

In the matter of an application for approvals under the Fast Track Approvals Act 2024 for the Barrytown Minerals Project – Southern Block [FTAA-2605-1238]

By **Tāiko Critical Minerals Limited**

Applicant

**Reply Statement of Evidence of Dr Gary Neil Bramley in relation to
Section 51 Report and terrestrial ecology**

5 October 2026

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Introduction

- 1 My name is Dr Gary Neil Bramley.
- 2 I provided a statement of evidence dated 24 March 2026, which outlines my experience at paragraphs 3-8.
- 3 I reconfirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing this reply to the Section 51 Report for the Wildlife Authority and comments.

Section 51 Report – Wildlife Approval Report

- 4 I was involved in the preparation of the [Wildlife Act Authorisation Technical Report](#) and provided advice for the Wildlife Act Approval Conditions [Appendix P2](#) for the Barrytown Minerals Project – Southern Block (**Project**). I have been supervising seasonal bird surveys and other ecological surveys on the Barrytown Flats since 2021 when I undertook the first site visit for the Coates' Block proposal to the north. I have visited the Barrytown area several times since then.
- 5 I have reviewed the Department of Conservation (**DOC**) section 51 wildlife approval report dated September 2026 (**Section 51 Report**) regarding the wildlife approvals for lizards and avifauna and the associated Statement of Advice of Dr Elizabeth Parlato and Ms Jacqueline Wairepo dated 10 September 2026 regarding avifauna and lizards respectively. I have also reviewed the section 53 submissions (**Section 53 Submissions**) prepared by the Department of Conservation (including the relevant appendices relating to lizards, avifauna and wetlands prepared by Dr Parlato, Ms Wairepo and Mr Roland Payne respectively), the Royal Forest and Bird Protection Society (**Forest and Bird**), including the appendix relating to avifauna prepared by Dr Susan Micol, the Westland Petrel Conservation Trust (**WPCT**) and Coast Road Resilience Group (**CRRG**).
- 6 The Section 51 Report and the Section 53 Submissions traverse many of the same matters and the DOC submission states that it has not taken account of the response to the Section 51 Report because the relevant experts have not yet reviewed the updated documents (particularly the revised Lizard Management Plan (**LMP**) and Avian Management Plan (**AMP**)), which I have attached to this evidence. In this evidence, I address those matters raised in the Section 53 Submissions, but note that the comments also apply to the Section 51 Report and matters raised in Dr Parlato's advice therein. Dr Parlato has based her assessment on the information provided and other publicly available information.

- 7 The concerns raised by the Department relate mostly to the draft proposed resource consent conditions (rather than the Wildlife Act Authority special conditions) and the actions set out in the relevant management plans.
- 8 This evidence responds to the following matters in relation to lizards:
 - (a) Baseline survey;
 - (b) Survey and salvage programme; and
 - (c) Proposed release strategy.
- 9 This evidence responds to the following matters in relation to avifauna:
 - (a) Potentially affected avifauna;
 - (b) Reliance on nesting deterrence;
 - (c) Risk of protected species mortality;
 - (d) Targeted searching;
 - (e) Wetlands as habitat;
 - (f) Development and review of avifauna management plans; and
 - (g) Activities requiring approvals.
- 10 This evidence responds to the following matters in relation to wetlands:
 - (a) Classification of wetlands;
 - (b) Application of the effects management hierarchy;
 - (c) Use of a Biodiversity Offset Accounting Model;
 - (d) Wetland compensation.
- 11 Amendments have been incorporated into the Resource Consent Conditions and Wildlife Approval Conditions, including in response to the Section 51 Report.

Lizards

Baseline survey

- 12 The Section 51 Report correctly states that no baseline lizard survey has yet been undertaken and concludes that the presence, abundance and

distribution of lizards within the project area remain uncertain.¹ This conclusion has been carried through to the DOC Section 53 Submission.

