

Under the

FAST-TRACK APPROVALS ACT 2024

In the matter of

an application for approvals to construct and
operate an approximately 320-hectare solar farm
to supply electricity to the national grid

By

LODESTONE ENERGY LIMITED
Applicant

**STATEMENT OF EVIDENCE OF DR SUSAN WALKER
ECOLOGICAL REVIEW OF DRAFT CONDITIONS**

13 July 2026

Environmental Defence Society Inc

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Introduction

1. My full name is Susan Walker.
2. I have been asked by the Environmental Defence Society Incorporated (EDS) to review and provide comment on the draft conditions of consent for the Haldon Solar Farm (Project).
3. I have previously provided two statements of evidence on the Project, dated 2 February 2026 and 29 April 2026.
4. My experience and expertise is set out in those statements of evidence.

Code of Conduct

5. I have read the Environment Court code of conduct for expert witnesses, and I have prepared this evidence in accordance with that code. I confirm that my evidence is within my area of expertise, except where I state I am relying on the evidence of another person. I have acknowledged the material and expertise relied on in the preparation of this evidence and in forming my opinions. To my knowledge I have not omitted to consider any material facts known to me that alter or detract from the opinions I express in this evidence.

Comment on conditions

6. My comments on the draft Project conditions are enclosed in **Attachment 1**.
7. A track changes version of the Conditions, giving effect to my comments, is attached as **Attachment 2**.

Susan Walker

13 July 2026

Attachment 1 Comment on Draft Haldon Solar Farm Conditions

13 July 2026

Panel Draft Condition number(s)	Suggested amendments to Panel Draft Conditions	Comment (references are to the draft decision)
3	Add “The Consent Holder must pay the actual and reasonable costs incurred by the Department of Conservation in undertaking the roles assigned to them in these Conditions”.	This matter may need a new stand-alone condition, but I have inserted it here. The roles and engagement assigned to the Department of Conservation in these conditions are substantial and will require meaningful resourcing. Furthermore, because the Department’s technical resources are limited and engaged in other conservation work, it may need to contract in expertise to advise on some aspects of these conditions.
26	Add to clauses b) and e) that “all areas and buffers around ecological values identified on the construction site are to be avoided by construction traffic”	Explicitly refer to areas (to be fenced prior to construction) where all access and the use of vehicles and machinery is prohibited during construction to protect ecological values.
32	Add a new clause (f) to the purpose of the Construction Traffic Management Plan “that ‘all areas and buffers around ecological values identified on the construction site are to be avoided by construction traffic”	Explicitly add avoidance as a purpose of the Plan
33	Add a new clause (q) to matters that must be included in the Construction Traffic Management Plan “‘methods of identification (e.g. a georeferenced plan), fencing and signage to ensure that areas and buffers around ecological values identified on the construction site are avoided by construction staff and their vehicles and machinery”	Add specifics about methods to ensure avoidance to matters that must be included in the Plan.
57, 70, 95, 104		Predator-proof fencing is an untried method and poses unknown and unforeseen risks both to invertebrates and other values that could add to the net negative effects of the solar farm. The predator-proof fence proposal does not appear to have been tested and is not supported by clear evidence that there will be net benefits. It would be preferable to approach this experimentally, as part of the Applied Research Programme with (a) a replicated set of smaller predator-proof exclosures; (b) the remainder of the Compensation Area under landscape-scale predator trapping regime; (c) an identified experimental control area with no predator management; (d) appropriate measurement of responses in all areas, and (e) an option to enclose the whole area in a predator-proof fence if research shows that it has benefit and no adverse effects after 10 years. I explain the reasons for this suggestion below. There is presently no evidence that predation is a limiting factor for lizards at this site (outwash plains such as these are an ecosystem that does not provide suitable natural habitats for lizards, and lizards are likely not naturally present in the Compensation Area). Importantly, there is also no evidence that invertebrates are limited by predators at this site. There is evidence that predators that occur on outwash plains (especially hedgehogs) eat large invertebrates, but evidence that predator control by either trapping or predator-proof fences creates benefit for invertebrates in the Mackenzie Basin is scant, as summarised below. - SLR (19 May 2026) state that ‘work that has been undertaken suggests that control of mammalian predators improves habitat quality for minute grasshopper and robust grasshopper (Schori et al. 2018) and likely wētā given their predation by hedgehogs (van Wyngaarden 1995)’. However, the papers cited by SLR do not provide a basis for assuming that predator management will benefit invertebrates at this location. - Specifically, Schori et al. (2018) show an effect of <i>site</i> (not <i>management</i>, by trapping) on trend, and in <i>S. minutus</i> (minute grasshopper) only. The authors of the paper were careful to note the result is only a correlation (it does not prove

		causation) and is not scientifically distinguishable from a simple site effect. Two sites with increasing <i>S. minutus</i> had predator management and the other did not, but minute grasshopper numbers may have been increasing or decreasing at the three different sites for completely different reasons to the respective predator management regimes. A matched control vs intervention treatment setup at each site would have been needed to provide evidence of causation (i.e. distinguish causation from mere correlation). • There was no evidence that predator management benefitted (translocated) <i>S. robustus</i> (robust grasshopper). To the contrary, the Schori et al. state (p. 157) “The <i>moderate predator control</i> [i.e. trapping] <i>implemented during the translocation of B. robustus was not adequate to achieve an obvious conservation advantage for the species</i>”. • The reference cited for the benefit of Tekapo ground wētā by SLR (van Wyngaarden 1995) is an unpublished Masters thesis about the ecology of two wētā species, that was observational only, and undertook no actual investigation of effects of predator management on the species. • Wētā have increased markedly within a small predator-proof enclosure near Tekapo, consistent with a positive effect of excluding hedgehogs, but again, causality has not been demonstrated (Pye et al. 2026). Rabbits are not present inside that predator-exclusion fence, and it has become grassy which is problematic for the other invertebrates including robust grasshopper (Dr Tara Murray, Department of Conservation, pers. comm.). The Panel is concerned that mice might increase under a trapping regime alone, but whether mice would increase in those circumstances is unknown. No mice have been recorded elsewhere in the Mackenzie Basin (near Lake Tekapo) where DOC has experimental predator-exclusion fences (Dr Tara Murray, Department of Conservation, pers. comm). Whether and to what extent mice occur at the Compensation Site is as yet unknown. It is possible that the healthy invertebrate populations that remain at Haldon are present in part because of the naturally low mouse (and other) predation. There is little if any research into the ecological effects and outcomes of the novel predator-exclusion fencing regime proposed, wherein mice are excluded and rabbits are allowed to remain. There are risks. Rabbits may irrupt without predators as the Panel acknowledges. Note that Condition 76 (see below) does not presently provide for the surveillance required to detect and prevent an irruption of rabbits (it specifies only an ‘annual review’), nor the levels between which rabbits must be held to meet the goals of reducing grassiness while still preventing damage to flora. There may also be unforeseen consequences of initial removals of mice from within the fenced area, and any control of any future mouse incursion. For example, aerial management (likely needed across 180 hectares) for mice could also remove rabbits, and lead to an increase in exotic grasses, adversely affecting threatened plants and invertebrates, necessitating yet more actions which set off further unforeseen chains of consequences. Interactions among invertebrate species may also bring some surprises (e.g. one species may benefit while another is competitively excluded). Experience and expert technical evidence is needed about the frequency of surveillance required to detect and prevent a mouse irruption and the type of control response needed, and how that control response might set off chains of impact on other species. Note that surveillance requirements for predator fenced sanctuaries may differ substantially from best practice measures in unfenced situations, and changes to the relevant Conditions (Conditions 70 and 75) are recommended below. Due to the high uncertainty of benefit and unknown risks set out above, a precautionary approach is recommended which installs one or preferably more (for replication) smaller, experimental predator proof fences, uses a trapping regime for the remainder of the Compensation Area, and maintains an untrapped regime in a suitably large complementary ‘control’ area. This structured experimental design would fit with the aims of the Applied Research Programme, providing genuinely useful and new information and an opportunity for the Consent Holder to learn about what is involved and the management and responses that are required within predator-proof fences. Their effects of the treatments could be assessed by the Technical Review Panel (after 10 years or sooner) to determine whether the predator-proof fences should be dismantled, continued, or expanded to include the full 180 hectare Compensation Area. If a single large predator-proof fence goes ahead as proposed in these Conditions, it is recommended that these conditions are strengthened to include specific and tailored frequent surveillance monitoring and backed up by a suite of response and remedial actions over the life of the fence.
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61, 62, 64, 71, 75, 80, 81, 83, 84, 87, 88, 90, 91, 93, 95, 103, 104, 106, 108, 109, 111, 163,	Add “and Technical Review Panel” to those who are consulted, engaged with and reported to, who should receive reports and data, and who may raise issues that must be addressed.	The Technical Review Panel will need to be informed, consulted, and provided with all relevant reports and data throughout the relevant timeframes of the conditions if it is to properly serve its function.
66	Move the Technical Review Panel conditions to before the Ecological Management Plan conditions. Insert a new bespoke set of conditions (after the Technical Review Panel conditions) that relate specifically to the Applied Research Programme. Move text stating what the Applied Research Programme must include to the new bespoke section of conditions about the Applied Research Programme. In <i>this</i> condition, clarify the composition, roles and functions of the Technical Review Panel and how they will be appointed and remunerated. Clarify when the panel must be appointed and convened and ensure that this is early enough and frequently enough to ensure oversight of all pre-construction technical requirements. Clarify that the Technical Review Panel will not design the research as they are not researchers. Clarify that the Technical Review Panel will have access to all research and monitoring data and reporting required by conditions of this consent.	The Technical Review Panel will need to play a role in the Ecological Management Plan, other technical plans, in monitoring, and in the research programme, so these three conditions logically come before those Plans. The Technical Review Panel must be sufficiently large to cover the range of ecological expertise required to oversee the complex compensation measures in the conditions. Relevant ecosystem, vegetation, plant, invertebrate and bird expertise will be needed, as well as experience with installation and management of predator proof fenced sanctuaries and with monitoring bird strike. I suggest that lizards are too minor to warrant a permanent Panel expert, and it may be preferable to engage lizard expertise as and when required (as Condition 67 allows). The condition should set out the expectation is for remuneration at normal professional rates for Panel members so that appropriately skilled and experienced members will be able to be appointed. The role of the Panel is to provide independent and specialist technical expertise, review, and advice, and as such it may be preferable that they are nominated by the parties on the basis of their technical expertise and not as ‘representatives’. Technical expertise and experience in the Mackenzie Basin environment are required for Panel membership. However, technical expertise is not research expertise nor expertise in monitoring design. Therefore Condition 67 (which enables the Panel to engage other specialist services for purposes of technical review or input on an as-required basis) is particularly important. For example: - the Technical Review Panel will need to have the assistance of contracted biostatistical expertise to scope the baseline surveys and ensure that they are a statistically and ecologically robust basis for monitoring. - the Technical Review Panel’s role in the Applied Research Programme will be to determine its scope but not to design or undertake the research which requires different specialist expertise and skills (and is not monitoring, as explained below). The Technical Review Panel will have to contract appropriate specialist research expertise in to design and undertake the Applied Research Programme. What is involved in <i>administering</i> research under each of the four topics is also unclear. It would be usual for the organisation contracted to undertake the research under a topic to also administer that research (arrange the staff to undertake the field layout, work and measurement, data storage and analysis etc), while the Technical Review Panel receives results in the form of reports and other outputs such as data from that contractor at stated delivery dates. The Technical Review Panel will need to be appointed early enough, and enabled to meet frequently enough, to (at a minimum) be able to initiate work on the robust design of baseline surveys, ensure that construction plans are adequate to avoid ecological values on site, and scope the research and oversee robust and adequate research design. Initial monitoring and research measurements will need to be taken well before work commences, and adequate lead-in time will be needed in advance of this for the design, planning and implementation requirements of research and monitoring, as well as administration (e.g. contracting). Adequate time for the Technical Review Panel prior to construction is critical because the Panel will need adequate time to scope, seek advice, and set out the design and baseline sampling of the “programme of statistically robust applied ecological research and monitoring designed to improve the knowledge and understanding of effects of solar development in dryland environments”.

		Adequate personnel available at the right time will also need to be procured (suitably qualified people are few and may be committed elsewhere; there is no value in setting up monitoring for a seasonal plant or invertebrate in the wrong season).
New Applied Research Programme Conditions	Insert a new set of four conditions (after the Technical Review Panel conditions) that relates specifically to the Applied Research Programme. The first new condition sets out the four research topics and the duration of the research. It also sets out the minimum sets of species and attributes referred to in topics a) and b), including the minimum set of environmental parameters that should be measured (those environmental parameters are presently listed in Condition 91, which refers to the vegetation monitoring plan). The second new condition sets out the role of the Technical Review Panel in the Applied Research Programme. The third new condition states the standards for the research. The fourth new condition requires an Applied Research Programme Plan describing the research activities that the Consent Holder will undertake to make determinations on each of the four topics.	The Applied Research Programme is an important component of the compensation, and it is important that the knowledge and determinations that the research generates are robust (that is, they provide for inference of cause and effect and are not merely correlations). Nowhere do the conditions presently expressly commit the consent holder to fund this research adequately. Although monitoring and research may use some similar tools and techniques, they are distinct. Monitoring is the systematic, ongoing collection of data to track changes, ensure regulatory compliance, and/or guide management. It simply tracks changes over time to observe associations but lacks any experimental manipulation needed to directly prove the cause of any effect. Research in contrast is directed at answering questions (as set out in the four topics) and providing for inference, relies on experimental designs (interventions vs. controls, sufficient replication) to establish causality (inference depends on distinguishing causation from correlation) and must be validated by peer review to ensure reliability. A condition that specifies the standards of the research is therefore needed. The duration of the research must be appropriate. In this extreme environment, effects may develop, and significant changes or events occur, or become manifest, many years or decades after a disturbance. Predator populations are pulsed: an irruption of mice might occur only once a decade, or predator numbers may not increase but may ‘prey switch’ in response to a rabbit control operation in the vicinity, or a recurrence of calicivirus. Fluctuations in rabbit numbers over time due to background factors may influence the effects of the solar panels on vegetation, flora and fauna. It is therefore appropriate that the effects of panel shading and associated microclimatic change, and of the efficacy of salvage, propagation, translocation and relocation are assessed over the life of the consent. If the research in topic 4 is to wrap up at year 10, then that can be stated. Latest starting dates for the different components of the research should be specified. Topics a) and d) need to commence early enough to provide “before” measurement. It would also be desirable to conduct more than one ‘before’ measurements for topic a) due to the large interannual fluctuations (year-to-year changes) characteristic in this environment. It is appropriate that a minimum list of attributes or species necessary to the determinations is set out in the conditions for topics 1 and 2 and not left to the Applied Research Programme Plan. Other attributes could be added as necessary for addressing each topic, on the recommendations of the Technical Review Panel. The budget for research should be sufficient to make the research determinations that are required as compensation not limited at the outset. Designing and carrying out research is complex and specialised professional work, and the budget initially offered by the applicant (\$10,000 per annum) is inadequate (I note that this sum does not now appear in the conditions and appears to have been deleted in the Panel’s track changes version). Just scoping, designing and costing the work will be a task requiring input from different technical specialists. The Consent Holder will need to undertake a tender process for the designs and costings, and then contract the different elements of the Programme to appropriate research providers. Some of the research – especially involving animal responses – will be very demanding of field time and skills. Facilities are also likely to be needed, such as for the propagation, rearing or holding plants and animals. Specialist measurement and detection equipment or techniques are likely to be needed (e.g. to measure microclimate in topic 1 and determine avian collision rates and determine mechanisms in topic 3). In sum, it would be reasonable to expect the total cost of the Applied Research Programme to be in the millions of dollars. An Applied Research Programme Plan will be needed to clarify what is required and involved in research to make the required determinations on each of the four topics. The Plan will be essential to guide the Programme and keep it on track. The Plan may be updated as the research develops.

69	In clause (a) remove text stating that there should be “deployment of habitat features (e.g. boulders (boulderfield) or coarse wood for the purpose of enhancing habitat and carrying capacity for invertebrates, lizards or threatened plants”. Insert “(if appropriate)” after native plantings and the management of grazing and browsing. In clause (d) add “(if and where determined to be appropriate by the Technical Review Panel)”	Boulders and coarse wood are not natural outwash plain features (which is why lizards are virtually absent) and are not appropriate enhancement but would instead be a modification and degradation. The appropriateness of plantings and grazing and browsing management should be determined by experts on the Technical Review Panel. Plantings can have numerous and complex adverse effects on the existing ecosystem and needs to be carefully managed, including disturbance attracting rabbits, introductions of new materials and pathogens. Technical expertise is also needed to assess grazing and browsing needs and threats, and associated management decisions.
70	Add to clause b “and other pest plants identified in the Ecological Management Plan as requiring control for the purposes of the Compensation Area” Add a clause specifying “predator surveillance and prescribed follow-up actions to control in accordance with Conditions 75 and 76” Add a new clause “e) repatriation of Threatened or At-risk plants salvaged from the solar farm site and/or deriving from nursery propagation (if and where determined to be appropriate by the Technical Review Panel)” Add to the restoration planting clause (presently e) “(if and as determined to be appropriate by the Technical Review Panel)”	The Compensation Area has not yet been properly surveyed, and other weeds may be present now or may invade within the duration of the consent and require control to maintain the values of the ecosystem. As noted in comments above on conditions 57, 70, 95, 104, changes to Conditions 75 and 76 are also needed to specify predator surveillance standards and prescribed follow-up actions to control incursions and this Condition should refer to those Conditions. There needs to be provision for “improving the likelihood of survival of repatriated of Threatened or At-risk plants salvaged from the solar farm site and/or deriving from nursery propagation as set out in the previous condition 69(d). However, that activity needs to be undertaken carefully to avoid damage to the existing values of the Compensation Area. For example, the Technical Review Panel may determine that it is appropriate to trial the introduction of repatriated or nursery propagated plants only in certain more-disturbed areas of the Compensation Site. Ecologically inappropriate restoration planting may have adverse effects on the Critically Endangered ecosystem and will need to be carefully controlled by those with appropriate technical expertise. Plantings will cause more harm than good if natural habitats are disturbed or destroyed.
75	In clause a) add “(apart from rabbits, which must be held within the target range in Condition 76)” In clause b) add “for each mammal pest species,” In clause f) delete “in accordance with standard accepted practice” Add to clause f) “... and frequencies appropriate to support the ongoing incursion detection and response protocol to achieve and maintain near-zero mammalian pest density (apart from rabbits) within the fenced areas (clause a), and to achieve and maintain rabbits within the target range, ...” In clause g) add “(both trap-catch outcomes and surveillance statistics) of pest mammal control”	The surveillance methodologies and frequencies will likely need to be tailored to this predator-proof fenced situation and the particular risks and vulnerabilities. ‘Standard accepted practice’ is generally suitable for any ‘standard’ area and is unlikely to address the risks of incursion in this context. Each mammal pest species may have a different appropriate control measure and methodology. This condition should ensure that the monitoring and surveillance devices within the Conservation / Release Areas and Compensation area are also suitable to monitor <i>rabbit</i> populations and allow timely responses should they get <i>either</i> too low <i>or</i> too high. Trap catch outcomes do not provide information about the density of pest mammals present, only what has been killed. Interpretation of trap catch is fraught. Surveillance data (such as unbaited camera trapping) are required to get an unbiased estimate of residual pest densities and therefore the effectiveness of predator management.
76	Delete “Annual review of rabbit populations” Replace annual review of rabbit populations within the Conservation / Release Areas and Compensation	As explained above, rabbit populations may irrupt in predator managed and predator excluded areas with adverse effects on indigenous biota. They require much more frequent monitoring than envisaged by an “annual review” to prevent damage to other values within the Conservation / Release Areas and Compensation area.

