicant Ecologist
The applicant has provided little comment on effects on invertebrate biodiversity in general at the site but rather has focussed only on “notable species”. Consider more information should be provided in this area.	solar farms nearby, if they are approved and pest mammal management is included in their conditions of consent). The desktop and general invertebrate surveys (Wildland Consultants 2026a) recorded relatively low general invertebrate biodiversity and habitat quality, as expected for a modified dryland environment. The focus on notable species is because large areas of modified dryland environment are of little value for invertebrate biodiversity in general. However, we acknowledge there are some general invertebrate biodiversity values and habitats on site, albeit degraded, and that the general invertebrate biodiversity that is present is likely to benefit from effects and their management for notable species. Habitat that is avoided and enhanced is important invertebrate habitat for species other than the notable species described in the TIMP and AEE. For example, planting indigenous shrubs, grasses, and short-stature vegetation is likely to benefit many invertebrates that use these vegetation types as habitat and food. Pest mammal control is likely to be beneficial to all invertebrate species that are targeted by pest mammals. Rocky areas and indigenous dryland vegetation are important for dryland invertebrates in general, so that avoiding and enhancing these areas is also likely to benefit general invertebrate biodiversity.
The TIMP needs to be submitted/certified early enough to implement release-site preparation, enhancement planting, pest control, and salvage timing.	The TIMP will be submitted and finalised in time for its implementation, as described in the consent conditions which require submission of the TIMP “At least thirty (30) working days prior to the commencement of construction works authorised as part of this resource consent”



Conclusion

We acknowledge and have responded to Canterbury Regional Council's comments on terrestrial invertebrates for the Twizel Solar Farm. We consider the effects management package in its current state is comprehensive and effects well-managed, particularly for terrestrial invertebrates. This view is taken in the context of invertebrate effects management that is typically a part of consent conditions for large developments such as the proposed solar farm. As such, we do not consider that substantial changes need to be made to invertebrate effects management. However, we acknowledge Canterbury Regional Council's comments on the importance of conserving the Nationally Endangered Tekapo ground wētā in particular, and the importance of the populations of this species that have been found on site. Therefore, we recommend the following minor changes are made to the effects management package for invertebrates:

- Ongoing invertebrate monitoring will continue for the remaining life of the project, rather than for 12 years post-construction, to enable adaptive management in the event of any population declines that may take many years to become apparent.
- If necessary, compensation is recommended as part of adaptive management in the TIMP in response to performance standards not being met. However, the amount and nature of the compensation will be determined based on monitoring results in accordance with the consent conditions.

References

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