- 13 This approach has been deliberately adopted because the majority of the Project Site is an active farm², and as such, areas of potential habitat, particularly for grass skink (including rank grass, debris piles and the like) are not fixed in location and will likely change (move location, increase or decrease in size and shape) before mining commences. Given the length of time (years) proposed for mining, the large size of the site and the continuation of the current land use, the draft proposed conditions and the draft LMP provide for survey to occur at the time it is needed (immediately prior to mining commencing) in order to ensure that the Site conditions and lizard abundance at that time are taken into account in planning for salvage and relocation. The same considerations apply to conditions at the relocation site(s), although these are less likely to change.
- 14 The DOC Section 53 Submission (and the prior Section 51 Report) correctly states that reference to the Canterbury grass skink in the Ecological Impact Assessment and draft LMP should instead refer to the northern grass skink. This has been amended in the draft LMP.
- 15 The DOC Section 53 Submission refers to significant uncertainty with respect to the effects of the proposal on lizards and the adequacy of the proposed mitigation measures. I agree that there is uncertainty with respect to the effects of the proposal, for the reasons I have set out above, but this uncertainty has been addressed via the draft proposed conditions which require the preparation and implementation of an LMP, which provides for baseline survey and best practice lizard salvage and relocation, as well as the Special Conditions associated with the Wildlife Act Approval (particularly condition 3) which requires the LMP to deploy current best practice as set by DOC. There is nothing more that could practically be done which would make a material difference to lizard protection.

Survey and salvage programme

- 16 The Section 53 Submission states that the proposed methods and survey efforts are not adequately designed to detect or capture West Coast green gecko (*Naultinus tuberculatus*; Threatened - Nationally Vulnerable).
- 17 Because of the lack of arboreal habitat within the Project Site and the small, isolated and highly fragmented nature of the secondary vegetation within

¹ Department of Conservation Section 51(2)(c) wildlife approval report for – FTAA-2605-1238 Barrytown Minerals Project, dated September 2026 (**Section 51 Report**) at [3.1].

² 98% has been measured by TCM as grazed pasture.

the pastoral landscape, the presence of West Coast green gecko is considered unlikely. Nonetheless, the approach of identifying potential habitat and undertaking surveys closer to the commencement of mining does not preclude undertaking surveys for gecko (e.g., using spotlighting or similar techniques) if suitable habitat is present. The LMP provides for this possibility.

- 18 Ms Wairepo also made a number of recommendations on survey and salvage methods (paragraph 27 of her advice), including a minimum of five trapping days with a contingency to continue trapping where lizards are still being caught on the final day, checking artificial cover objects on alternate days, and specifying the time of day for checks. She also noted that the Westland form of Newman's speckled skink is 'At Risk – Declining' rather than 'Threatened – Nationally Vulnerable' (paragraph 18). These recommendations have been incorporated into the revised LMP.

Proposed release strategy

- 19 The Section 53 Submission considers that the proposed release strategy is insufficiently developed because no information is provided with respect lizard abundance and because no pest animal control is proposed at the release site.
- 20 As set out above, the absence of data at this stage reflects the proposed future sequencing of works rather than any deficiency in the lizard management framework. As explained in the Wildlife Act Authorisation Technical Report, systematic lizard surveys will be undertaken prior to vegetation clearance in order to confirm species presence and any species-specific management requirements, with all captured lizards subsequently relocated to approved release sites. The proposed release sites have been updated to include Canoe Creek as recommended by the Department of Conservation in their Section 51 Report.
- 21 Ms Wairepo recommends predator control at the lizard release site, including control of mice (paragraphs 28 and 36). Pest control of the type required to specifically protect lizards (i.e., rats, mice and weka) is not proposed, but provision of habitat which provides refuge from predators is provided for in order to reduce predation risk.
- 22 I have not recommended pest control because achieving the level of pest control sufficient to protect lizards is practically very difficult to achieve and also difficult to verify at a location such as the Site for at least five reasons:

- (a) Suppression programmes typically use grids of about 10–25m for mice, e.g., the Port Hills skink study³ used 10m spacing in the core habitat. That equates to roughly 16–100 stations per hectare which must be continuously supplied with toxin.
- (b) Because of its (relatively) small size in the landscape, the controlled area (the release site) becomes a “sink” which never effectively achieves the very low pest densities required. The release site sits within a matrix of dairy pasture, wetland and riparian habitat that supports pests, including mice. The release site would never achieve sustained low densities of pests unless control is extended over a much larger area to prevent constant reinvasion. The scale of this buffering required grows quickly. By way of illustration, a 5ha release site with a 200m buffer would occupy approximately 33ha. At 25m spacing that is over 500 bait stations. Making the buffer wide enough to actually stop reinvasion increases the area required further.
- (c) There's only very limited evidence that pest control works for lizards at unfenced mainland sites, and similarly limited evidence that sustained suppression is achievable. Even the long-running (>10 years) intensive multi-predator programme at the Port Hills cited above could not achieve effective mouse control. The authors of that study describe landscape-scale mouse control as the “final frontier” of New Zealand predator management. Their recommended solution for ‘Threatened’ lizards was small predator-proof fences, not unfenced control.
- (d) Sustained pest control using toxin can create conflicts with other values. Running a large, permanent toxin operation in habitat used by weka and kiwi, close to the tāiko colonies, and on land with multiple owners (to create sufficient buffer) would create its own adverse effects and approval issues.
- (e) The lizards likely to be affected already persist alongside mice, rats, weka and other lizard predators in this landscape.

In my view, carrying out pest control at the scale and intensity required to prevent reinvasion would be disproportionate.

- 23 Instead, protection of released lizards will rely on releasing them into large, contiguous and suitable habitat at Canoe Creek, Granite Creek and/or the

³ Lettink, M., McClure, C., Crutchley, P., & Kelly, D. (2026). Small-scale, intensive predator control benefits small- but not large-bodied skinks. *New Zealand Journal of Ecology*, 50(1), 3643. <https://doi.org/10.20417/nzj ecol.50.3643>

coastal margin (following habitat assessment to confirm the suitability of the potential locations) and building dense refuges to the specifications of Lennon (2023) and Herbert et al. (2023) which enable lizards to escape from predators.

- 24 To avoid the risk Ms Wairepo identifies of mouse numbers rising, no rat- or mustelid-only control will be undertaken within or adjacent to the lizard release sites.

LMP Review

- 25 The Section 51 Report states that the Lizard Management Plan (**LMP**) should be reviewed and updated every seven-years.⁴
- 26 I agree that the LMP should be regularly reviewed and updated. Given a mine life of 14 years, a review every seven years means it would be updated once during the life of the Project. In practical terms it will need to be updated at least three times (once at the beginning of each mining stage) to account for any changes in lizard habitat in the area to be mined before mining in that stage commences. In my view it makes more practical sense to tie any revision to mining stages rather than a particular time period for that reason. Condition 14.2 relating to the LMP has been amended to address this matter.

Avifauna

Potentially affected protected avifauna

- 27 Dr Parlato and Dr Micol are of the opinion that the proposed mining activities have the potential to affect a wider range of protected avifauna than currently identified in the Avian Management Plan.
- 28 I agree with Dr Micol (Paragraph 26 of her advice) that the birds identified at the Barrytown flats are all mobile species, and if detected at one site within the wider Barrytown flats area would likely occur at another site within the wider flats area, provided that the habitat there was suitable.
- 29 One of the reasons I have proposed, and Tāiko Critical Minerals have accepted, seasonal bird surveys, is to build information about the bird community present and inform future management. Dr Parlato specifically identifies bittern, marsh crake and pipit as species likely to be present and detected within 10km of the Site historically. Dr Micol identifies a longer list of species, many of which have been detected at sites further north.

⁴ Section 51 Report at [6.5.12].