	area with quantitative upper and lower targets matched to the surveillance devices for all other mammals Also add quantitative upper and lower thresholds for rabbit populations within the Conservation / Release Areas and Compensation area	This Condition does not presently provide for the surveillance frequency required to detect and prevent an irruption of rabbits (it specifies only an ‘annual review’). It is suggested that the specification of appropriate rabbit surveillance is provided for in Condition 75. This Condition should specify the upper <i>and</i> lower targets between which rabbits should be held to meet the goals of reducing grassiness while still preventing damage to flora, and the upper <i>and</i> lower thresholds for action. Expert technical advice will be needed to specify those bounds appropriately.
82	Add to the purpose of the Plant Management Plan “avoid effects on plants that that are Nationally Threatened within the Project Site and “ Add to clause c) “, including the removal of panels to provide larger buffers around plants that are Nationally Threatened if there is evidence of net loss of those plants within the Project Site”	Avoidance of Nationally Threatened plants within the Project site is a key element of the conditions package and needs to be one of the key purposes of the Plant Management Plan. Increasing the size of the buffers is an obvious adaptation response should the initial buffer size prove inadequate to avoid effects.
83	Amend and add to clause b)(i) to read “<u>and avoidance of Threatened or At-risk dry-land plants and the setbacks / buffer zones around where they are identified or located</u>” Amend clause c) to read “identification of opportunities for seed collection, salvage and translocation of At-risk dry-land plants and propagation of Threatened or At-risk dry-land plants, including identification or establishment of suitable nursery care;”. This amendment is to clarify that no salvage and translocation is contemplated for Threatened plants (which must be avoided at the Project Site). Add a new clause “d) targets for propagation of Threatened or At-risk dry-land plant species (including but not limited to <i>Lepidium solandri</i>, <i>Convolvulus verecundus</i> f <i>verecundus</i>, <i>Raoulia parkii</i>, <i>Raoulia australis</i> and <i>Muehlenbeckia ephedroides</i>) and establishment of new populations of all of these species within the Compensation Area, and measures to avoid adverse effects on the Compensation Area through any planting and establishment”	It is important that the buffers around the threatened plants are also avoided and not modified by construction traffic and activities if they are to act as the avoidance measures expected in the Decision. Clause c) currently suggests that Threatened plants can be salvaged and translocated, which conflicts with conditions that require avoidance. For <i>Lepidium solandri</i> which is a deep tap rooted species, salvage and translocation would be highly unlikely to succeed even if avoidance was not required. Both Threatened and At Risk plants can be propagated, but that propagation will need to be overseen by the Technical Review Panel to avert the risk that seed set within the Project Site is compromised. There are no targets for propagation of Threatened or At Risk plant species within the Conditions. They are needed somewhere, along with a minimum list of species which is inserted here. There is a requirement for caution to ensure that establishment of new populations within the Compensation Area avoids adverse effects on other values within the Compensation Area, including disturbance of habitat for other indigenous species and the introduction of weeds and pathogens.
87	Add a new clause “d) the required experience and expertise of those undertaking the surveys” Delete “(e.g. placement of cages for protection)”	The work undertaken so far at the site has shown that there is wide variation in the ability of observers to find Threatened plants and invertebrates. The highest possible level of expertise and direct proven experience in the Mackenzie Basin environment (and outwash ecosystems in particular) should be used in the baseline monitoring because what is not detected cannot then be monitored in future, or avoided. There is research experience with the placement of small cages in dryland environments. Cages usually result in the proliferation of exotic grasses and other weeds that smother and kill remaining low-growing indigenous plants and create a new, moist the microclimate within the cage.

		Cages would be especially unsuitable as protection for <i>Lepidium solandri</i> and spring annuals because these species are particularly sensitive to competition and to any change in microclimate. Cages would be likely to quickly render the habitat unsuitable and kill the plants. <i>Lepidium solandri</i> is also susceptible to white rust (<i>Albugo</i>) which research has shown is endemic within the plant (part of its microbiome). <i>Albugo</i> can become symptomatic and weaken and kill the host plants under certain conditions, for example if they are under stress from a disease (e.g. a plant virus) or from microclimatic changes such as those created by exotic grass swards. Microclimate modification by caging is likely to stress <i>Lepidium</i> plants, increasing the risk of <i>Albugo</i> becoming symptomatic and killing its host plants at this site. The least harmful immediate avoidance and protection for found plants would be to fence the perimeter of a buffer zone with a standard stock proof fence, leaving a wide margin to fully maintain the habitat and microhabitat conditions around the plants and avoiding disturbance to the outwash plain habitat in the fence installation as much as possible.
89	Replace 10 m with “at least 100 m radius”	The Panel has said that it welcomes alternative views with reasoning on this matter. Avoidance of Nationally Threatened plants within the Project Site is a key element of the conditions package, so conditions must be adequate to avoid adverse effects on those plants. The conditions should allow the plants to maintain their present populations and enable effects on them to be remedied if the avoidance measures fail and effects become evident. This condition should therefore provide for a generous buffer and undisturbed areas to be maintained at the outset (because effects of buffers that are too small may be difficult or impossible to reverse) and include provision for expanding the buffer area should plants begin to die out because initial buffers are inadequate. Buffers should be adequate for two distinct ecological purposes: avoiding the destruction of the natural processes that allow the species to persist, and avoiding microclimate modification and edge effects. 1) The persistence of avoided plant species requires unmodified buffer areas large enough (and set back enough for panels) that normal ecological and demographic processes such as dispersal and recruitment can continue. Plants are not immortal and locations of individuals and populations are not static - there is turnover and movement across suitable habitat across different timeframes. For example • It appears that spring annual plant species naturally emerge in different places and different-sized patches in different years because their seed blows around; buffers will need to be large enough to accommodate this movement <i>and</i> large enough include enough suitable microsites for the species to establish in each year. • Seedlings of perennial <i>Lepidium solandri</i> may recruit periodically in different microsites depending on the vagaries of site availability, seed dispersal processes, and annual weather conditions. <i>Lepidium solandri</i> is dioecious: i.e. there are separate male and female plants. Therefore its ‘effective population size’ is half that of most plant species and males and females both need to be present for pollination and therefore reproduction and recruitment. The buffer zones must provide space for the natural processes to unfold with time; and allow for uncertainty because the processes themselves are at present poorly studied and understood, and the amount of space needed for those processes to persist is unknown. 2) It is not yet clear how far the microclimate modification effects of this solar array will extend beyond the solar panels themselves, nor how far edge effects from those microclimate and vegetation-altered areas will extend into unmodified vegetation. That information will only emerge after many years of monitoring at the Project site (assuming that the monitoring is adequate to detect the effects). As noted above (Condition 87) <i>Lepidium solandri</i> may be susceptible <i>Albugo</i> becoming pathogenic should microclimatic conditions change.

		Effects of solar panels on microclimate and on subsequent vegetation changes can extend well beyond the areas directly ‘under the panels’, shaded by them, or receiving more or less precipitation from them. Edge effects can develop over years to extend hundreds of metres into an unmodified sites from a boundary in this environment (Walker 2020). There is already some evidence of edge effects at the Project Site. In his plot sampling for the Department of Conservation, Mike Harding recorded two exotic grass species (<i>Bromus diandrus</i> and <i>Bromus</i> sp.) at his plot that was 80 metres from the pivot irrigator and not elsewhere in the project site, and this encroachment over at least 80 metres seems likely to be due to an edge effect (albeit from a different activity). RMA Ecology also recorded these <i>Bromus</i> species in plots only beside the pivot irrigator and at their Plot 6 (within the Compensation Area in an area that they note had been disturbed by cattle grazing). Elsewhere in the Mackenzie Basin, exotic grass swards have formed encroaching fronts that spread out from more highly modified areas over many years or even decades due simply to increased weed propagule pressure, even where there has been no appreciable or measurable change in the physical environment or microclimate. This matter was covered in EDS evidence for The Point (Walker 2026 a, b, c) and is documented in two reports (Walker et al. 2019; Walker 2020). It is suggested that a minimum radius of 100 m be provided for in the Conditions, leaving provision for larger buffers to be specified by the Technical Review Panel should they deem it necessary. 100 m is not regarded as a particularly precautionary buffer given that edge effects have been recorded in the Mackenzie Basin across greater distances than this, and that <i>Bromus</i> species have already been found at the Project Site at least 80 metres from the pivot irrigator. References Walker S, Brownstein G, Monks A 2019. Avoiding cross-boundary effects of agricultural land use on indigenous dryland habitats in the Canterbury region: consenting guidelines and planning recommendations. Manaaki Whenua – Landcare Research Contract Report LC3636, prepared for Environment Canterbury. Walker, S 2020. Measured edge effects on indigenous grassland and shrubland vegetation on low-relief topography in Canterbury. Manaaki Whenua – Landcare Research Contract Report LC3866, prepared for Environment Canterbury. Statement of Evidence of Susan Walker for the Environmental Defence Society 2 February 2026 (https://www.fasttrack.govt.nz/_data/assets/pdf_file/0018/21366/a2e657315996c3a0208a2471ca5418cb47d1df7d.pdf) Statement of Evidence of Susan Walker for the Environmental Defence Society, 27 February 2026 (https://www.fasttrack.govt.nz/_data/assets/pdf_file/0015/21723/Environmental-Defence-Society.pdf) Statement of Evidence of Susan Walker for the Environmental Defence Society, 12 June 2026 (https://www.fasttrack.govt.nz/_data/assets/pdf_file/0019/29305/Second-supplementary-statement-of-evidence-of-Susan-Walker-terrestrial-ecology.pdf)
91	Delete present clause e) “records of environmental parameters including air temperature, soil temperature, soil moisture and light levels” Insert new clause “e) methods for monitoring and reporting on changes in populations and numbers of any plant species that are Nationally Threatened at their recorded locations within the Project Site” Insert a new clause “f) methods for recording and reporting on changes in the vascular and non-vascular flora with plants identified to species or subspecies level and estimates of the nearest one percentage of cover of each species or subspecies”.	This monitoring is to determine whether the objective of the Plant Management Plan has been demonstrated, rather than for the purposes of the Applied Research Programme [see also comment on Condition 82 above and comment on Condition 92 below]. The environmental parameters to be measured need to be specified in conditions associated with the Applied Research Plan, and the clause specifying those parameters has therefore been moved to the new Conditions for the Applied Research Plan. There needs to be a condition to establish that the avoidance measures for plants that are Nationally Threatened are working, hence the new suggested clause e). The new clause f) is needed because there needs to be a standard for the parameters to be measured in the vegetation monitoring that will properly reflect how the vegetation and flora is changing at the Project Site and the Compensation Site. Species-level abundance estimates are required to identify these changes. Some methods (e.g. RECCE plots) estimate cover in broad classes but this is inappropriate for monitoring to determine change over time, especially where vegetation is sparse and species are at low cover. Therefore, the condition needs to specify estimates to the nearest one percent. Note that determining how the solar farm has changed microclimate will require unmanaged control sites to determine causality and this is the remit of the Applied Research Programme. It may be that some of the plant monitoring will be incorporated into the

		applied research, so that the two plans should ‘talk to one another’ and share data and sampling effort where appropriate. However, the plant monitoring plan will not be sufficient for the Applied Research Programme.
92	Delete “applied research”	The plant monitoring plan and the applied research are different things. The plant monitoring plan is to determine whether the objective of the Plant Management Plan has been demonstrated: i.e. to “[avoid effects on plants that that are Nationally Threatened within the Project Site and] achieve no net loss of Threatened or At-risk dry-land plants during the construction and operation of the solar farm” [see Condition 82] The applied research is to determine the four topics set out in the description of the Applied Research Programme (the effects of panel shading and associated microclimatic change, the efficacy of salvage, propagation etc, bird strike and carcass detection matters, and the ecological gains actually delivered). It may be that some of the plant monitoring will be incorporated into the applied research, but it will not be sufficient.
93	Add new clause “c) legal protection of additional areas of outwash gravel ecosystem;” Add new clause “d) removing areas of panels to provide larger buffer areas for Threatened plants;”	Legal protection of other areas is an obvious compensation option. As commented at Conditions 82 and 89 above, provision needs to be made for increasing the area of buffers as an adaptive response should the initial buffer areas prove inadequate to avoid effects on Threatened plants.
95	Replace “a preferable” with “an appropriate”	Outwash ecosystems are unlikely to be appropriate for lizards and would require considerable modification to become habitat, degrading and modifying further areas of outwash ecosystem.
165	Add to clause d) “and funded after decommissioning;”	The funding for the maintenance and management of the conservation area after the decommissioning is not addressed elsewhere in these conditions.
172	Delete “particularly of bird strike” from clause d)	The addition is unnecessary and implies that other conditions and outcomes are less important. Bird strike moreover gets its own clause e) below.

Attachment 2 Track changes to draft conditions

Note to the draft conditions: Text shown in black is that supplied by the Applicant on 12 June 2026. Tracking shows the Panel's changes and additions. Panel comments are added (where necessary) to assist with understanding the Panel's reasoning behind changes.

Land Use Consent under section 9 of the RMAAdministering Authority: Mackenzie District CouncilActivity:

1. The construction, operation, maintenance and decommissioning of the Haldon Solar Farm, including the use and storage of hazardous substances, earth works, vegetation clearance and for structures and activities not otherwise provided for in the General Rural Zone in the Mackenzie District Plan.
2. The construction, operation, maintenance and decommissioning of a substation associated with the Haldon Solar Farm.
3. The upgrade of an existing National Grid Transmission Line under Regulation 39 of the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009.

Location – Haldon Station, Haldon Arm Road, TwizelLegal Description: Part Reserve 1358, Record of Title CB437/82Commencement Date:Lapse Date: 01 July 2036Duration: 35 years, unless it has been surrendered or cancelled at an earlier date

	General Conditions	Panel comment
1.	<u>Compliance with plans</u> <u>The Solar Farm must be constructed, operated, maintained and decommissioned in general accordance with the information and plans submitted by the Consent Holder in support of application number FTAA-2508-1097. Plans and information that comprise this application are listed in Attachment 6.</u> <u>In the event of any conflict between the documents listed in Attachment 6, or any management plan prepared under these conditions, and these conditions, the conditions prevail.</u> ▼	Shifted from previous conditions 6 and 7. Lapse date included above.
2.	▼	Duration included above
3.	Monitoring fees Pursuant to section 36 of the Resource Management Act 1991, the Consent Holder must pay the actual and reasonable costs incurred by Mackenzie District Council when monitoring the conditions of these resource consents, including but not limited to costs associated with: a) site visits; b) review and certification of management plans; c) monitoring of works; and <u>d) administration.</u> <u>The Consent Holder must pay the actual and reasonable costs incurred by the Department of Conservation in undertaking the roles assigned to them in these Conditions.</u>	

Deleted: Pursuant to clause 26 of Schedule 5 of the Fast-track Approvals Act 2024, this resource consent will lapse 10 years from the date of its commencement unless it has been given effect to, surrendered or been cancelled at an earlier date.

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4.	Complaints management The Consent Holder must maintain a register of any complaints received regarding the activities authorised by these resource consents. As a minimum, the register must include: a) the name and contact details (if supplied) of the complainant; b) the nature and details of the complaint; c) the location, date and time of the complaint and the alleged event giving rise to the complaint; d) weather conditions at the time of the complaint, where relevant to the complaint; e) other activities in the area that may have contributed to the complaint; f) the outcome of the Consent Holder's investigation into the complaint; and g) a description of any measures taken by the Consent Holder to respond to the issue raised by the complainant.	
5.	The Consent Holder must notify Mackenzie District Council of any complaint received that relates to the activities authorised by <u>this resource consent</u> as soon as reasonably practicable and no later than two working days after receiving the complaint.	
6.	The Consent Holder must respond to any complainant as soon as reasonably practicable and <u>in any event</u> , within five working days <u>of the complaint being received</u> , advise Mackenzie District Council and the complainant of the outcome of the Consent Holder's investigation and <u>all measures taken, or proposed to be taken, to respond to the complaint.</u>	Clarification
7.		Shifted to condition 1
8.		Shifted to condition 1
9.	The Consent Holder must ensure that all contractors engaged to undertake activities authorised by this resource consent are supplied with a copy of and made aware of the conditions and management plans that apply to this resource consent that are relevant to their work area and the measures required for compliance with the conditions.	

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The Solar Farm must be constructed, operated, maintained and decommissioned in general accordance with the information and plans submitted by the Consent Holder in support of application number FTAA-2508-1097. Plans and information that comprise this application are listed in Attachment X.

Deleted: In the event of any conflict between the documents listed in Condition 7 and these conditions shall prevail.

10.	The Consent Holder must: a) notify the Mackenzie District Council as to the intended commencement date of any works authorised as part of this resource consent at least 20 working days before such works commence; b) appoint a representative(s) who must be the principal contact person for the Mackenzie District Council in regard to matters relating to this resource consent and: i. inform the Mackenzie District Council of the representative's name and contact details at least 10 working days before works authorised by this consent commence; and in the event that the principal contact person changes, must inform the Mackenzie District Council of a new representative's contact details within 10 working days of the principal contact person's appointment. Advice Note: The Consent Holder is to contact Mackenzie District Council through info@mackenzie.govt.nz.	Improved certainty
11.	A copy of this resource consent and all management plans required in accordance with this resource consent must be kept on site at all times during the construction work and must be produced without unreasonable delay upon request from an agent of the Mackenzie District Council.	
	Kaitiaki Governance Group	
12.	At least three months prior to the commencement of <u>any construction</u> works, the Consent Holder must invite mana whenua to establish the Kaitiaki Governance Group in relation to the Solar Farm. The invitation must seek direction on the makeup of the Kaitiaki Governance Group, frequency of hui and group composition. Advice Note: Mana whenua status is to be determined by Kā Papatipu Rūnaka which comprises Te Rūnanga o Arowhenua; Te Rūnanga o Waihao; and Te Rūnanga o Moeraki.	Consistent wording
13.	The Kaitiaki Governance Group must comprise: a) up to three representatives of the Consent Holder; and b) up to three representatives appointed by mana whenua who elect to participate in the Kaitiaki Governance Group.	

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	When and if required, representatives from the Canterbury Regional Council, Mackenzie District Council, the Department of Conservation, and/or the Landowners, may be invited to attend Kaitiaki Governance Group meetings by agreement of the Kaitiaki Governance Group.	
14.	The purpose of the Kaitiaki Governance Group includes: a) facilitating ongoing engagement and communication between the Consent Holder and mana whenua; b) supporting the preparation and overseeing the implementation of the Strategic Cultural Programme as described in Conditions 18 to 20 below; c) enabling discussions between the Consent Holder and mana whenua on the effectiveness of the measures implemented by the Consent Holder to manage impacts on mana whenua values; d) providing feedback to the Consent Holder on the required management plans; e) providing a forum for mana whenua to share mātauranga Māori and cultural perspectives relevant to the Project site and the surrounding environment; f) providing access to the site for the purposes of Mahika kai harvest and other customary practices; and g) identifying initiatives that recognise and provide for mana whenua values associated with the taiao. Advice Note: Initiatives may include, but are not limited to, interpretive signage, pouwhenua, and/or artworks in locations agreed between the Consent Holder and mana whenua.	
15.	The Consent Holder must invite the Kaitiaki Governance Group to meet at least quarterly during construction of the <u>Solar Farm</u>. <u>During operation of the solar farm (generation of electricity)</u>, the Kaitiaki Governance Group must meet at an agreed frequency, with at least one meeting held each calendar year.	Consistent wording and differentiating solar farm from works required in the Compensation Area.

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16.	The Consent Holder must: a) provide the Kaitiaki Governance Group with up-to-date information relevant to the design, construction, operation and decommissioning of the Solar Farm; b) seek advice from the Kaitiaki Governance Group on the draft management plans required by the conditions of this consent, at least twenty working days prior to their submission for certification; c) <u>record</u> any advice provided by the Kaitiaki Governance Group (including advice from Aoraki Environmental Consultancy and/or Aukaha) on the draft management plans <u>and append that advice to the relevant management plan; and,</u> d) record a response to each comment, describing how the advice has been adopted or otherwise into the management plan.	Improved clarity
17.	The Consent Holder must maintain a record of matters raised through the Kaitiaki Governance Group and the Consent Holder's response to those matters. Such records must be made available to Mackenzie District Council on request.	
18.	Prior to the commencement of <u>construction works for the Solar Farm</u> , a Strategic Cultural Programme must be prepared by the Kaitiaki Governance Group and provided to Mackenzie District Council for information. The Strategic Cultural Programme must be implemented for the duration of the Solar Farm.	Consistent wording and differentiating solar farm from works required in the Compensation Area.
19.	The purpose of <u>the</u> Strategic Cultural Programme is to: a) set out a programme of works that integrates project outcomes and initiatives required by these resource consents to promote the mana of the taiao and the people; b) recognise and provide for mana whenua values of the area affected by the activities authorised by these resource consents and support the management of the impacts on those values through the implementation of monitoring, restoration and enhancement measures; and	

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	c) incorporate mātauranga Māori into environmental management associated with the Solar Farm.	
20.	The Strategic Cultural Programme, must include: a) Provision for participation of mana whenua in the monitoring, mitigation, restoration, and/or enhancement activities for the project site and other affected areas associated with the Solar Farm, as required by the conditions of these resource consents; b) mechanisms to incorporate mātauranga Māori into environmental management practices associated with the Solar Farm; c) cultural awareness or induction initiatives for project staff and contractors; d) processes to identify and respond to matters affecting mana whenua values, including the health and wellbeing of the taiao, that may arise during the construction or operation of the Solar Farm; and e) processes for periodic review of the programme to enable adaptation over time.	
21.	If mana whenua representatives invited to participate in the Kaitiaki Governance Group advise the Consent Holder that they do not wish to participate in the preparation or implementation of the Strategic Cultural Programme, the Consent Holder will not be required to comply with Conditions 18 to 20. For the avoidance of doubt, the Consent Holder must still demonstrate that reasonable steps have been taken to invite mana whenua to participate in accordance with Condition 12.	
22.	In the event no separate agreement is in place between the Consent Holder and mana whenua in relation to these resource consents, the Consent Holder must meet the costs of establishing, resourcing, and paying (on an ongoing basis for the duration of this consent, where applicable) for any of the roles and functions of mana whenua as set out in these conditions.	
23.	The Consent Holder must, subject to any relevant health and safety requirements, ensure that mana whenua representatives have access to all relevant parts of the Site to enable them to carry out any of the roles and functions as set out in these conditions.	Consistent wording
	Start of Works	
24.	Pre-construction site meeting	Consistent wording, improved

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	<u>At least</u> 10 working days prior to any <u>construction</u> works authorised by this consent commencing on the <u>Solar Farm</u>, the Consent Holder must hold a pre-construction meeting that is located at <u>the site</u> and <u>must invite</u> representatives from: a) Mackenzie District Council; b) Canterbury Regional Council; c) <u>Te Rūnanga o Arowhenua, Te Rūnanga o Waihao and Te Rūnanga o Moeraki</u>; d) Transpower NZ Ltd; e) the contractor; and f) any other party representing the Consent Holder. At a minimum, the following must be covered at the meeting: a) scheduling and staging of the works; b) responsibilities of and contact details for all relevant parties; c) expectations regarding communication between all relevant parties; d) ecological expectations and obligations; e) site familiarisation; and f) confirmation that all relevant parties have copies of this resource consent and all associated Management Plans and understand the obligations contained in those documents. Advice Note: in the case that any of the invited parties, other than a party representing the Consent Holder, does not attend this meeting, the Consent Holder will have complied with this condition, provided the invitation <u>s are sent at least 15 working days prior to the meeting</u>. In relation to Transpower attendance, written notice of the <u>pre-construction</u> meeting should be sent to: <u>transmission.corridor@transpower.co.nz</u>.	clarity and differentiating solar farm from works required in the Compensation Area.
	Construction Management Plan	
25.	<u>At least</u> 20 working days prior to the commencement of <u>any construction</u> works on the <u>solar farm</u>, the Consent Holder must submit a Construction Management Plan, <u>that has been prepared by a suitably qualified and experienced construction manager</u>, to the	Consistent wording,

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	Mackenzie District Council for certification (the “Initial Construction Management Plan”). Certification is required to demonstrate that the Construction Management Plan provides the means to achieve the purpose and matters set out in Condition 23. Advice Note: <i>The Construction Management Plan must be consistent with all other management plans for the consented activity certified by Canterbury Regional Council or Mackenzie District Council.</i>	improved clarity and differentiating solar farm from works required in the Compensation Area.
26.	The purpose of the Construction Management Plan is to outline the construction methods and management procedures to be implemented on Site so as to avoid, remedy or mitigate adverse construction-related effects on the environment. To achieve this purpose, the plan must include: a) confirmation of the construction works programme, including staging of work and construction methodologies; b) site plans, including the location of installations, internal access routes, parking areas, laydown areas and areas (to be fenced prior to construction) where all access and the use of vehicles and machinery is prohibited during construction in order to protect ecological values; c) identification of the key personnel and contact person(s); d) procedures for recording complaints regarding construction activities including the maintenance of a register of any complaints received regarding the construction activities, as provided for in Condition 4; e) methods and systems to inform and train all persons working on the site of potential environmental issues and how to avoid, remedy or mitigate potential adverse effects, including the locations of all areas where all access and the use of vehicles and machinery is prohibited during construction in order to protect ecological values; f) publicity and safety measures, including signage, to inform adjacent landowners and occupiers and other road users; g) identification of management procedures to deal with any potential effects of construction activity on the environment; h) waste minimisation and management measures; i) measures to avoid introduction or spread of weed or pest species, including fencing requirements;	Noise conditions included

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	j) information to demonstrate that construction activities undertaken on the site will meet the safe distances within the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34: 2001) or any subsequent revision of the code, including: i. an outline of the construction methods and management procedures to be implemented on site so that works near the National Grid are undertaken safely and potential adverse effects on the National Grid assets are appropriately managed; and ii. protocols to ensure that existing transmission lines and support structures will remain accessible during and after construction activities; k) protocols to manage accidental discovery of contaminated materials; l) <u>measures to ensure conditions 47 and 48 are met; and</u> m) protocols to manage accidental cultural heritage and archaeology discovery and preservation of discovered artefacts, including a list of contact names and numbers relevant to that discovery, <u>in accordance with condition 50.</u>	
27.	Prior to submitting the Construction Management Plan to Mackenzie District Council, the draft Construction Management Plan must be provided to Transpower NZ Ltd, with an invitation to provide feedback within 10 working days. The Consent Holder must ensure that all written feedback on the draft Construction Management Plan received from Transpower NZ Ltd within the 10-working day timeframe is provided to the Mackenzie District Council when submitted for certification. This must include a clear explanation of how comments on the draft Construction Management Plan have been addressed <u>- whether it has been incorporated into the final Plan, and if not, the reasons for its exclusion.</u>	Consistent wording with condition 31
28.	<u>Work on the solar farm may not commence until the initial Construction Management Plan is certified by the Mackenzie District Council.</u>	Clarity that the certified plan needs to be in place.
29.	The Construction Management Plan may be amended at any time. Any amendments must be: a) made in consultation with Transpower NZ Ltd; b) <u>only for the following purposes:</u>	Improved clarity

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	i. improving the efficacy of the management of construction effects-related management activities; ii. applying best practicable measures to mitigate adverse effects; c) consistent with the conditions of this resource consent; and d) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	Advice note redundant.
30.	The certified Construction Management Plan <u>must be complied with</u> throughout the construction phase of the <u>solar farm</u> .	Improved clarity and differentiating solar farm from works required in the Compensation Area.
Construction Traffic Management		
31.	At least 20 working days prior to the commencement of <u>any construction</u> works on the <u>solar farm</u>, the Consent Holder must submit a Construction Traffic Management Plan, <u>prepared by a suitably qualified and experienced Traffic Engineer</u>, to Mackenzie District Council for certification. Certification is required to demonstrate that the Construction Traffic Management Plan provides the means to achieve the purpose and matters set out in Condition [31].	Improved clarity and differentiating solar farm from works required in the Compensation Area. Advice note redundant
32.	The purpose of the Construction Traffic Management Plan is to ensure that:	

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Construction Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Construction Management Plan will occur.

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The Consent Holder must work with Mackenzie District Council to secure certification of the Construction Traffic Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the Construction Traffic Management Plan will occur.

	a) construction traffic, particularly heavy traffic, is safely accommodated along all routes to the Site; b) construction traffic can safely turn at intersections without affecting the safety of the intersections; c) construction traffic can safely turn onto and off the Site at the proposed access location without impacting the safety of the frontage road; d) vehicles associated with construction can be accommodated onsite; and e) adverse effects of the condition of the public road network as a result of construction traffic are avoided, remedied and mitigated f) <u>all areas and buffers around ecological values identified on the construction site are avoided by construction traffic.</u>	
33.	To achieve the purpose, the Construction Traffic Management Plan must include: a) details of the construction programme and planned traffic flows; b) scheduling of deliveries within construction hours; c) identification of travel routes, site access points and staff/contractor parking, including details of any measures to enable shared transport, <u>including compliance with conditions 38, 39 and 46;</u> d) details of signage to provide guidance to the Site; e) measures to manage road safety including such measures as signage, driver protocols, monitoring and reporting requirements; f) measures to minimise the effects of construction traffic on local amenity, including the management of dust from the use of unsealed roads; g) details of any road safety assessments undertaken; h) methods for recording and accounting for pavement maintenance (including structures such as bridges and cattlegrids), <u>including compliance with conditions 43 to 45;</u> i) planning for, and details of over-weight / over-dimension transport movements, including any relevant permit provisions;	Improved certainty

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	j) provision for planning and managing the safety and efficiency of stock movements in conjunction with vehicle movements associated with the solar farm; k) incident reporting mechanisms, recording and reporting methods, including steps for remedial actions (if required); l) provision for emergency services access; m) temporary traffic management planning, including at one-lane bridges; n) provision and publicity of contact details (such an 0800 number) so that members of the public and road users have a known point of contact for any traffic related issues that may arise during the construction of the solar farm; o) measures to ensure no standing or parking of construction-related vehicles on public roads; and <u>p) measures for the ongoing review of the effectiveness of the Construction Traffic Management Plan;</u> q) <u>methods of identification (e.g. a georeferenced plan), fencing and signage to ensure that areas and buffers around ecological values identified on the construction site are avoided by construction staff and their vehicles and machinery.</u>	
34.	Prior to submitting the Construction Traffic Management Plan to Mackenzie District Council, the draft Construction Traffic Management Plan must be provided to the New Zealand Transport Agency with an invitation to provide feedback within 10 working days. The Consent Holder must ensure that all written feedback on the draft Construction Traffic Management Plan received from the New Zealand Transport Agency within the 10 working day timeframe is provided to Mackenzie District Council when submitted for certification. This must include a clear explanation of how each comment on the draft Construction Traffic Management Plan has been addressed - whether it has been incorporated into the final Plan, and if not, the reasons for its exclusion.	
<u>35.</u>	<u>Work on the solar farm may not commence until the Construction Traffic Management Plan is certified by the Mackenzie District Council.</u>	Clarity that the certified plan needs to be in place.
36.	The Construction Traffic Management Plan may be amended at any time. Any amendments must be: a) made in consultation with the New Zealand Transport Agency; <u>b) only for the following purposes:</u>	Advice note redundant.

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	i. improving the efficacy of the construction traffic management measures; ii. applying best practicable measures to mitigate adverse effects; c) consistent with the conditions of this resource consent; and d) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	
37.	The certified Construction Traffic Management Plan <u>must be complied with</u> throughout the construction phase of the <u>solar farm</u> .	Improved clarity and differentiating solar farm from works required in the Compensation Area.
Access		
38.	Access to the Site for construction traffic must be via a single access point to be established from Haldon Arm Road within 200 m of grid reference (NZTM 2000) E1379570, N5086610. The access must be constructed so that it can accommodate truck and trailer units turning left into and right out of the site within the formed carriageway. A queue space of 24 m must be provided at the access <u>within the site</u> .	Improved certainty
39.	<u>At least</u> 20 working days prior to the commencement of <u>construction</u> works on the <u>solar farm</u> , the Consent Holder must submit the design of the access and parking areas as prepared by a suitably qualified and experienced practitioner to the Mackenzie District Council for certification that confirms the design is practicable for the intended use and constructed to an all-weather standard. The design of the car park must identify sufficient area to accommodate the <u>parking demands</u> , and the access is to include details regarding internal passing locations.	Improved certainty
40.	Prior to the commencement of operation of the Solar Farm <u>(the first generation of electricity)</u> , the Consent Holder must provide plans of the proposed permanent access arrangement to the site to the Mackenzie District Council for certification. The	Improved certainty

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Construction Traffic Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Construction Traffic Management Plan will occur.

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	permanent access must be designed to accommodate the vehicle tracking of the reasonably foreseeable maintenance vehicles including appropriate gate setbacks to ensure queuing does not extend to the public road carriageway. The formation <u>of the permanent access must</u> be to an all-weather standard and the Consent Holder is to confirm that appropriate sight distance is achieved to Haldon Arm Road. Areas of existing access that are redundant are to be returned to the existing verge condition. Advice note: <i>The Consent Holder may consider use of the construction access for ongoing operations and maintenance.</i>	
41.	Prior to the commencement of construction on the site, the Consent Holder must develop a detailed design for the upgrade of the intersection between the two legs of Haldon Road located approximately at grid reference (NZTM 2000 E1405270, N5114480) and known locally as “Dog Kennel Corner”. The design of this upgrade must be undertaken in consultation with the New Zealand Transport Agency and the Mackenzie District Council in their capacities as Roding Authorities. The design must be in general accordance with indicative works illustrated in Attachment 2 to this consent and incorporate: a) widening of the western leg of Haldon Road to accommodate a large heavy vehicle (such as a truck and trailer) to turn left in while a single-unit truck waits to turn right out and vice versa; b) realignment of the eastern leg of Haldon Road as it approaches State Highway 8 to improve the driver observation angle to the left; and c) associated line marking and signage. The final design must be submitted to the New Zealand Transport Agency and the Mackenzie District Council for certification in their capacities as Roding Authorities.	
42.	Prior to the commencement of construction on the site, the Consent Holder must undertake the upgrades at Dog Kennel Corner in accordance with the design as certified in Condition 41. The completed State Highway 8 intersection realignment works must be certified by a suitably experienced Chartered Professional Engineer that the works have been completed in accordance with the certified design, with that certification provided to the New Zealand Transport Agency and Mackenzie District Council. Advice Note: <i>It is a requirement of the Government Roding Powers Act 1989 that any person wanting to carry out works on a state highway first gain the approval of the New Zealand Transport Agency for the works and that a Corridor Access Request (CAR) is applied for and subsequently a Work Access Permit issued (WAP) before any works commence. A CAR will be required for the State Highway 8 Intersection works.</i>	

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	Advice Note: Detailed design approval from the New Zealand Transport Agency must be gained by the Consent Holder prior to applying for a CAR. The detailed design must be prepared by a suitably qualified professional. In developing the detailed design, the Consent Holder will need to consult with the New Zealand Transport Agency appointed Safety Engineer and the state highway maintenance contractor for the Mackenzie District Council. Advice Note: A Corridor Access Request is made online via www.submitica.co.nz. The CAR needs to be submitted at least 21 working days before the planned start of works. The Corridor Access Request will need to include: i. The detailed final design for the State Highway 8 / Haldon Road intersection upgrade; ii. A Construction Traffic Management Plan that has attained approval from the New Zealand Transport Agency appointed state highway maintenance contractor for the Mackenzie District Council.	
43.	At least two months prior to the commencement of construction <u>of the solar farm</u>, the Consent Holder must engage a suitably qualified and experienced road maintenance engineer to prepare a programme to assess and record the condition of the road surface on Haldon Road and Haldon Arm Road. This programme must be submitted to the Mackenzie District Council for certification <u>at least 40 working days</u> before the assessment is conducted. The <u>assessment</u> and recording of the road surface condition must be undertaken in consultation with the Mackenzie District Council's Transportation Manager <u>and may not occur until the programme is certified by the Mackenzie District Council</u>. The road surface condition rating <u>must</u> be used as the baseline (including vehicle counts) for assessing the works required to return the road surface to at least its standard / condition prior to the commencement of the construction. Advice Note: The programme may be provided as part of the Construction Traffic Management Plan.	Improved certainty
44.	The Consent Holder must reimburse the Mackenzie District Council for the cost of the road surface maintenance (potholes / surface rutting etc) caused by the activities authorised by this consent. The maintenance cost will be calculated on a prorate basis against the baseline heavy vehicle traffic volumes and taking into account any financial assistance received by Council for road maintenance or funding otherwise committed to road maintenance.	
45.	Following the completion of construction works, the Consent Holder must return the road surface condition of Haldon Road and Haldon Arm Road to no worse than that identified in the road surface condition survey carried out in accordance with Condition 43 of this consent at the Consent Holder's expense, <u>where not otherwise reimbursed in accordance with Condition 44</u>.	Reservation of discretion removed

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46.	Prior to the commencement of <u>construction</u> works on <u>the solar farm</u>, the Consent Holder must identify and commit to practicable measures to minimise private vehicle travel to and from the Site <u>for construction workers</u> during the construction period, including (but not limited to): a) car-pooling incentives, such as ride-share arrangements or other mechanisms, to encourage shared vehicle trips; b) shuttle bus or shared transport <u>service</u>, operating between the Site and identified local accommodation hubs where construction staff are anticipated to be accommodated; and c) staggered construction start and finish times, where required, to reduce concentrated vehicle movements during peak periods. <u>Construction</u> works on the Site may not commence until the above matters have been certified in writing by Mackenzie District Council <u>as meeting the requirements of this condition to minimise private travel to and from the site</u>. The certified measures must be implemented and maintained for the duration of the construction period.	Improved certainty								
	Construction General									
47.	All construction works must be restricted to between 7.30am and 6.00pm from Monday to Saturday. There must be no works on Sundays or public holidays. The restriction on hours of works does not apply to low noise generating activities, such as site set up or staff meetings, which may occur outside of these hours. <u>Monday to Saturday only.</u>	Improved certainty. Advice note deleted as it potentially conflicts with the condition.								
48.	Noise from construction work must not exceed the typical duration limits recommended in, and must be measured and assessed in accordance with, New Zealand Standard NZS 6803: 1999 “Acoustics – Construction Noise” as set out below: <table><tr><th>Time of week</th><th>Time period</th><th colspan="2">Noise Limit</th></tr><tr><td></td><td></td><td>Laeq</td><td>LAFmax</td></tr></table>	Time of week	Time period	Noise Limit				Laeq	LAFmax	
Time of week	Time period	Noise Limit								
		Laeq	LAFmax							

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Advice Note: ¶
 This restriction does not apply to low noise creating activities such as site set up, electrical works or planting, which may occur outside of these hours Monday to Saturday only.