- 30 We commenced seasonal bird surveys at Barrytown in April 2022. Since then, we have undertaken seasonal surveys at three locations, listed from north to south:
- (a) Burke Rd. 15 five-minute bird count (5MBC) stations and seven acoustic recorders (ARs), including the raupō pond wetland habitat. Burke Road sites were surveyed seven times between January 2024 and January 2026.
 - (b) The already consented central block (Coates block). 15 5MBC stations and 6 ARs, covering grassland, flaxland and the lagoon environs. Surveys at that location have included specific acoustic surveys for bitterns on two occasions, noting that the coastal noise makes bittern detection difficult.
 - (c) Barrytown South (the Site of the current application). 22 5MBC stations and 13–14 ARs. Surveys began in this area in 2024.
- 31 The 5MBCs are daytime counts. The ARs ran overnight for typically around 12.5 hours over 10–12 nights per survey.
- 32 The Coates' Block adjoins high-quality wetland habitat of the type favoured by bittern and marsh crake. Maher Swamp further north also includes high-quality bittern and marsh crake habitat.
- 33 To date the species identified by Dr Micol as likely to be using the wetlands at the Site (dotterel, spoonbill, kotuku, mātātā, koekoeā and Caspian tern) have only been recorded at the northern sites (principally near the lagoon). No bittern or marsh crake have been recorded to date in any of the surveys. Whilst I agree that these species are mobile, the wetland habitat at the Project Site provides much lower quality habitat for wetland birds, including bittern and marsh crake. It is possible these birds visit the Southern Block occasionally, but it would not provide breeding habitat. Canoe Creek lagoon is north of the Site and would not be affected.
- 34 On that basis, any effects on wetland birds would be limited to disturbance and resettlement, and short-term habitat removal, rather than injury or mortality of eggs, chicks or adults. Given the relatively small footprint and slow progress of the mining activities and that mining starts in the north (where there is no suitable habitat for bittern, marsh crake or pipit) before moving south after new wetland habitat is created, I remain of the opinion that these species would not be materially affected. In the event that additional species that would require management are detected during monitoring, then species-specific management would be developed in

consultation with the Department of Conservation and added to the Avian Management Plan.

- 35 Over a similar time period, we have been also been undertaking seasonal bird surveys further north for Westland Mineral Sands at their Cape Foulwind site. At that location we have intermittently detected crake several times in high-quality wetlands which adjoin that site. These intermittent records are why long-term seasonal monitoring is so valuable in informing species management.
- 36 Oystercatchers and gulls have been recorded at the Barrytown Site, and are likely to use the paddocks and freshly created bare soil. Deterrence is proposed for that reason.
- 37 Dr Parlato expresses the view (in paragraph 60 of her advice) that the impacts are uncertain because no estimate of the number of birds affected is provided. Where birds are territorial (i.e., occupy a fixed home range which they defend from conspecifics and sometimes other species to secure essential resources (e.g. roroa/great spotted kiwi) or otherwise site attached (e.g., to burrows), it is both possible and relatively easy to determine the number of individuals present in a particular area, although such estimates are usually an underestimate for various reasons. Furthermore, the number of such individuals can remain relatively stable over the medium – long term. Where birds are not territorial or site attached, but rather socially tolerant and flock together, nest colonially or move across the landscape collectively in response to resources, the number of birds present can vary substantially at a range of spatial and temporal scales (daily, monthly, seasonally or annually) depending on the habitat available and how that changes over time.
- 38 The commencement of mining will change the habitat at the site, in particular creating more bare soil as removal of pasture occurs. It is impossible to predict how many birds will be present when mining starts and how many more will be attracted to the bare soil for feeding and possibly nesting. Many of the birds which would be attracted to such habitat (gulls, dotterels and the like) are socially tolerant and can reach high densities under the right conditions. That is not to say that they would necessarily be directly adversely affected, because they are also highly mobile and free to move. Estimating the number of affected individuals of such species is meaningless.

Reliance on Nesting Deterrence

- 39 Dr Parlato's view is that the effectiveness of the management of breeding birds is highly uncertain.⁵ Dr Parlato has recommended more frequent surveys/walk-overs between the start of breeding (or 14 September, whichever is earliest) and 31 January.
- 40 The proposed management of breeding birds relies on deterrence of birds prospecting for nests in the area to be mined in the first instance (to encourage them to nest elsewhere) and then detections of nesting behaviour and nests and monitoring of those until either chicks are fledged or they fail. It is not proposed to implement buffers around all new nests detected to protect them. Thus, the management is very reliant on deterrence. Deterrence as a management approach was developed by Waka Kotahi (New Zealand Transport Agency), particularly for management of dotterel during road construction.
- 41 A combination of habitat management (e.g., to make it unsuitable via grazing or mowing) and deterrence (in the forms proposed in the draft AMP including grazing, disruptive walk overs, use of machinery and the like) represents the best chance of deterring birds and increasing the frequency and variety of deterrence methods is more likely to be effective than relying on any one method over a prolonged period. Experience at other sites suggests that deterrence is not completely effective, probably because individuals vary in their sensitivity to the deterrents proposed and some individuals can habituate to them quickly, nonetheless, if properly applied deterrents can be effective in the short term (days to a small number of weeks), which can be enough when birds are prospecting for nests, to make them choose somewhere else. The timing of surveys (fortnightly until breeding commences and then weekly) is intended to be frequent enough to detect any early-stage nests without necessarily accurately ascertaining the date nesting commences. Twice weekly monitoring of nests is proposed to detect failures quickly. Together these surveys are sufficient in my view to inform bird management at the Site.
- 42 Dr Micol (paragraphs 65–67 of her advice) considers that deterrence is itself an adverse effect, because its purpose is to displace birds from potential nest sites. I accept that deterrence is intended to cause birds to nest elsewhere. However, the alternative is that birds nest in the path of mining, where the risk to eggs and chicks is much greater. Birds deterred while prospecting for a nest site, before eggs are laid, can readily nest in the abundant similar habitat outside the area to be mined, which is limited to 16