	Weekdays	0630-0730	60	75
		0730-1800	75	90
		1800-2000	70	85
		2000-0630	45	75
	Saturdays	0630-0730	45	75
		0730-1800	75	90
		1800-2000	45	75
		2000-0630	45	75
	Sundays & Public Holidays	0630-0730	45	75
		0730-1800	55	85
		1800-2000	45	75
		2000-0630	45	75
	Advice Note: <i>The construction noise limits do not apply at any building that is unoccupied during construction work. NZS6803:1999 requires construction noise to be measured outside <u>occupied</u> buildings at a point 1m from the wall most exposed to the sound under investigation and at a height 1.2 to 1.5m above the relevant floor height (no adjustment for façade effect reflections is to be made to the measured sound level). NZS6803:1999 states that noise should not be measured for more than one-hour at any location, and that 15-minutes will often be adequate.</i>			
	Table 4 not identified.			

Deleted: For reference, the noise limits that apply at rural dwellings that are occupied when construction work is underway are provided in Table 4.

49.	Prior to the commencement of <u>any construction</u> works on the <u>solar farm site</u> , the Consent Holder must provide to the Mackenzie District Council a copy of the Erosion and Sediment Control Plan for the construction of the Solar Farm, <u>that has been</u> certified by Canterbury Regional Council under the conditions of the regional consents for the Site. <u>▼</u>	Final sentence and advice note are redundant
50.	In the event of discovery of sensitive material (which is not authorised to be disturbed by any resource consent or other statutory authority), the Consent Holder must take the following steps: a) Immediately cease all works within 20 <u>metres</u> of any part of the discovery, including shutting down all earth disturbing machinery and stopping all earthmoving activities; b) Secure the area of the discovery, including a sufficient buffer area to ensure that all sensitive material remains undisturbed; c) Inform relevant authorities and parties immediately of the discovery, including: i. New Zealand Police if the discovery of human remains or koiwi; ii. Mackenzie District Council in all cases; iii. Heritage New Zealand Pouhere Taonga if the discovery is an archaeological site, Māori cultural artefact, human remains or koiwi; and iv. Mana Whenua if the discovery is an archaeological site, Māori cultural artefact, or koiwi. d) Wait for and enable an inspection of the site by the relevant authority or agency that must occur within 20 working days of notification; e) Following site inspection and consultation with all relevant parties (including owner and <u>Consent Holder</u>), the Mackenzie District Council will determine the area within which work must cease; f) Work within the area determined by the Mackenzie District Council above must not recommence until all of the following requirements, so far as relevant to the discovery, have been met: i. Heritage New Zealand Pouhere Taonga has confirmed that an archaeological authority has been approved for the work or that none is required.	This condition differs from the condition on the CRC consents. Alignment is preferred. The consent authorities may wish to propose a more aligned condition.

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The Erosion and Sediment Control Plan required by this condition is the same document certified by Canterbury Regional Council under the regional consents for the Site.

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	ii. Any required notification under the Protected Objects Act 1975 has been made to the Ministry for Culture and Heritage. iii. Any material of scientific or educational importance must be recorded and if appropriate, recovered and preserved. iv. Where the site is of Māori origin and an authority from Heritage New Zealand Pouhere Taonga is not required, the Mackenzie District Council will confirm, in consultation with Mana Whenua, that: - any koiwi have either been retained where discovered or removed in accordance with the appropriate tikanga; and - any agreed revisions to the planned works to be/have been made in order to address adverse effects on mana whenua values.	
	Management of Existing Transmission Infrastructure	
51.	The site must be designed, constructed and operated in accordance with the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34:2001) or any subsequent revision to the code, including all buildings or structures are be located within 12 metres of any outer visible edge of the foundation of any National Grid support structure; except for non-conductive fencing, which can be located 6 metres from any outer visible edge of the support structure foundation. In addition: a) all buildings and structures must be located to ensure vehicle access is maintained to the National Grid transmission lines and support structures, for maintenance at all reasonable times, and emergency works at all times. b) all internal access roads and gates providing access to the National Grid transmission lines must have a minimum width of 6 metres, or a 4 metre accessway formation width provided there is at least 1 metre either side of the formation width to provide a physical width of 6 metres, to allow access for operation and maintenance of the National Grid transmission assets at all reasonable times, and emergency works at all times. All access road gates must have a minimum width of 6 metres; and c) Battery Energy Storage Systems (BESS) must be set back at least 50 metres from the centreline of any National Grid transmission line.	

	Advice Note: Transpower has a right to access its existing assets under section 23 of the Electricity Act 1992. Any development on the site must not preclude or obstruct this right of access. It is an offence under section 163D of the Electricity Act 1992 to intentionally obstruct any person in the performance of any duty or in doing any work that the person has the lawful authority to do under section 23 of the Electricity Act 1992.	
52.	All machinery, vehicles and mobile plant must maintain a minimum clearance distance of 4m from the live overhead conductors (wires) of the National Grid transmission lines at all times to avoid the potential of machinery striking the lines. This includes any loads being lifted or transported underneath the transmission lines.	
53.	The substation works must be designed and constructed to limit the <u>electro magnetic field</u> exposure at or beyond the boundary of the Transpower <u>Grid Injection Point</u> . Substation site to the International Commission on Non-Ionising Radiation Protection, <i>Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (1 Hz to 100 kHz)</i> (Health Physics, Vol 99, No. 6, Pg 818-836, Dec 2010).	
54.	Any Transpower <u>Grid Injection Point</u> , Substation works or equipment must be designed to comply with NZS 6869:2004 Limits and Measurement Methods of Electromagnetic Noise from High-Voltage AC Power Systems, 0.15 to 1000 MHz.	
	Landscape Management	
55.	In the event that the woody vegetation currently present on the lakeshore of Lake Benmore / Te Ao Marama on the southern border of the solar farm site is programmed to be or has been removed to the extent that it no longer provides visual screening of the solar farm from Lake Benmore / Te Ao Marama, the Consent Holder must <u>successfully</u> implement the landscape mitigation plan prepared by Boffa Miskell dated 26 February 2026 [Attachment <u>3</u>] <u>for the purpose</u> of restoring visual screening of views of the solar farm from Lake Benmore / Te Ao Marama. <u>Any planting required must occur within 12 months of the removal of the woody vegetation.</u> To achieve this landscape planting, the Consent Holder must: a) secure plants that have been grown under contract and hardened off to suit the environment they are being planted into; b) undertake planting during the best time of year in this location to ensure establishment success; c) provide irrigation to ensure establishment success for the first two years; and d) undertake release weeding and replacement of any unsuccessful planting for the first <u>five</u> years.	Improved certainty

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Prior to the operation of the Solar Farm (the first generation of electricity), the Consent holder must establish landscape mitigation planting in Conservation/Release Area 1 (as shown on Attachment 4), in accordance with the concept outlined in Attachment 5.

To achieve this landscape planting, the Consent Holder must:

a) secure plants that have been grown under contract and hardened off to suit the environment they are being planted into;

b) undertake planting during the best time of year in this location to ensure establishment success;

c) provide irrigation to ensure establishment success for the first two years; and

d) undertake release weeding and replacement of any unsuccessful planting for the first two five years.

This mitigation was advanced in response to a request for information. A condition is appropriate.

57.

The Consent Holder must meet the minimum fencing requirements set out in the following table.

Location	Specification
Solar Farm	A rabbit-permeable security fencing (up to 2 m) with 100mm x 50mm mm mesh.
Compensation Area	Fence at minimum 1.2 m above ground with ≤6 mm mesh designed to exclude juvenile mice. Mesh material to be marine-grade 316 stainless steel (or similar) for corrosion resistance and longevity, with a wire gauge that resists rodent gnawing. Ground skirt: horizontal mesh apron extending ~400–500 mm outward at ground level (pinned) or buried, to prevent burrowing and undermining. Solid cap (roller or curved cap) to prevent purchase by climbing animals. Gates: pest-proof, self-closing, preferably double-gate airlocks, with continuous mesh and seals matching the fence.

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	Lizard Conservation Areas	Standard stock fencing with up to 0.5 m non-permeable polythene or similar, with buried toe to prevent lizards returning to the solar farm site.	
58.	Permanent structures associated with the development, except fencing, must not be erected within 300 m of Haldon Arm Road.		
59.	The final fence design and construction must be undertaken by a suitability qualified and experienced contractor in mammalian pest exclusion fencing.		
60.	The Consent Holder must ensure that the fencing requirements, including inspection frequencies and maintenance and repair are undertaken in accordance with the Pest Animal Management Plan to ensure the fence integrity is maintained for the duration of the consent.		
Ecological Management			
61.	The Consent Holder must engage a suitably qualified and experienced ecologist to prepare an overarching Ecological Management Plan. The Ecological Management Plan must be developed in consultation with the Department of Conservation and the Technical Review Panel and submitted to Mackenzie District Council for certification at least 20 working days prior to the commencement of any construction works on the Site (of either the solar farm or works required for the Compensation Area). Certification is required to demonstrate that the Ecological Management Plan will provide the means to achieve the purpose and matters set out in Condition 62. Advice note: Seasonality requirements associated with any pre-construction surveys may dictate that the development and certification of the Ecological Management Plan will need to occur in advance of the minimum 20 working day requirement.		Improved certainty Advice note redundant.
62.	The purpose of the Ecological Management Plan is to set out the response methods and management procedures to be implemented on site so as to avoid, remedy or mitigate potential adverse effects, and where required, offset and compensate for residual adverse ecological effects during the construction and operation of the solar farm. To achieve this purpose, the Ecological Management Plan must: a) include records of engagement with the Department of Conservation and the Technical Review Panel in relation to the development of the Ecological Management Plan, including details of how issues raised by the Department of Conservation have been addressed or reasons why they are not addressed;		As further changes have been made, this draft plan may no longer

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	l) compensation programme including triggers and applied research and monitoring to verify that ecological outcomes have been achieved;	
	m) roles and responsibilities; and	
	n) timeframes for implementing and reviewing the Ecological Management Plan.	
	<i>In the event of conflict between the Ecological Management Plan and a flora or fauna specific management plan, the flora or fauna specific plan will prevail.</i>	
	Advice note: The Consent Holder <u>must</u> work with the Department of Conservation <u>and the Technical Review Panel</u> to secure feedback on the Ecological Management Plan within 20 working days of its provision or alternatively confirm with the Department of Conservation a timeframe for which certification of the Ecological Management Plan will occur.	
		This condition could conflict with Technical Review Panel conditions Clarity in the case of conflicting provisions
63.	<u>Works on the Site (including the Compensation Area) may not commence until the Ecological Management Plan is certified by the Mackenzie District Council.</u>	Clarity that the certified plan needs to be in place.

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64.	The Ecological Management Plan may be amended at any time. Any amendments must be prepared in consultation with the Department of Conservation and the Technical Review Panel and must be: a) only for the purpose of: i. improving ecological outcomes; or ii. applying best practicable measures to mitigate adverse effects; b) consistent with the conditions of this resource consent; and c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	Advice note redundant.
65.	The Consent Holder must undertake the activities authorised by this consent in accordance with the certified Ecological Management Plan at all times.	Improved certainty
	Technical Review Panel	
66.	The Consent Holder must establish a Technical Review Panel comprising no fewer than 5 experts with strong track records in the ecology of the Mackenzie Basin's dryland ecosystems and good networks in national research organisations, who are nominated by the Kaitiaki Governance Group, Mackenzie District Council, Canterbury Regional Council, the Environmental Defence Society, Forest & Bird, and the Department of Conservation prior to the commencement of construction works on the solar farm. The Technical Review Panel must include subject-matter specialists covering, at a minimum, the relevant ecosystems, vegetation, indigenous plants, indigenous birds, and indigenous invertebrate fauna. Members of the Technical Review Panel are not expected to have the statistical and experimental design skills required to design an appropriate and robust Applied Research Programme. However they are expected to be able to recognise and recommend the engagement of those specialist technical and scientific skills reasonably required for both the design and the implementation of the research. The Consent Holder will remunerate Panel members for their hours worked at their normal chargeout rates. Meetings of the Technical Review Panel must be convened no later than 3 months from the granting of the consent; and 12. 9. 6 and 3 months prior to the commencement of construction works on the solar farm (or as necessary). at the initiation of solar farm	Improved certainty More comprehensive oversight appropriate Moved from below

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Ecological Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Ecological Management Plan will occur.

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operation (the first generation of electricity), and the first, second, fifth and tenth anniversaries of the solar farm operations for the following purposes: a) to review and advise on the ecological surveys and baseline monitoring needed prior to commencement of construction works in order to meet the Conditions of this consent b) to scope the applied ecological research programme; c) to make technical input into tender processes as required for the research design, implementation, data collection methods, data storage protocols and analysis methods, and for the independent peer review of research plans, research implementation, data analyses and reports; d) to review the results from ecological monitoring and applied ecological research undertaken in accordance with the requirements of this consent; e) to recommend amendments to ecological management plans and ecological monitoring programmes arising from the review of ecological monitoring results; and f) to review and confirm compensation recommendations should any of the avifauna adaptive management triggers set out in condition 121 be reached.	
In addition to the above, on the tenth anniversary of solar farm operations, and based on a further review of the outcomes of all monitoring and mitigation undertaken as required by this consent, the Technical Review Panel must make a final determination on any requirement for ecological compensation in response to any residual ecological effects from the construction and operation of the solar farm that have not been avoided, mitigated or offset. The scale and nature of any compensation determined by the Technical Review Panel must be commensurate with the actual residual impacts that have been identified and will be binding on the Consent Holder. The Technical Review Panel must scope (set out the requirements, including questions to be answered of) a programme of statistically robust applied ecological research and monitoring (Applied Research Programme) designed to improve the knowledge and understanding of effects of solar development in dryland environments, and advise on the appropriate specialist scientific expertise and skills to design and undertake the Applied Research Programme, including:	Shifted from applied research condition below and improved certainty.

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	a) <u>the effects of panel shading and associated microclimatic change on dryland vegetation, Threatened and At Risk plant species, and basking and other open-habitat invertebrates;</u> b) <u>the efficacy of salvage, propagation, translocation and relocation of Threatened and At Risk plants and invertebrates;</u> c) <u>bird-strike collision rates and mechanisms, and the reliability of the carcass-detection methodologies; and</u> d) <u>the ecological gains actually delivered by providing a compensation area, predator-exclusion fencing and pest management (including reduction and control).</u> <u>The Technical Review Panel will have access to all research and monitoring data and reporting required by conditions of this consent.</u> Advice Note: <u>The Kaitiaki Governance Group, Mackenzie District Council, Canterbury Regional Council and/or the Department of Conservation may nominate an independent expert to fulfil this role.</u> Advice Note: <u>Technical Review Panel and compensation elements of this condition were proposed on an Augier basis by the Applicant.</u> Advice Note: <u>If a nominee invited to participate in the Technical Review Panel advise the Consent Holder that they do not wish to participate, the Consent Holder will not be deemed non-compliant with this condition. For the avoidance of doubt, the Consent Holder must still demonstrate that reasonable steps have been taken to invite the participants in accordance with this condition.</u>	Improved certainty/work ability
67.	The Technical Review Panel will determine its own processes and procedures for conducting its meetings and decision-making process. The Technical Review Panel <u>may engage other specialist services</u> for purposes of technical review or input on an as-required basis at the reasonable cost of the Consent Holder.	
68.	The Consent Holder must provide an appropriate level of <u>funding and administrative support</u> for the Technical Review Panel <u>to enable it to fulfil its functions.</u>	More than administrative support will be required, especially with bringing the research

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		programme into the above conditions
	Applied Research Programme	
	<u>The Consent Holder must establish and maintain, for the period of the consent unless otherwise stated, an Applied Research Programme, which determines:</u> <u>a) the effects of panel shading and associated microclimatic change on dryland vegetation, and on populations of Threatened and At Risk plant species, and basking and other open-habitat invertebrates;</u> <u>b) the efficacy of salvage, propagation, translocation and relocation of Threatened and At Risk plants and invertebrates;</u> <u>c) bird-strike collision rates and mechanisms, and the reliability of the carcass-detection methodologies; and</u> <u>d) the ecological gains actually delivered by providing a compensation area, predator-exclusion fencing and pest management (including reduction and control).</u> <u>In clauses a) and b) the plants to be investigated must include, but are not limited to, <i>Lepidium solandri</i>, <i>Convolvulus verecundus</i> f. <i>verecundus</i> and any spring annuals present. Threatened and At Risk invertebrate species to be investigated in those clauses must include, but are not limited to robust grasshopper, minute grasshopper, Otago short-horned grasshopper and the Tekapo ground wētā.</u> <u>Effects on vegetation to be investigated in clause a) must include but are not limited to changes in the cover of exotic grasses, the cover of non-vascular indigenous plants (i.e. lichens and mosses), changes in the representation of plant functional types across the indigenous and exotic flora (e.g. cushion or mat indigenous herbs vs erect indigenous herbs), and changes in the total numbers of indigenous vascular and non-vascular plant species per plot and across the site (using rarefaction).</u> <u>Effects on shading and microclimate to be investigated in clause a) must include but are not limited to those on the environmental parameters of air temperature, soil temperature, soil moisture and light levels.</u> <u>Research for topics a) and d) must commence in appropriate seasons within one year prior to construction (or earlier) in order to incorporate baseline (undisturbed) measures of ecological and environmental parameters in the Project Site, the</u>	

	<u>Compensation Site and unmanaged control sites. Measurements for topic c) must commence with solar farm operations. Measurements for research on topic b) must commence within one year of solar farm operations.</u>	
	<u>The Technical Review Group, in consultation with the Department of Conservation, must refine research topic areas (a) to (d) above to specify</u> <u>a) the research questions to be answered and the hypotheses to be tested;</u> <u>b) the species and/or attributes to be measured and reported on for each topic;</u> <u>c) what level of change for each species or attribute will be considered to be significant so that the research design can provide the statistical power to detect that change.</u>	
	<u>The Applied Research Programme must be delivered commensurate with research journal publication standards, provide for inference and demonstrate causality, and include independent peer review of research methods and reporting, and (if appropriate) publication.</u> <u>In the design and implementation of the research, the Applied Research Programme must contract and use the expertise, skills and experience considered to be appropriate by the Technical Review Panel, in consultation with the Department of Conservation, for robust</u> <u>a) statistical and experimental design (including power analysis where appropriate);</u> <u>b) measurement and data collection techniques;</u> <u>c) curation and storage of data (including repositories, software and protocols);</u> <u>d) statistical data analysis;</u> <u>e) reporting.</u>	
	<u>The Consent Holder must provide the Department of Conservation and the Technical Review Panel with an Applied Research Programme Plan prior to the commencement of construction works on the solar farm. The purpose of the Applied Research Programme Plan is to set out the research activities that the Consent Holder plans to undertake to determine each of the four topics. The plan must include, for each topic:</u> <u>a) questions to be answered and the hypotheses to be tested;</u> <u>b) the contracted research provider;</u> <u>c) experimental design (including control vs intervention, replication, sampling units) and locations;</u>	

	d) <u>attributes to be measured;</u> e) <u>measurement techniques and frequencies for the different attributes;</u> f) <u>data collection and storage systems;</u> g) <u>project management details, including timelines, permitting and ethics, budgets, and equipment needs and logistics;</u> h) <u>peer reviews undertaken and needed;</u> i) <u>data analysis approaches anticipated or already undertaken;</u> j) <u>expected reports, publications and presentations;</u> The Applied Research Programme plan should be updated annually in consultation with the Department of Conservation and the Technical Review Panel.	
	Compensation Areas and Release Sites	Consistent terminology
69.	In order to achieve the outcomes <u>of</u> the certified ecological management plan, the Consent Holder must establish <u>and maintain a</u> <u>compensation</u> area of approximately 180 ha in size located to the north of the solar site and lizard and invertebrate release sites (as shown on Attachment 4) for the purpose of: a) maintaining and enhancing an area of outwash plain ecosystem with ecological values similar to the solar farm site <u>including through native plantings (if appropriate) and the management of grazing and browsing (if appropriate);</u> b) providing bird foraging and nesting habitat in a pest-controlled environment; c) <u>improving the likelihood of survival of relocated salvaged invertebrates and facilitating the recovery of resident invertebrates;</u> d) <u>improving the likelihood of survival of repatriated of Threatened or At-risk plants salvaged from the solar farm site and/or deriving from nursery propagation (if and where determined to be appropriate by the Technical Review Panel).</u> e) <u>protecting and or facilitating the recovery of existing Threatened and At-risk plant values; and</u> f) monitoring and research <u>to verify stated outcomes and inform adaptive management and contingency actions where required.</u>	Improved certainty

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the release of salvaged invertebrates;¶
repatriation of Threatened or At-risk plants salvaged from the solar farm site and/or deriving from nursery propagation; and ¶

70.	The <u>Compensation</u> Area must include the following features: a) <u>predator proof</u> fencing to <u>that also</u> excludes uncontrolled vehicle access and <u>is</u> designed in accordance with Condition 57 b) removal of briar rose, <u>stonecrop and other pest plants identified in the Ecological Management Plan as requiring control for the purposes of the Compensation Area;</u> c) <u>predator surveillance and prescribed follow-up actions to control incursions in accordance with Conditions 75 and 76</u> d) <u>pest management in accordance with the targets set out in Condition 76;</u> e) <u>repatriation of Threatened or At-risk plants salvaged from the solar farm site and/or deriving from nursery propagation (if and where determined to be appropriate by the Technical Review Panel)</u> f) restoration planting <u>(if and where determined to be appropriate by the Technical Review Panel);</u> and g) provision for ongoing monitoring and maintenance.	Improved certainty
71.	Construction <u>works</u> must not commence on the solar farm until: <u>(a) the Compensation Area is established and fenced, and pest animal control is underway to the specifications of the Technical Review Panel; and</u> <u>(b) the Mackenzie District Council has been provided with written confirmation that the Consent Holder has entered into an enduring legal arrangement to provide for the Compensation Area to be protected in perpetuity for nature conservation. Such arrangements may include covenanting or similar registered title instrument.</u>	Ensuring the Compensation Area is established early, for any translocation etc.
72.	The Consent Holder must manage the <u>Compensation</u> Area for the life of the solar farm in accordance with the certified ecological management plan.	
73.	Based on the results from the ten-year Technical Review Panel review, and following consideration of the results of the ecological monitoring required by the conditions of this consent to determine whether the objectives of the certified ecological management plans have been achieved, the Technical Review Panel <u>must</u> determine the need for additional adaptive management responses that may include the following:	

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	a) increased or decreased pest control within the <u>Compensation Area</u>; b) establishment of an additional <u>compensation</u> area of up to 170 ha considered commensurate with the actual residual impacts identified; and /or c) other outcomes determined by the Technical Review Panel as part of the 10-year review described in Condition 66.	
	Pest Animal Management Plan	
74.	The Consent Holder must engage a suitably qualified and experienced <u>mammalian pest management expert</u> to prepare a Pest Animal Management Plan. The Pest Animal Management Plan must be submitted to Mackenzie District Council for certification <u>at least</u> 20 working days prior to the commencement of any <u>construction works on the Site (of either the solar farm or works required for the Compensation Area)</u>. Certification is required to demonstrate that the Pest Animal Management Plan will provide the means to achieve the purpose and matters set out in Condition [72]. Advice note: <u>The Pest Animal Management Plan may be incorporated into the overarching Ecological Management Plan framework.</u>	Improved certainty, timing to align with Compensation Area establishment Advice note redundant.
75.	The purpose of the Pest Animal Management Plan is to provide details on how pest animals will be managed on the solar farm, the <u>compensation</u> area and the release areas during the <u>construction and</u> operation of the Solar Farm and achieve the target outcomes shown in Condition 76. To achieve this purpose, the Pest Animal Management Plan must: a) establish an <u>initial eradication programme and an ongoing biosecurity and incursion detection and response protocol to achieve and maintain near-zero mammalian pest density (apart from rabbits, which must be held within the target range in Condition 76) within the fenced areas;</u> b) identify control measures and methodologies for how pest management will be undertaken <u>for each mammal pest species, which will include descriptions of spatial configuration of bait lines and baiting and/or trapping details including types of baits/traps and frequency of baiting/servicing;</u> c) identify times of year to focus on particular pest management strategies;	Consistent wording and improved certainty

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76.	d) identify control targets for each pest species (e.g. using tracking tunnel and / or trapping indices);			
	e) give effect to the Canterbury Regional Pest Management Plan;			
	f) identify surveillance methodologies and frequencies appropriate to support the ongoing incursion detection and response protocol to achieve and maintain near-zero mammalian pest density (apart from rabbits) within the fenced areas (clause a), and to achieve and maintain rabbits within the target range in Condition 76, including but not limited to trail cameras, waxtags, chew cards, tracking tunnels, kill and live capture traps;			
	g) establish mechanisms to report annually on the results (both trap-catch outcomes and surveillance statistics) of pest mammal control to the Mackenzie District Council and the Technical Review Panel; and			
76.	h) set out the details of monitoring programmes for Baseline, Reduction Target and Response as per Condition 79.			
	The following pest animal targets and thresholds will apply:			
	Species	Location	Target	Threshold (where additional management is required)
	Possum	Solar Site	<5% Residual Trap Catch	>10% Residual Trap Catch
		Conservation / Release Areas and Compensation Area	Functional eradication	Any detection
	Rabbits	Solar Site	Annual review of rabbit populations	
		Conservation / Release Areas and Compensation area	Quantitative upper and lower targets matched to the surveillance devices for all other mammals are required here	Quantitative upper and lower thresholds are required here
	Rodents	Solar Site	<10% tracking tunnel index	>15% tracking tunnel index

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		Conservation / Release Areas and <u>Compensation area</u>	Functional eradication	Any detection		
	Hedgehogs	Solar Site	<5% Residual Trap Catch	>10% Residual Trap Catch		
		Conservation / Release Areas and <u>Compensation area</u>	Functional eradication	Any detection		
	Mustelids	Solar Site	<5% Residual Trap Catch	>10% Residual Trap Catch		
		Conservation / Release Areas and <u>Compensation area</u>	Functional eradication	Any detection		
	Feral cats	Solar Site	<5% Residual Trap Catch	>10% Residual Trap Catch		
		Conservation / Release Areas and <u>Compensation area</u>	Functional eradication	Any detection		
77.	<u>Works on the Site (of either the solar farm or works required for the Compensation Area) may not commence until the Pest Animal Management Plan is certified by the Mackenzie District Council.</u>				Certainty of timing.	
78.	The Consent Holder must undertake the activities <u>authorised by this consent</u> in accordance with the certified Pest Animal Management Plan at all times.				Improved certainty	
79.	The Consent Holder must undertake the following monitoring of mammalian pest management: a) Baseline monitoring: Prior to the commencement of mammalian pest management, pest monitoring must be undertaken to establish baseline data on pest animal densities of target species;				Improved certainty and increased frequency from annual checks	

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	b) Reduction target monitoring: reduction target monitoring must be undertaken in February, May, August and November of each year to verify that the reduction targets outlined in the table contained in Condition 76, have been achieved for target species; and c) Response monitoring: In the event monitoring required by (b) identifies that targets have not been achieved on two consecutive monitoring occasions, or pest populations meet or exceed a threshold, set out in the Table in Condition 76, the Consent Holder must implement additional pest animal management in accordance with the Pest Animal Management Plan.	proposed, which is inadequate for a pest eradication area.
80.	The Consent Holder must provide an annual report prepared by a suitably qualified and experienced ecologist to Mackenzie District Council and the Technical Review Panel that sets out the results of the monitoring required in Condition 79. The report must also consider the status of the rabbit populations within the solar farm and compensation area and make recommendations on control levels to be maintained for purposes of controlling weeds within the Site .	
	Plant Management Plan	
81.	The Consent Holder must engage a suitably qualified and experienced ecologist in Threatened or At-risk dry-land plant ecology to prepare a Plant Management Plan. The Plant Management Plan must be developed in consultation with the Department of Conservation and the Technical Review Panel and submitted to Mackenzie District Council for certification at least 20 working days prior to the commencement of any construction works on the solar farm. Certification is required to demonstrate that the Plant Management Plan will provide the means to achieve the purpose and matters set out in Condition [77]. Advice note: The Plant Management Plan may be incorporated into the overarching Ecological Management Plan framework.	Improved certainty Advice note redundant
82.	The purpose of the Plant Management Plan is to set out the methods and management procedures to be implemented on site so as to avoid effects on plants that that are Nationally Threatened within the Project Site and achieve no net loss of Threatened or At-risk dry-land plants during the construction and operation of the solar farm. To achieve this purpose, the Plant Management Plan must: a) detail the ecological management programme that will be implemented to avoid, remedy or mitigate the impacts on Threatened or At-risk dry-land plants during construction of the Haldon Solar Farm;	As further changes have been made, this draft plan may no longer

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	b) document the on-going management measures that will be adopted by the Consent Holder, including the avoidance, management, restoration and maintenance of Threatened or At-risk dry-land plants within both the Project Site and the <u>Compensation area</u>; and c) ensure that any long-term effects are appropriately managed through monitoring, adaptive management where appropriate, and implementation of appropriate responses, <u>including the removal of panels to provide larger buffers around plants that are Nationally Threatened if there is evidence of net loss of those plants within the Project Site.</u>	be wholly appropriate.
83.	The Plant Management Plan must include: a) records of engagement with the Department of Conservation <u>and the Technical Review Panel</u> in relation to the development of the Plant Management Plan, including details of how issues raised by the Department of Conservation <u>and the Technical Review Panel</u> have been addressed or reasons why they are not addressed; b) measures to be undertaken during construction to avoid or minimise effects on Threatened or At-risk dry-land plants, including: - details of pre-construction survey <u>results</u> and the flagging / isolating <u>and avoidance</u> of Threatened or At-risk dry-land plants <u>and the setbacks / buffer zones around where they are identified or located</u>; - vegetation clearance protocols, including provision for supervision and oversight of works by a suitably qualified and experienced ecologist; - minimisation of earthworks and vehicle tracking through demarcation of access routes and co-locating of infrastructure such as roads, trenches and cabling; and - management of weeds, including monitoring requirements and control targets for weeds; <u>c) identification of opportunities for seed collection, salvage and translocation of At-risk dry-land plants and propagation of Threatened or At-risk dry-land plants, including identification or establishment of suitable nursery care;</u> d) <u>targets for propagation of Threatened or At-risk dry-land plant species (including but not limited to <i>Lepidium solandri</i>, <i>Convolvulus verecundus f verecundus</i>, <i>Raoulia parkii</i>, <i>Raoulia australis</i> and <i>Muehlenbeckia ephedroides</i>) and establishment of new populations of all of these species within the Compensation Area, and measures to avoid adverse effects on the Compensation Area through any planting and establishment;</u>	

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	e) adaptive management responses, including those in described in condition <u>82</u>, in the event that the purpose of the Plant Management Plan is not being or is unlikely to be met; and f) research, monitoring and reporting commitments.	
84.	The Plant Management Plan may be amended at any time. Any amendments must be prepared in consultation with the Department of Conservation <u>and the Technical Review Panel</u> and <u>must be</u>: a) <u>only for the following purposes</u>: i. <u>improving ecological outcomes</u>; ii. <u>applying best practicable measures to mitigate adverse effects</u>; b) <u>consistent with the conditions of this resource consent</u>; and c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	Improved certainty Advice note redundant
<u>85.</u>	<u>Construction works on the solar farm may not commence until the Plant Management Plan is certified by the Mackenzie District Council.</u>	Certainty of timing
86.	The Consent Holder must undertake the activities <u>authorised by this consent</u> in accordance with the certified Plant Management Plan at all times.	Improved certainty
87.	Prior to the construction of the Solar Farm, the Consent Holder must engage a suitably qualified and experienced ecologist to prepare, in consultation with the Department of Conservation <u>and the Technical Review Panel</u>, a <u>statistically robust</u> pre-construction baseline monitoring plan for Nationally Threatened <u>or At-risk</u> dry-land plants within the solar farm and <u>Compensation Area</u> in accordance with the requirements of the Plant Management Plan. The pre-construction <u>baseline</u> monitoring plan must include: a) records of engagement with the Department of Conservation <u>and the Technical Review Panel</u> in relation to the development of the pre-construction monitoring plan, including details of how issues raised by the Department of Conservation <u>and the Technical Review Panel</u> have been addressed or reasons why they are not addressed;	Improved certainty and protection outcomes

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The Consent Holder must work with Mackenzie District Council to secure certification of any amendments within 20 working days of their provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Plant Management Plan will occur.