⁵ Section 53 Submissions at [5.2]; and Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [30] and [33].

ha at any one time. In my view the temporary displacement of prospecting birds is a much lesser effect than the loss of nests, and deterrence is the appropriate means of avoiding nest mortality.

Risk of protected species mortality

- 43 The Section 51 Report identifies a risk of protected species mortality associated with the mining activities because there is no protection proposed for nests of Threatened or At-Risk species located where the mining activity will reach before the chicks fledge.⁶
- 44 Currently the land operates as a farm with regular grazing by large heavy mammals (cows) and use of tractors and other farm machinery. There is currently no protection from these activities destroying nests of birds that choose to nest in the pasture. As noted above, the management approach relies on habitat modification and deterrence. There is abundant similar habitat either outside the area to be mined (for pasture, shrubland and forest nesting species) or on adjacent Pakiroa Beach (for species that nest on bare ground). The draft AMP sets out the methods proposed to encourage birds to use those other habitats in preference to the area to be mined. Any nests detected outside of the mine path would be protected via a setback of activities until they either fail or fledge young. On that basis, the risk of additional protected species mortality is low, although it cannot be entirely eliminated (see the discussion of activities requiring approvals below).
- 45 Dr Micol suggests in paragraph 70 of her advice that no go zones of up to 500m might be required to protect species which nest at the Site. Given the high level of frequent disturbance at the Site, which is a functioning dairy farm, any species so sensitive that they would require 500m separation distance would have already relocated to a more suitable habitat. Dr Micol also refers to the 50m nest buffer required by the Central Block conditions. Noting that the mining method at the Central Block is different, the AMP provides for a 'no go' zone of approximately 20m around nests where these are outside the mine path. In my view 20m is appropriate for the species likely to nest within a working farm, which are tolerant of regular disturbance.
- 46 Mr Brass (DOC Submission Appendix E, paragraphs 48–51) notes that, while the conditions and AMP provide for deterrence and protecting nests that can be left in situ, they do not address circumstances where a nest

⁶ Section 51 Report at [3.9]; and Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [38]–[39] and [41].

cannot be left in situ, and that the effect of destroying nests has not been assessed in the EEA.

- 47 I accept that this effect was not expressly articulated. In my opinion, the likelihood of an active nest being present in the path of mining is low. Detection surveys cover the whole of the area to be mined in each breeding season, which is identified in advance in the Annual Work Plan. Deterrence is concentrated in that area, and the active mining area is limited to 16ha at any one time. A similar condition applies at Westland Mineral Sands Nine Mile site where no nesting birds had been detected in the area to be mined prior to their going into care and maintenance.
- 48 The species most likely to attempt to nest in pasture or freshly disturbed ground are 'At Risk' species (banded dotterel, South Island pied and variable oystercatchers, red-billed gull and pipit). None of the 'Threatened' species recorded or likely to be using the area nests in that type of habitat. Loss of a clutch would affect a single breeding attempt by one pair, and these species often nest in risky situations and commonly re-lay after an early-season loss. In my opinion, the magnitude of the effect on the populations of those species would therefore be low.
- 49 Despite the risks being low, for reasons set out above, this approach is consistent with the application for incidental killing of protected birds under the Wildlife Approval and this has been sought as per the Section 51 Report.