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	b) confirmation that the baseline survey will be undertaken during the months of September to November prior to the start of construction to optimise detection probability for spring annuals; c) details of the scope and duration of the surveys; d) <u>the required experience and expertise of those undertaking the surveys</u> e) methodologies for the recording of the locations of any Nationally Threatened <u>or At-risk</u> dry land plants if/when discovered; f) any further actions that are to be taken to provide immediate <u>avoidance and</u> protection for the identified plants <u>that are Nationally Threatened</u>; and g) details on how appropriate ecological buffers are to be established around the identified plants to avoid damage during construction or operation of the solar farm and how that buffer is to be incorporated into the final design of the Solar Farm.	
88.	The Consent Holder must undertake the pre-construction baseline monitoring plan and submit the results of the monitoring and actions taken to identify and protect any Nationally Threatened plants to Mackenzie District Council <u>and the Technical Review Panel</u> prior to construction activities commencing on the <u>solar farm</u> .	
89.	Where Nationally Threatened plant species are located within the solar farm, <u>the location of</u> those species along with an appropriate <u>(at least 100 m radius)</u> buffer <u>must</u> be avoided in the solar farm layout <u>and permanently fenced using a standard stock exclusion fence</u> .	10m suggested – the Panel welcomes alternate views with reasoning.
90.	During the construction of the Solar Farm, the Consent Holder must engage a suitably qualified and experienced ecologist to prepare an annual compliance monitoring report in accordance with the requirements of the Plant Management Plan. a) The annual compliance monitoring report must include: i. results of the pre-construction baseline surveys at the solar farm and the <u>Compensation Area, including maps</u>;	

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	ii. confirmation of any incidental discovery of additional Threatened or At-risk plant specimens and actions taken to avoid effects on that specimen where practicable; iii. confirmation of any seed collection, plant salvage and/or translocations undertaken in accordance with the Plant Management Plan and associated consent conditions; iv. results of any salvage and relocation; v. any recommendation to improve the effectiveness of the Plant Management Plan. b) The Consent Holder must submit the compliance monitoring report to Mackenzie District Council <u>and the Technical Review Panel</u> on 1 July of each year for the duration of the construction of the Solar Farm.	
91.	Prior to the commencement of operations of the Solar Farm <u>(the first generation of electricity)</u>, the Consent Holder must engage a suitably qualified and experienced ecologist to prepare, in consultation with the Department of Conservation <u>and the Technical Review Panel</u>, a <u>statistically robust</u> monitoring plan to determine whether the objective of the Plant Management Plan is being achieved. The plant monitoring plan must include: a) records of engagement with the Department of Conservation <u>and the Technical Review Panel</u> in relation to the development of the plant monitoring plan, including details of how issues raised by the Department of Conservation <u>and the Technical Review Panel</u> have been addressed or reasons why they are not addressed; b) a review of the findings from the monitoring undertaken during construction; c) confirmation of the representative monitoring locations within the solar farm and <u>compensation</u> area; d) sampling frequencies and methodologies including seasonal and/or cryptic species; e) <u>methods for monitoring and reporting on changes in populations and numbers of any plant species that are Nationally Threatened at their recorded locations within the Project Site</u> f) <u>methods for recording and reporting on changes in the vascular and non-vascular flora, with plants identified to species or subspecies level and estimates of the nearest one percentage of cover of each species or subspecies;</u> g) results of the success of any seed collection, propagation and planting of plants undertaken;	Increased certainty of robust research and monitoring

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	h) review of the results of pest control measures; i) incidental discovery procedures; j) procedures for reviewing the effectiveness of the proposed monitoring; k) <u>independent peer review of the monitoring plan and reports by a suitably qualified and experienced ecologist and bio-statistician;</u> and l) reporting requirements, including <u>an annual monitoring report.</u>	
92.	The Consent Holder must undertake the <u>monitoring required</u> by the plant monitoring plan for <u>twenty</u> years following commencement of operation of the solar farm or until consistency with the objective of the Plant Management Plan has been demonstrated.	Improved certainty, and timeframe more appropriate for Threatened species monitoring
93.	The Consent Holder must submit the annual plant monitoring report to Mackenzie District Council <u>and the Technical Review Panel</u> on 1 July of each year for the duration of the monitoring period that includes the results of the <u>monitoring programme</u> and setting out of any adaptive management <u>or contingency</u> responses should the results indicate that the objective of the Plant Management Plan is not being or are unlikely to be achieved. If <u>applied research or</u> monitoring results indicate that the purpose of the Plant Management Plan is not being or are unlikely to be achieved, adaptive management <u>or contingency</u> responses include the following: a) additional seed collection, propagation and planting of Threatened or At-risk plants; <u>b) increased pest control within the solar farm and compensation area;</u> <u>c) legal protection of additional areas of outwash gravel ecosystem;</u>	Potentially conflicts with Technical

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	d) <u>removing areas of panels to provide larger buffer areas for Threatened plants;</u> e) <u>other actions as determined by the Technical Review Panel.</u> Advice note: Compensation actions for Threatened or At-risk plants may provide for implementation by Department of Conservation.	Review Panel condition
	Herpetofauna	
94.	The Consent Holder must engage a suitably qualified and experienced ecologist in herpetofauna to prepare a Lizard Management Plan. The Lizard Management Plan must be consistent with the document titled “Key Principles for Lizard Salvage and Transfer in New Zealand, 2019” and be developed in consultation with the Department of Conservation. The Lizard Management Plan must be submitted to Mackenzie District Council for certification <u>at least 20 working days</u> prior to the commencement of any <u>construction works on the solar farm</u>. Certification is required to demonstrate that the Lizard Management Plan will provide the means to achieve the purpose and matters set out in Condition 95. Advice note: <u>The Lizard Management Plan may be incorporated into the overarching Ecological Management Plan framework.</u>	Improved certainty Advice note redundant
95.	The purpose of the Lizard Management Plan is to set out the response methods and management procedures to be implemented on site so as to achieve no net loss of herpetofauna during the construction and operation of the solar farm. To achieve this purpose, the Lizard Management Plan must include: a) records of engagement with the Department of Conservation <u>and the Technical Review Panel</u> in relation to the development of the Lizard Management Plan, including details of how issues raised by the Department of Conservation <u>and the Technical Review Panel</u> have been addressed or reasons why they are not addressed; b) <u>a description of the measures to minimise adverse effects on lizards, including through lizard salvage and relocation;</u> c) <u>Location of release sites, including consideration of whether the predator-free compensation area is an appropriate location;</u> d) requirements for release sites, including creation and enhancement of habitat and predator control; e) requirements for post-release monitoring and reporting;	As further changes have been made, this draft plan may no longer be wholly appropriate.

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	f) accidental discovery procedures; and g) roles and responsibilities.	The compensation area may be a more suitable location than the small conservation areas.
96.	Construction works on the solar farm may not commence until the Lizard Management Plan is certified by the Mackenzie District Council.	Certainty as to timing
97.	The Lizard Management Plan may be amended at any time. Any amendments must be prepared in consultation with the Department of Conservation and <u>must be:</u> a) <u>only for the following purposes:</u> i. improving ecological outcomes; ii. <u>applying best practicable measures to mitigate adverse effects;</u> b) <u>consistent with the conditions of this resource consent; and</u> c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	Improved certainty Advice note redundant
98.	The Consent Holder must undertake the activities <u>authorised by this consent</u> in accordance with the certified Lizard Management Plan at all times. Advice note: Nothing in these resource consents removes the need for the Consent Holder to apply for any approvals required under the Wildlife Act 1953. For the avoidance of doubt, this resource consent does not constitute lawful authority under the Wildlife Act.	Improved certainty.

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Lizard Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Lizard Management Plan will occur.

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99.	During the construction of the Solar Farm, the Consent Holder must engage a suitably qualified and experienced practitioner to prepare an annual compliance monitoring report in accordance with the requirements of the Lizard Management Plan. a) The annual compliance monitoring report must include: i. confirmation that any salvage and relocation operations were undertaken in accordance with the Lizard Management Plan and associated consent conditions; ii. results of any salvage and relocation; iii. if required, results of any monitoring at the release site(s), including pest monitoring results; iv. representative photos of the salvage methodologies used, and lizards captured at the salvage site(s) and release site(s); and v. any recommendation to improve the effectiveness of lizard management of the Lizard Management Plan. b) The Consent Holder must submit the compliance monitoring report to Mackenzie District Council on 1 July of each year for the duration of the construction of the Solar Farm. c) Following the completion of all lizard salvage, relocation and associated monitoring, the annual compliance monitoring report shall cease. The Consent Holder must submit a final report summarising the implementation of the Lizard Management Plan to Mackenzie District Council within three months following the final lizard release.	
100.	Prior to the commencement of operations of the Solar Farm, the Consent Holder must engage a suitably qualified and experienced ecologist to prepare in consultation with the Department of Conservation a lizard monitoring plan to determine whether the <u>purpose and stated no net loss outcomes for lizards have been achieved via the Lizard Management Plan in regard to the salvage and relocation programme and proposed compensation measures within the compensation area and conservation zones.</u> The lizard monitoring plan must include: a) records of engagement with the Department of Conservation in relation to the development of the lizard monitoring plan, including details of how issues raised by the Department of Conservation have been addressed or reasons why they are not addressed;	Improved certainty

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	b) <u>details of lizard monitoring methods at the solar farm site, compensation area and within the conservation zones including monitoring techniques, monitoring locations (maps), monitoring frequency, monitoring duration and data collection including records of environmental parameters including air temperature, soil temperature, soil moisture and light levels</u> c) <u>Details of any animal handling procedures that may be required as part of any Wildlife Act permissions;</u> d) <u>;</u> e) review of the results of relevant pest control measures; f) incidental discovery procedures; g) procedures for reviewing the effectiveness of the proposed monitoring; and h) reporting requirements, including the development of an annual monitoring report.	
101.	The Consent Holder must undertake the monitoring <u>required by the lizard monitoring plan for ten years following commencement of operation of the solar farm or until consistency with the purpose of the Lizard Management Plan has been demonstrated, whichever is the longer period.</u>	Improved certainty and longer duration is appropriate for stated no net loss outcome
102.	The Consent Holder must submit the annual lizard monitoring report to Mackenzie District Council on 1 July of each year for the duration of the monitoring period that includes the results of the monitoring and setting out of any adaptive management responses should the results indicate that the <u>purpose</u> of the Lizard Management Plan is not being or are unlikely to be achieved. If monitoring results indicate that the <u>purpose</u> of the Lizard Management Plan is not being or are unlikely to be achieved, adaptive management <u>or contingency</u> responses include the following: a) <u>Additional habitat enhancement for lizards within existing Compensation Area and/or conservation zones;</u>	Improved certainty

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	b) increased pest control; c) <u>The provision of additional compensation area(s) that are enhanced for lizards through mammalian pest management and/or habitat enhancement</u>; d) <u>other actions as determined by the Technical Review Panel</u>.	
	Terrestrial Invertebrates	
103.	The Consent Holder must engage a suitably qualified and experienced ecologist in invertebrates to prepare a Terrestrial Invertebrate Management Plan. The Terrestrial Invertebrate Management Plan must be developed in consultation with the Department of Conservation <u>and the Technical Review Panel</u> and submitted to Mackenzie District Council for certification <u>at least</u> 20 working days prior to the commencement of any <u>construction works on the solar farm</u>. Certification is required to demonstrate that the Terrestrial Invertebrate Management Plan will provide the means to achieve the purpose and matters set out in Condition 104. Advice Note: <u>The Terrestrial Invertebrate Management Plan may be incorporated into the overarching Ecological Management Plan framework.</u>	Improved certainty Advice note redundant
104.	The purpose of the Terrestrial Invertebrate Management Plan is to set out the response methods and management procedures to be implemented on site so as to achieve no net loss <u>outcomes for</u> robust grasshopper, minute grasshopper, Otago short-horned grasshopper and the Tekapo ground wētā within the solar farm site during the construction and operation of the solar farm. To achieve this purpose, the Terrestrial Invertebrate Management Plan must include: a) records of engagement with the Department of Conservation <u>and the Technical Review Panel</u> in relation to the development of the Terrestrial Invertebrate Management Plan, including details of how issues raised by the Department of Conservation <u>and the Technical Review Panel</u> have been addressed or reasons why they are not addressed; b) details of pre-construction baseline surveys <u>at the solar farm site, the Compensation Area and the Conservation Zones;</u> c) a description of the measures to minimise onsite adverse effects on invertebrates, including through pest-proof fencing, pest control, invertebrate salvage and relocation <u>such that the no net loss outcome will be achieved;</u>	As further changes have been made, this draft plan may no longer be wholly appropriate.

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	d) requirements for the release site(s) within the Compensation Area including fencing, habitat enhancement and predator control; e) an incidental discovery protocol; f) a description of the monitoring and reporting requirements; and g) roles and responsibilities.	
105.	Construction works on the solar farm may not commence until the Terrestrial Invertebrate Management Plan is certified by the Mackenzie District Council.	Certainty as to timing
106.	The Terrestrial Invertebrate Management Plan may be amended at any time. Any amendments must be prepared in consultation with the Department of Conservation and the Technical Review Panel and must be: a) only for the following purposes: i. improving ecological outcomes; ii. applying best practicable measures to mitigate adverse effects; b) consistent with the conditions of this resource consent; and c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	Improved certainty Advice note redundant
107.	The Consent Holder must undertake the activities authorised by this consent in accordance with the certified Terrestrial Invertebrate Management Plan at all times. Advice note: Nothing in these resource consents removes the need for the Consent Holder to apply for any approvals required under the Wildlife Act 1953. For the avoidance of doubt, this resource consent does not constitute lawful authority under the Wildlife Act.	
108.	During the construction of the Solar Farm, the Consent Holder must engage a suitably qualified and experienced ecologist to prepare an annual compliance monitoring report in accordance with the requirements of the Terrestrial Invertebrate Management Plan.	Improved certainty of outcomes

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Terrestrial Invertebrate Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Terrestrial Invertebrate Management Plan will occur.

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	a) The annual compliance monitoring report must include: i. results of the pre-construction baseline surveys at the solar farm, release sites and the <u>compensation area and conservation/release areas;</u> ii. confirmation that salvage and relocation operations were undertaken in accordance with the Terrestrial Invertebrate Management Plan and associated consent conditions; iii. results of any salvage and relocation, <u>including representative photos of the salvage methodologies used, and invertebrates captured at the salvage site(s) and release site(s);</u> iv. <u>response of invertebrates to mammalian pest management and habitat enhancement within the compensation area and conservation zones; and</u> v. <u>any recommendation to improve the effectiveness of the Invertebrate Management Plan.</u> b) The Consent Holder must submit the compliance monitoring report to Mackenzie District Council <u>and the Technical Review Panel</u> on 1 July of each year for the duration of the construction of the Solar Farm. c) Following the completion of all invertebrate salvage, relocation and associated monitoring, the annual compliance monitoring report shall cease. The Consent Holder must submit a final report summarising the implementation of the Terrestrial Invertebrate Management Plan to Mackenzie District Council <u>and the Technical Review Panel</u> within three months following the final invertebrate release.		
109.	Prior to the commencement of operations of the Solar Farm, the Consent Holder must engage a suitably qualified and experienced ecologist to prepare, in consultation with the <u>Technical Review Panel and the</u> Department of Conservation, a <u>terrestrial invertebrate monitoring plan to determine whether the purpose and stated no net loss outcomes for terrestrial invertebrates has been achieved via</u> the Terrestrial Invertebrate Management Plan. The invertebrate monitoring plan must include: a) records of engagement with the Department of Conservation <u>and the Technical Review Panel</u> in relation to the development of the invertebrate monitoring plan, including details of how issues raised by the Department of Conservation <u>and the Technical Review Panel</u> have been addressed or reasons why they are not addressed;	Improved certainty Technical Review Panel role in monitoring and reporting enhanced.	

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	b) a review of the findings from the monitoring undertaken during construction; c) confirmation of the representative monitoring locations within the solar farm, <u>compensation area</u> and invertebrate release site; d) sampling frequencies and methodologies for targeted species, including details of any animal handling procedures that may be required as part of any Wildlife Act permissions; e) records of environmental parameters including air temperature, soil temperature, soil moisture and light levels; f) review of the results of pest control measures; g) incidental discovery procedures; <u>h)</u> procedures for reviewing the effectiveness of the proposed monitoring i) <u>independent peer review of the monitoring plan and reports</u>; and j) reporting requirements, <u>publishing of research and</u> an annual monitoring report.	
110.	The Consent Holder must undertake the monitoring anticipated by the invertebrate monitoring plan for <u>twenty</u> years following commencement of operation of the solar farm or until consistency with the <u>purpose</u> of the Terrestrial Invertebrate Management Plan has been demonstrated, <u>whichever is the longer duration</u>.	Improved certainty and timeframe that is more appropriate for stated no net loss outcome.
111.	The Consent Holder must submit the annual invertebrate monitoring report to Mackenzie District Council <u>and the Technical Review Panel</u> on 1 July of each year for the duration of the monitoring period that includes the results of the monitoring and setting out of any adaptive management responses should the results indicate that the <u>purpose</u> of the Terrestrial Invertebrate Management Plan is not being or are unlikely to be achieved.	Improved certainty

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	If monitoring results indicate that the objective of the Terrestrial Invertebrate Management Plan is not being or are unlikely to be achieved, adaptive management responses include the following: a) establishment of additional areas of suitable habitat for the species within the solar farm or <u>compensation area</u>; b) additional translocation of invertebrates to the release areas; c) increased pest control; d) <u>creation of additional release habitat</u>; <u>and/or</u> e) <u>other actions as determined by the Technical Review Panel</u>.	
	Avifauna Management	
112.	The Consent Holder must engage a suitably qualified and experienced ecologist in avifauna to prepare an Avifauna Management Plan. The Avifauna Management Plan must be developed in consultation with the Department of Conservation and submitted to Mackenzie District Council for certification <u>at least 20 working days prior to the commencement of any construction works on the solar farm</u>. Certification is required to demonstrate that the Avifauna Management Plan will provide the means to achieve the purpose and matters set out in Condition 113. Advice Note: <u>The Avifauna Management Plan may be incorporated into the overarching Ecological Management Plan framework.</u>	Improved certainty Advice note redundant
113.	The purpose of the Avifauna Management Plan is to set out the response methods and management procedures to be implemented on site so as to achieve no net loss of Threatened or At-risk avifauna species during the construction and operation of the solar farm. To achieve this purpose, the Avifauna Management Plan must include: a) records of engagement with the Department of Conservation in relation to the development of the Avifauna Management Plan, including details of how issues raised by the Department of Conservation have been addressed or reasons why they are not addressed; b) design features of the solar farm that mitigate potential effects on birds, including panel tracking and stowing angles and management of lighting;	No draft plan has been provided

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	c) identification of bird species that are likely to use or interact with both the solar farm site and <u>Compensation Area</u>, and monitoring methodologies and frequencies to determine that use or interaction; d) methods for identifying nesting bird behaviours and protocols to minimise their disturbance when identified; e) details of the collision mortality thresholds and response actions required in accordance with Condition 121; f) requirements for reporting; and g) the review and evaluation of the Avifauna Management Plan.	
114.	<u>Construction works on the solar farm may not commence until the Avifauna Management Plan is certified by the Mackenzie District Council.</u>	Certainty as to timing
115.	The Avifauna Management Plan may be amended at any time. Any amendments must be prepared in consultation with the Department of Conservation and <u>must be:</u> a) <u>only for the following purposes:</u> i. improving ecological outcomes; ii. <u>applying best practicable measures to mitigate adverse effects;</u> b) consistent with the conditions of this resource consent; and c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	Improved certainty Advice note redundant
116.	The Consent Holder must undertake the <u>activities authorised by this consent</u> in accordance with the certified Avifauna Management Plan at all times.	Improved certainty
117.	Any construction works on Site occurring during the bird breeding season (1 July to 1 March) must be undertaken in accordance with the requirements of the Avifauna Management Plan and include the following requirements: a) a site inspection by a suitably qualified and experienced ornithologist / ecologist must be undertaken no more than 48 hours prior to works commencing to determine whether any indigenous birds are nesting on the Site on or in the vicinity of the construction area(s);	

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Avifauna Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Avifauna Management Plan will occur.

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	b) if nesting birds, eggs or chicks are found, then works must not commence until after an exclusion zone has been established around the nesting birds, eggs or chicks within which construction must not commence until after nesting activities have ceased. Exclusion zones must be 100 metres, or smaller if considered appropriate by the suitably qualified and experienced ecologist; and c) if works are paused for eight successive days or more, then are resumed during the breeding season, a new site inspection in the vicinity of the construction area(s) will be required.	
	Bird Collision Monitoring Plan	
118.	The Consent Holder must engage a suitably qualified and experienced ecologist in avifauna to prepare a Bird Collision Monitoring Plan. The Bird Collision Monitoring Plan must be developed in consultation with the Department of Conservation and submitted to Mackenzie District Council for certification <u>at least 20 working days prior to the commencement of any construction works on the solar farm</u>. Certification is required to demonstrate that the Bird Collision Monitoring Plan will provide the means to achieve the purpose and matters set out in Condition 119.	Improved certainty Advice note redundant
119.	The purpose of the Bird Collision monitoring is to: a) minimise the risk of bird collision with Solar Farm Infrastructure; b) contribute to scientific knowledge of Threatened or At-risk avifauna species and their potential behavioural response to solar panels; and c) detect as best as possible the nature and extent of any collision of birds (in particular Threatened or At-risk avifauna species likely to be present on and around the Site) with Solar Farm infrastructure (particularly solar panels) leading to death or injury. To achieve this purpose, the Bird Collision Monitoring Plan must <u>reference the methods identified in Statistical advice for a solar power installation at Haldon Station, Canterbury, New Zealand</u> prepared by Proteus provided as part of the applications and	Improved certainty This report does not

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The Consent Holder must work with Mackenzie District Council to secure certification of the Avifauna Monitoring Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the Avifauna Monitoring Plan will occur.

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	incorporate a monitoring design and methodologies for avifauna mortality surveys that inform the species-specific adaptive management triggers set out in Condition 121, including:	provide a template for a
	a) records of engagement with the Department of Conservation in relation to the development of the Bird Collision Monitoring Plan, including details of how issues raised by the Department of Conservation have been addressed or reasons why they are not addressed; b) industry-standard design measures to be employed to avoid or minimise avifauna collisions with Solar Farm Infrastructure; c) a monitoring programme design that includes: i. a methodology that provides for a detection probability of carcasses of at least 95 % likelihood for both large and small birds (separately) based on the Proteus advice; ii. the quantification of the abundance and identity of any bird carcasses found within the site through survey of a statistically representative portion of the solar farm site and set intervals; iii. pre-and post-construction searcher efficiency trials that assess observer detection of carcasses in the field including how manual human search, drone search or dog detection methods will be used, trialled, benchmarked and applied at the site to achieve the minimum target carcass detection level of 95%; and iv. carcass persistence trials that determine how detection probability changes over time as carcasses are scavenged or decay; d) requirements for reporting; and e) the review and evaluation of the Bird Collision Monitoring Plan.	Bird Collision Monitoring Plan, therefore the plan cannot 'be in general accordance with' it.
120.	The Consent Holder must undertake the monitoring <u>required</u> by the Bird Collision Monitoring Plan for a period of not less than five years or five full seasonal monitoring periods from commencement of the installation of solar panels and ancillary infrastructure within the site.	
121.	The results of each year of the avifauna monitoring must be measured against the adaptive management trigger for the individual species listed in the Table below. The annual mortality period will commence following the date of the installation of the first solar panel, and thereafter 1 July – 30 June annually, unless or until a review of the Avifauna Monitoring Plan confirms otherwise. The	

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results of the monitoring programme will be summarised and presented to Mackenzie District Council for review on 1 August annually.			
Species	Conservation Status	Taonga Species as per Ngai Tahu Settlement Claims Act	Adaptive Management Trigger (Annual Mortality)
Black Stilt / Kākī	Threatened – Nationally Critical	Yes	1
Australasian Bittern / Matuku-hūrepo	Threatened – Nationally Critical	No	1
White Heron / kōtuku	Threatened – Nationally Critical	Yes	1
Black Fronted Tern / Tarapirohe	Threatened – Nationally Endangered	Yes	1
Any other nationally critical or endangered species			1
Any other nationally vulnerable species			Two carcasses detected within any one survey; or Three carcasses detected cumulatively in any consecutive 12-month period

	Any other at-risk species	Three carcasses detected within any one survey; or Five carcasses detected cumulatively in any consecutive 12-month period	
122.	In the event that Bird Collision monitoring identifies that a mortality of any individual bird species listed in Condition 121 the following will apply: a) the Consent Holder must notify the Department of Conservation, Te Rūnanga o Arowhenua; Te Rūnanga o Waihao; and Te Rūnanga o Moeraki, and the Mackenzie District Council within 48 hours of becoming aware of the exceedance; b) the suitably qualified and experienced person engaged for purposes of establishing the avifauna monitoring at the Haldon Solar Farm must undertake an investigation and complete a draft report on the possible cause of bird mortality within 15 working days of the Consent Holder notifying of the exceedance. This report must: i. identify whether any additional monitoring or investigation is required to further determine the potential cause of bird mortality; ii. provide details of any collision prevention / deterrent measures that could be applied; and c) the draft report must be immediately provided to Te Rūnanga o Arowhenua; Te Rūnanga o Waihao; and Te Rūnanga o Moeraki; the Department of Conservation for review and comment; and d) the Consent Holder must submit the report (including any comments from Te Rūnanga o Arowhenua; Te Rūnanga o Waihao; and Te Rūnanga o Moeraki and the Department of Conservation and the Consent Holder's response to those comments) to the Mackenzie District Council for certification within 15 working days of provision of the draft report. A copy of the final report must also be provided to Te Rūnanga o Arowhenua; Te Rūnanga o Waihao; and Te Rūnanga o Moeraki, and the Department of Conservation.		Notification to mana whenua added
123.	If Bird Collision monitoring identifies that the mortality of any individual bird species listed in Condition 121 has equalled or exceeded the Adaptive Management Trigger for that individual species as a result of interactions with the solar installation, and		

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	the implementation of further mitigation measures have not prevented ongoing bird strike, then compensation of the following nature will apply: a) engagement with the Department of Conservation to identify targeted opportunities to further improve survival and breeding success of threatened and at-risk avifauna species; and b) assessment and quantification of the potential population benefits that could be achieved through additional investment in existing recovery programmes and management actions, which may include: i. expanding the intensity and spatial extent of predator control; ii. GPS tracking to better understand movement patterns and identify causes of mortality; iii. habitat enhancement measures, including pest plant control; iv. installation of markers to improve visibility of existing electrical transmission lines to reduce collision risk. Advice note: Avifauna compensation may provide for implementation by the Department of Conservation.	
124.	The Consent Holder's financial contribution to avifauna compensation shall comprise a payment of \$1,000,000 (CPI adjusted from 1 July 2026) to the Department of Conservation for the loss of avifauna habitat and residual risk of avifauna collision with solar farm infrastructure, payable on or before the first day of commencement of physical works on site. Payment of the specified financial contributions shall constitute full and final satisfaction of the Consent Holder's obligations under this condition. Advice note: <i>This condition has been proposed on an Augier basis by the Applicant.</i>	
<u>125.</u>	<u>Construction works on the solar farm may not commence until the Bird Collision Management Plan is certified by the Mackenzie District Council.</u>	Certainty as to timing
126.	The Bird Collision Monitoring Plan may be amended at any time. Any amendments must be prepared in consultation with the Department of Conservation and <u>must be:</u> a) <u>only for the following purposes:</u> i. improving outcomes for avifauna;	Improved certainty Advice note redundant

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	ii. <u>applying best practicable measures to mitigate adverse effects;</u> b) consistent with the conditions of this resource consent; and c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	
127.	The Consent Holder must undertake the <u>activities authorised by this consent</u> in accordance with the certified Bird Collision Monitoring Plan throughout the monitoring period.	Improved certainty
	Ecological Reporting	
128.	The Consent Holder must prepare and submit an annual ecological report to the Mackenzie District Council, <u>the Technical Review Panel, the Kaitiaki Governance Group</u> and the Department of Conservation within 20 working days of each anniversary of the commencement of construction of the solar farm. As a minimum, the annual report must set out the monitoring requirements of the certified ecological management plans and associated monitoring conditions, including: a) the results of any baseline and ongoing ecological monitoring surveys; b) records of environmental parameters including air temperature, soil temperature, soil moisture and light levels; c) the results from any lizard and invertebrate salvage efforts that have occurred during construction; d) the outcomes of any ongoing plant translocation and propagation efforts; e) the outcomes of any weed and pest animal control undertaken; f) the results of bird collision monitoring; <u>g) the results of any other ecological monitoring undertaken in accordance with the monitoring requirements of this consent.</u> <u>h) an assessment and analysis of the monitoring data, including in relation to any trends in adverse effects on the environment by comparison with previous years;</u> <u>i) whether the various purposes of the ecology management plans are being achieved;</u>	Improved content description. The Panel notes that the Applicant may, subject to the comments of s53 invitees, prefer to consolidate all ecology monitoring into a single, cohesive condition with clearer timeframes,

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The Consent Holder must work with Mackenzie District Council to secure certification of the Bird Collision Monitoring Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the Bird Collision Monitoring Plan will occur.

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	j) <u>identification of circumstances where monitoring has informed refinement to construction methods, effects management measures, or implementation of adaptive management;</u> k) <u>a summary of any non-compliances over the previous year, including the reasons for the non-compliance and the measures put in place to prevent the same incident happening again; and</u> l) <u>recommendations on any alterations to the monitoring to be implemented in the subsequent year, including the measures necessary to implement the recommended alteration.</u>	dates and responsibilities.
129.	The requirement for ongoing reporting will be reviewed on the tenth anniversary of solar farm operations as part of the Technical Review Panel's determination on any requirement for ecological compensation and may be discontinued on the advice of the Technical Review Panel.	
130.		Shifted to Technical Review Panel condition
131.		
Operational General Matters		
132.	The <u>maximum height of the solar panels, when tilted to the maximum angle, is no greater than</u> 2.6 m above ground level.	Improved certainty
133.	Between sunset and sunrise, the panels must be stowed at <u>the greater of</u> an angle of 60 degrees from horizontal, or the maximum stow angle allowed by the selected technology, except where panels are otherwise subject to maintenance activities or in response to inclement weather.	Improved certainty regarding 60 degrees being a minimum angle
134.	All panels installed and used on Site must be coated <u>with an</u> anti-reflective coating.	

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Deleted: The Consent Holder shall must make available an annual financial contribution of \$10,000, with the first three years commitment to be made upfront at the commencement of construction, for the undertaking of applied ecological research designed to improve the knowledge and understanding of effects of solar development in dryland environments, including: ¶ the effects of panel shading and associated microclimatic change on dryland vegetation, Threatened and At Risk plant species, and basking and other open-habitat invertebrates; ¶ the efficacy of salvage, propagation, translocation and relocation of Threatened and At Risk plants and invertebrates; ¶ bird-strike collision rates and mechanisms, and the reliability of the carcass-detection methodologies; and ¶ the ecological gains actually delivered by providing an enhancement area, predator-exclusion fencing and pest control. ¶ The funding will be made available to appropriate research organisations. The funding shall must be administered by a process approved by the Technical Review Panel, and the results or findings of any research must be reported to the Technical Review Panel and be made publicly available.

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135.	Solar panels and array tables must be cleaned with water only. No chemical cleaning agents, detergents or additives may be used.		
136.	All activities on the site, other than emergency service warning devices and sirens, must be designed, conducted and undertaken so as to ensure that the following noise limits are not exceeded at any point within the notional boundary of any noise sensitive activity:		Within the site appears to be an error?
	0700-2200 hours	55 dB LA _{eq} (15 min)	
	2200-0700	45 dB LA _{eq} (15 min)	
	At any time	70 dB LA _{Fmax}	
137.	All transformers and structures on Site other than the photovoltaic surfaces and mounting systems must be finished in the colours Black, Dark Grey, Ebony, Flaxpod, Heritage Green, Ironsand, Karaka, Slate, Tidal Drift, Thunder Grey, Windsor Grey or similar and must meet a maximum reflectance value of 30%. This condition does not apply to any transmission pole and lines, solar panel housing and supporting structures or fencing.		
138.	Outdoor lighting must not be used between the hours of 10:00pm and 6:00am, except where required for emergencies, maintenance, security or for health and safety purposes.		
139.	Security lights must be fitted and controlled with a motion sensor.		
140.	All fixed exterior lighting must be directed away from any adjacent roads and Lake Benmore.		
141.	All outdoor lighting must be shielded from above in such a manner that all the light shines below the horizontal.		
142.	The correlated colour temperature of outdoor lighting must not exceed 3000 K.		
143.	Only light-emitting diode, low pressure sodium and high-pressure sodium light sources must be used for outdoor lighting.		
144.	The maximum level of light spill from outdoor lighting must not exceed the following horizontal or vertical illuminance levels on any adjoining site:		
	2200 to 0600	1 lux	
	0600 to 2200	5 lux	

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145.	The Consent Holder must adopt all reasonable and practicable measures to prevent any dust caused by operations on the site from causing: a) an effect that is noxious, dangerous, offensive or objectionable at or beyond the site; or b) material damage to the National Grid transmission lines which cross the consent area.	
	Operational Management Plan	
146.	<u>At least</u> 20 working days prior to the commencement of the Solar Farm operations <u>(the first generation of electricity)</u> , the Consent Holder must submit to Mackenzie District Council an Operational Management Plan for certification. Certification is required to demonstrate that the Operational Management Plan provides the means to achieve the purpose and matters set out in Condition 147.	Improved certainty Advice note redundant
147.	The purpose of the Operational Management Plan is to provide details on how the solar farm will be managed and operated to avoid, remedy or mitigate adverse operational-related effects on the environment. To achieve this purpose, the plan must include: a) contact details of the Site Manager on a 24 hour, 7 days a week basis; b) provision for Staff and visitor inductions and safety considerations; c) details of site signage; d) access track maintenance; e) details of Site security; f) procedures for panel and infrastructure maintenance and cleaning, including monitoring for panel damage and integrity; g) risk mitigation measures including appropriate disposal and recycling of any damaged panels as e-waste; h) procedures to be followed during and following high wind events of other natural disasters; i) emergency events and site remediation procedures in the event of contaminant discharge (e.g. fire or oil spill); and j) a reinstatement procedure after any electrical equipment is damaged by an emergency event or natural disaster.	

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The Consent Holder must work with Mackenzie District Council to secure certification of the Operational Management Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the Operational Management Plan will occur.

148.	<u>Solar Farm operations may not commence until the Operational Management Plan is certified by the Mackenzie District Council.</u>	Certainty of timing
149.	The Operational Management Plan may be amended at any time. Any amendment must be: a) <u>only for the following purposes:</u> i. improving the efficacy of the management of operational effects; ii. <u>applying best practicable measures to mitigate adverse effects;</u> b) consistent with the conditions of this resource consent; and c) submitted in writing to Mackenzie District Council for certification, prior to any amendment being implemented.	Improved certainty Advice note redundant
150.	The Operational Management Plan must be reviewed annually from the date the Solar Farm becomes operational (unless the requirement for review is waived by Mackenzie District Council). A review is to include assessment of the performance of the practices and procedures specified in the Operational Management Plan. Any amendment required by Mackenzie District Council arising out of this review must be incorporated into the Operational Management Plan <u>within 30 days of the review.</u>	Improved certainty
151.	The Consent Holder must keep a hard copy of the certified Operational Management Plan on Site during the operation of the Solar Farm and the Consent Holder must undertake the <u>activities authorised by this consent</u> in accordance with the certified Operational Management Plan at all times.	
	Emergency Response	
152.	<u>At least 20 working days prior to the commencement of any construction works on the Site,</u> the Consent Holder must prepare an Emergency Response Plan in consultation with Fire and Emergency New Zealand and submit the plan to the Mackenzie District Council for certification. Certification is required to demonstrate that the Emergency Response Plan provides the means to achieve the purpose and matters set out in Condition 153.	Improved certainty Advice note redundant

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Operational Management Plan within 20 working days of their provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Operational Management Plan will occur.

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The Consent Holder must work with Mackenzie District Council to secure certification of the Emergency Response Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the Emergency Response Plan will occur.

153.	The purpose of the Emergency Response Plan is to outline the methods and management procedures to be implemented on Site so as to avoid or minimise health and safety and fire risks on site throughout the life of the solar farm. To achieve this purpose, the plan must include: a) details of construction and operational activities occurring on the site; b) a description of the facilities including infrastructure details, site access(es), internal roads, provisions for and location of an onsite firefighting water supply; c) detail of operational risk management measures and procedures, including monitoring of alarms and faults and the management of vegetation; d) identification of foreseeable on-site and off-site fire events and other emergency risks that could occur at the facility (e.g. fires involving solar panel arrays, bushfires in the immediate vicinity or potential hazardous materials incidents); e) details of appropriate risk control measures to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards) from the events identified in (d) above; f) other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site; g) provision for on-site meeting(s) with Fire and Emergency New Zealand staff to familiarise emergency crews with the site and the Emergency Response Plan; and h) a procedure for a site representative to be available to attend whenever Fire and Emergency New Zealand are alerted to a fire at the site.	
154.	Prior to submitting the Emergency Response Plan to Mackenzie District Council, the draft Emergency Response Plan must be provided to Fire and Emergency New Zealand with an invitation to provide feedback within 10 working days. The Consent Holder must ensure that all written feedback on the draft Emergency Response Plan received from Fire and Emergency New Zealand within the 10 working day timeframe is provided to the Mackenzie District Council when submitted for certification. This must include a clear explanation of how each comment on the draft Emergency Response Plan has either been addressed or excluded.	
155.	<u>Construction works on the solar farm may not commence until the Emergency Response Plan has been certified by the Mackenzie District Council.</u>	Certainty of timing

156.	The Emergency Response Plan may be amended at any time. Any amendments must be: a) made in consultation with Fire and Emergency NZ; b) <u>only</u> for the <u>following</u> purposes: i. improving the efficacy of the Emergency Response Plan and management of risks; ii. <u>applying</u> best practicable measures; c) consistent with the conditions of this resource consent; and d) submitted in writing to the Mackenzie District Council for certification prior to any amendment being implemented.	Improved certainty Advice note redundant
157.	The Consent Holder must undertake the <u>activities authorised by this consent</u> in accordance with the certified Emergency Response Plan at all times.	Improved certainty
158.	During the operation of the Solar Farm, the following equipment must be monitored at all times by a remote central control room for the purposes of monitoring equipment faults and potential fires: a) electrical equipment; b) fault monitoring detection system(s); and c) CCTV system(s) that monitors the key components of the Solar Farm.	
159.	During the operation of the Solar Farm, the Control SCADA Control Building must be monitored at all times by an automatic fire detection and alarm system incorporating automatic notification to Fire and Emergency New Zealand.	
160.	The substation <u>must</u> be designed and operated to meet Transpower's "Substation Fire Mitigation Design Standard" (Transpower Reference TP.DS 61.06).	
161.	The <u>Consent Holder</u> must, in consultation with Meridian Energy Limited, prepare, implement and maintain a current Emergency Hydro Inundation Response and Evacuation Plan for that part of the site subject to the Hydro Inundation Hazard Overlay in the Operative Mackenzie District Plan (or such replacement) for the purposes of minimising the risk to life and property (including assets) that may arise from the uncontrolled release of water from the Waitaki Power Scheme. The Emergency Hydro Inundation	

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The Consent Holder must work with Mackenzie District Council to secure certification of the amended Emergency Response Plan within 20 working days of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Emergency Response Plan will occur.

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	Response and Evacuation Plan must be provided to Mackenzie District Council prior to construction beginning on the site, and any subsequent updates of that Plan must be provided within 3 months of an update being finalised.	
162.		Redundant, as addressed by other legislation
	Decommissioning	
163.	At least 12 months prior to the decommissioning of the Solar Farm, the Consent Holder must provide written notice to Mackenzie District Council and the Kaitiaki Governance Group <u>and the Technical Review Panel</u> of the intended commencement of decommissioning of the Solar Farm.	More realistic timing
164.	At least three months prior to the decommissioning of the Solar Farm, the Consent Holder must submit a Decommissioning Management Plan prepared by a suitably qualified and experienced person to Mackenzie District Council for certification. Certification is required to demonstrate that the Decommissioning Management Plan provides the means to achieve the purpose and matters set out in Condition 165.	Advice note redundant
165.	The purpose of the Decommissioning Management Plan is to outline the methods and management procedures to be implemented on Site so as to avoid, remedy or mitigate adverse decommissioning-related effects on the environment. To achieve this purpose, the plan must include: a) details on all infrastructure to be decommissioned and specific infrastructure to remain on-site post-closure (if any) and, if so, reasons why it will remain on site; b) scheduling and timing for decommissioning; c) identification of management procedures to deal with any potential effects of decommissioning activity on the environment; d) identification of any remaining ecological management obligations and details of how those will be addressed <u>and funded after decommissioning</u>;	

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The Consent Holder must work with Mackenzie District Council to secure certification of the Decommissioning Management Plan within three months of its provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the Decommissioning Management Plan will occur.

	e) details of waste management and minimisation of material removed from the site; f) details of how decommissioning-related traffic is to be managed; g) information to demonstrate that decommissioning activities undertaken on the site will meet the safe distances within the New Zealand Electrical Code of Practice for Electrical Safe Distances 2001 (NZECP 34: 2001) or any subsequent revision of the code, including: i. an outline of the methods and management procedures to be implemented on site so that works near the National Grid are undertaken safely and potential adverse effects on the National Grid assets are appropriately managed; and ii. protocols to ensure that existing transmission lines and support structures will remain accessible during and after decommissioning activities; h) any ongoing ecological enhancement measures; and i) details for finished ground cover at completion of decommission and future intended land use.	
166.	Prior to submitting the Decommissioning Management Plan to Mackenzie District Council, a copy of the draft Decommissioning Management Plan must be provided to Transpower NZ Ltd, with an invitation to provide feedback within 10 working days. The Consent Holder must ensure that all written feedback on the draft Decommissioning Management Plan received from Transpower NZ Ltd within the 10 working day timeframe is provided to the Councils when submitted for certification, along with a clear explanation of where any comment made on the draft Decommissioning Management Plan has or has not been incorporated into the Decommissioning Management Plan and, if not incorporated, the reasons why.	
167.	Decommissioning of the Solar Farm may not commence until the Decommissioning Management Plan has been certified by the Mackenzie District Council.	Certainty of timing
168.	The Decommissioning Management Plan may be amended <u>at any time. Any amendments must be:</u> <u>a) Only for the following purposes:</u> i. improving the efficacy of the management of Decommissioning effects-related management activities; ii. <u>applying best practicable measures to mitigate adverse effects;</u>	Improved certainty
		Advice note
		redundant

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	b) consistent with the conditions of this resource consent; and c) submitted in writing to the Mackenzie District Council for certification, prior to any amendment being implemented.	
169.	The Consent Holder must undertake the decommissioning in accordance with the certified Decommissioning Management Plan.	Improved certainty
170.	No more than 15 working days following completion of decommissioning works on the site, the Consent Holder must provide a Detailed Site Investigation to Mackenzie District Council for certification. The Detailed Site Investigation must be prepared in accordance with the current edition of the Contaminated Land Management Guidelines No.1 as prepared by the Ministry for the Environment.	
171.	In the event that the Detailed Site Investigation finds that contamination exceeds the applicable standards of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, a Remediation Action Plan and Site Validation Plan must be prepared in accordance with the current edition of the Contaminated Land Management Guidelines (editions 1 and 5). If required, the Remediation Action Plan and Site Validation Plan must be provided to the Mackenzie District Council for certification within 15 working days of the submission of the Detailed Site Investigation.	Advice note redundant
Review		
172.	The Mackenzie District Council may, under section 128 of the Resource Management Act 1991, initiate a review of any or all conditions of this resource consent annually in the month of the anniversary of the commencement of the consent, for the duration of the resource consent. Any such review of conditions must be for the purposes of: a) responding to any adverse effect on the environment which may arise from the exercise of the consent and which it is most appropriate to deal with at a later stage; b) dealing with any unanticipated adverse effects on the environment which may arise from the exercise of the consent, which it is appropriate to deal with at a later stage;	Improved certainty

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The Consent Holder must work with Mackenzie District Council to secure certification of any amended Decommissioning Plan within 20 working days of their provision or alternatively confirm with Mackenzie District Council a timeframe for which certification of the amended Decommissioning Plan will occur

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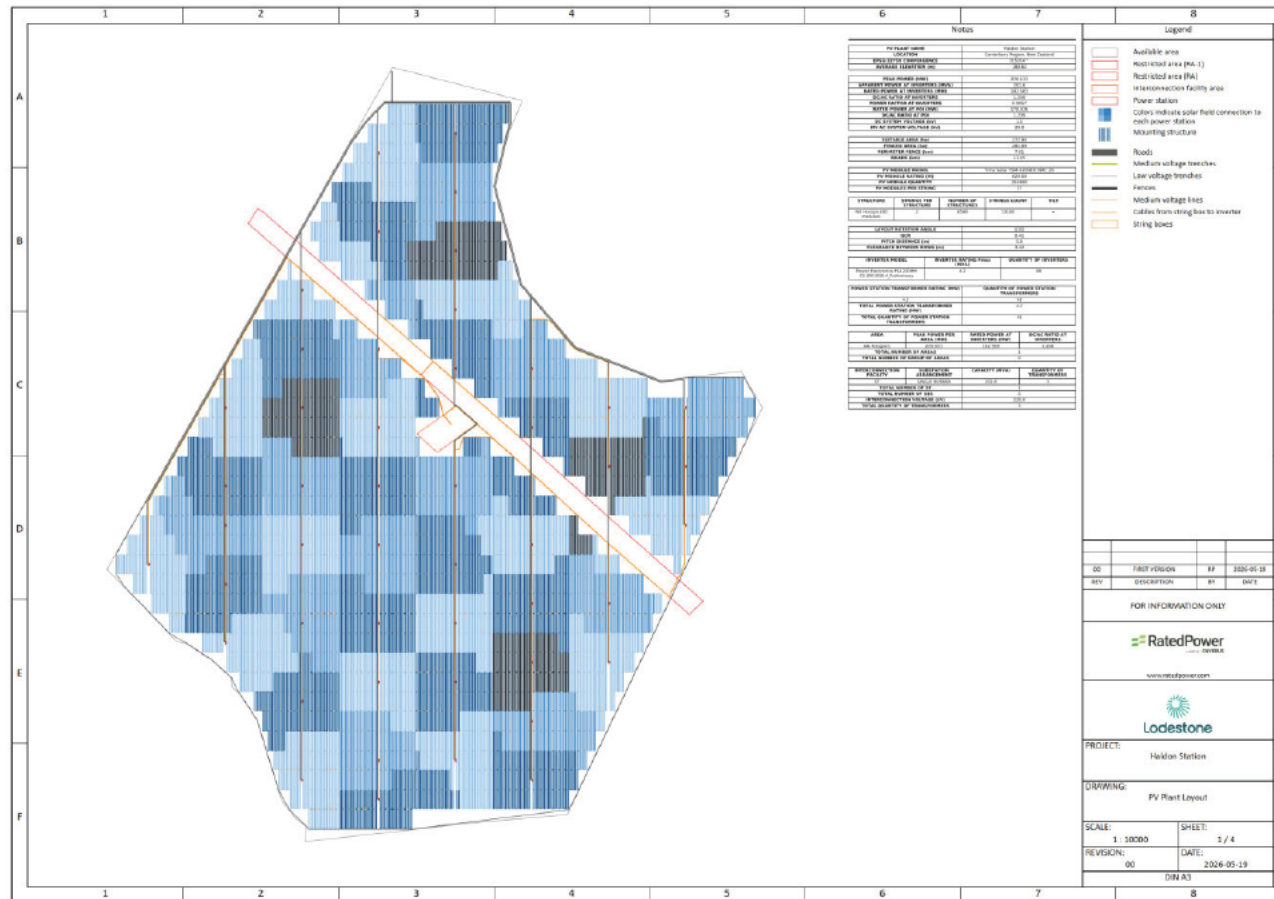
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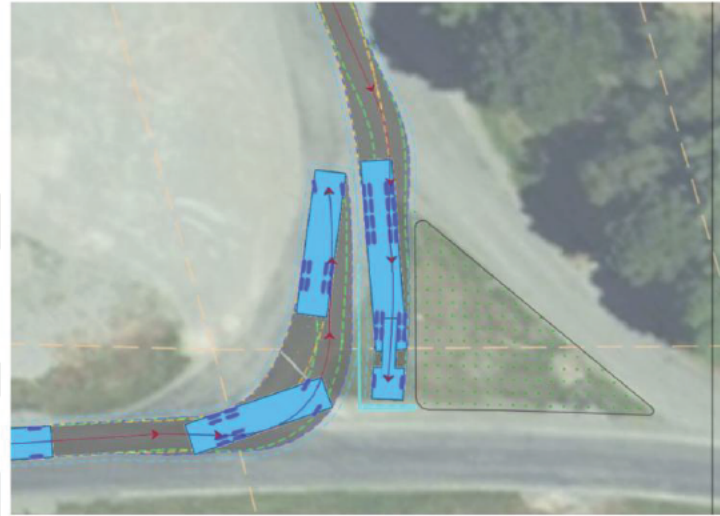
For the avoidance of doubt, the Remediation Action Plan is to be prepared in accordance with the relevant guidelines and requirements as set out by the Ministry for the Environment.

	c) reviewing whether or not any additional avoidance, remediation, mitigation, offset or compensation measures are required to address any adverse effects that Mackenzie District Council consider are not adequately addressed through implementation of the relevant conditions; d) <u>responding to any failures to meet monitoring requirements;</u> e) responding to any effects detected by the bird collision monitoring <u>including additional responses if bird fatalities exceed those listed in Condition 121</u>; or f) ensuring that the conditions are effective and appropriate in managing the effects of the activities authorised by these consents.	
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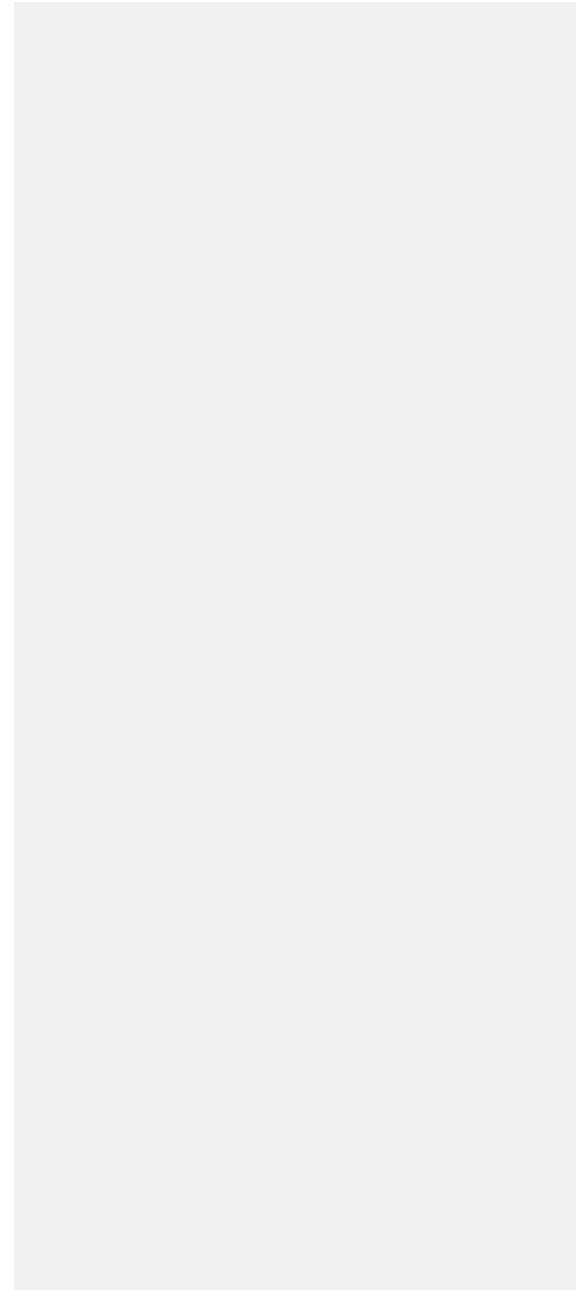
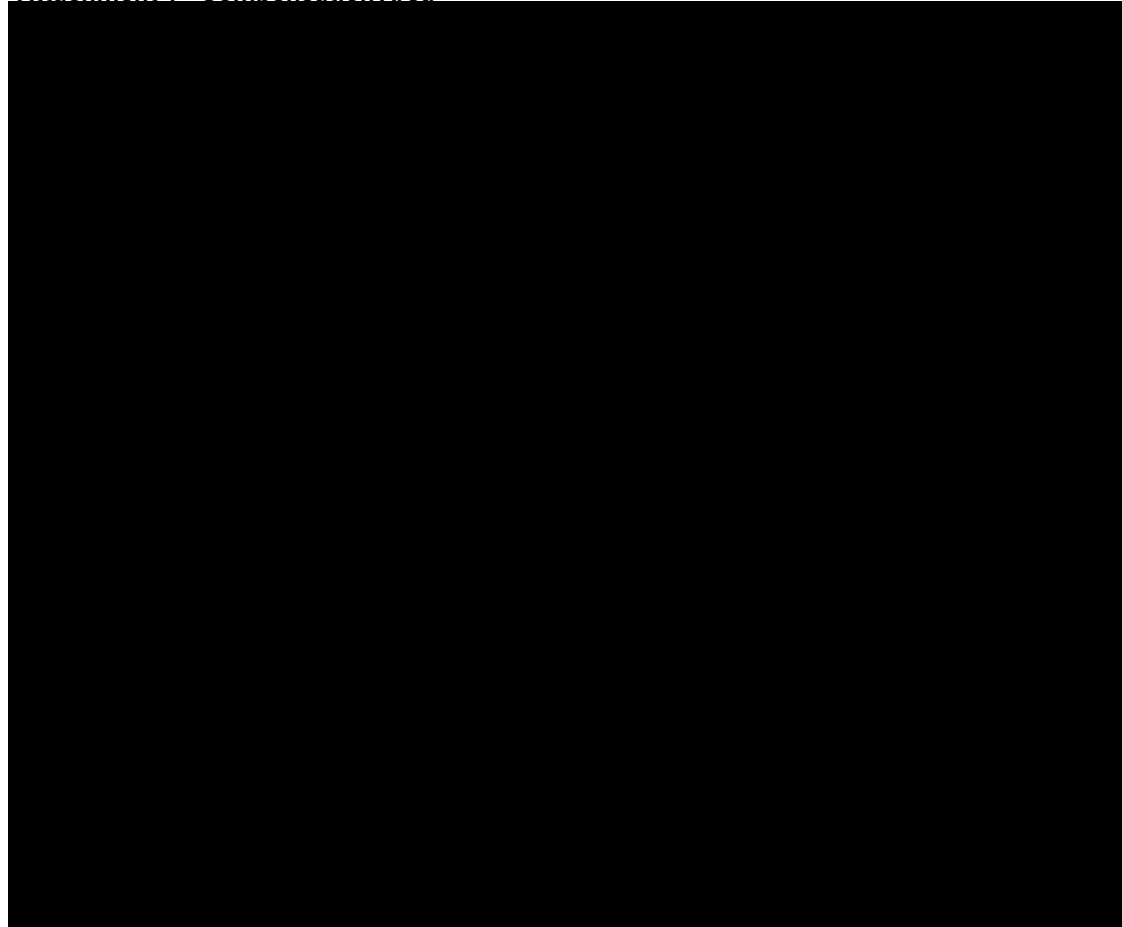
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Attachment 1 – General Site Design Layout

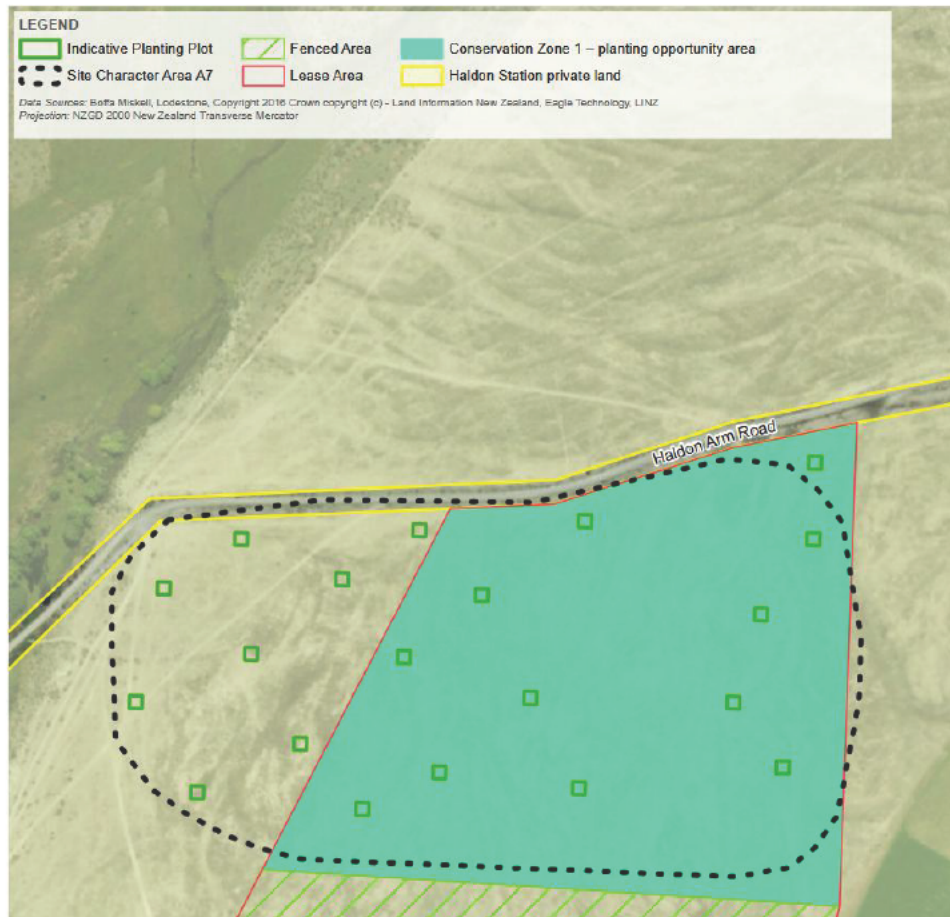


Attachment 2 – SH8 (Dog Kennel Corner) Indicative Works

Attachment 4 – Compensation Area



Attachment 5 - Landscape Planting for Conservation Area 1



Attachment 6 – List of application documents

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