Effects of Lighting and Targeted Searching

- 50 The Section 51 Report and Dr Parlato contend that targeted ground searches for grounded Westland petrel in areas subject to lighting, and their surrounds, should be required on nights where artificial lighting is used.⁷ Dr Micol discusses effects of lighting beginning at paragraph 48 of her advice.
- 51 The CRRG have commissioned a lighting expert (Mr Geddis) whose report relates to lighting principles.
- 52 To prepare a detailed design Mr Geddis states at 5.2 that he requires a site plan and information showing the mine areas, processing plant, workshops, offices, roads and the like.
- 53 The reason no design has been provided is because this application is for the Southern Block, which is a daylight operation. No fixed lighting or floodlighting is proposed for the mining activities. The only artificial light that

⁷ Section 51 Report at [6.9.12]; and Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [35].

could be used at night is portable task lighting (such as a head torch or hand-held torch) carried by a staff member attending to an unplanned equipment breakdown, together with the headlights of a vehicle driving to and from the location of the breakdown. There is no lighting installation for a lighting design or lighting management plan to address, and in my view requiring one would be more onerous than necessary.

- 54 The Wet Concentrator Plant (WCP) and loadout area would be the source of lighting at night. Outdoor lighting at these areas is required to comply with the Australian Government's National Light Pollution Guidelines for Wildlife (May 2023 or subsequent revision), but this does not form part of this application. I understand that the Applicant has committed to preparing a lighting report for the Southern Block WCP (with DOC outside of this process). Mr Geddis' report is informative and TCM has indicated they will consider the contents as part of that process outside of this Fast Track consent.
- 55 As set out in the Wildlife Act Authorisation Technical Report the mining activities will occur during daylight hours, with artificial lighting only used in limited circumstances for health and safety reasons, such as equipment breakdowns or emergency repair works. Light from a head torch or dipped vehicle headlights used briefly for an emergency repair is of a very different scale and duration from the fixed, elevated lighting associated with documented tāiko groundings, such as streetlights and buildings. Nonetheless, the AMP requires vehicle headlights to be dipped at all times and vehicle speeds within the Site not to exceed 15 km/hour, and also requires any lighting to comply with the Australian Government's National Light Pollution Guidelines for Wildlife (May 2023 or subsequent revision). The most recent revision of the Guidelines referred to by WPCT will therefore apply.
- 56 The draft proposed conditions (particularly condition 13.3) have been amended to provide for increased ground searching for grounded seabirds to address Dr Parlato's concerns.

Response to grounded tāiko

- 57 Dr Parlato (paragraph 45 of her advice), Dr Micol (paragraphs 53–58) and WPCT (paragraphs 71–73) each comment on the response required if a grounded tāiko is found. Dr Parlato recommends that a lighting audit be completed within 20 working days, and that activities involving artificial lighting cease if more than one grounding occurs within a three-month period. Dr Micol recommends that mining cease if one or more tāiko are found in any calendar year, applied cumulatively across all mining

operations on the Barrytown Flats. WPCT considers that night operations should cease from the first grounding.

- 58 Section 5.3 of the AMP already requires a lighting audit to be completed within 20 working days of the detection of a dead tāiko, and requires the use of external lights at the dredge pond to cease if a second bird is found within four weeks of the first. I recommend that the same 20 working day timeframe apply to the audit following a live grounding, and that the audit be undertaken in consultation with the Department of Conservation.
- 59 Because the Southern Block activities do not involve night-time operations, a trigger requiring night operations to cease has little practical effect for this application beyond the occasional emergency repair described above.
- 60 I do not consider that a trigger applied cumulatively across all mining operations on the Barrytown Flats, as Dr Micol proposes, is workable. The WCP and the Central Block operate under separate consents with their own conditions, and a condition on this approval cannot control activities authorised by those consents. A grounding near the WCP is more likely to be attributable to the WCP than to daytime mining in the Southern Block. In my view, any trigger should apply to groundings attributable to the activities authorised by this approval.
- 61 In my view effects on tāiko are avoided with respect to this application, and I do not consider any cumulative impact arises in relation to the other activities.

Wetland habitat

- 62 Dr Parlato raises concerns relating to the uncertainty regarding the timing of wetland habitat loss and reinstatement. Dr Parlato recommends that existing wetlands within the section to be mined are protected or maintained until at least the same area of the constructed wetland has reached its functioning state.⁸ The wetlands are identified in Figure 1 (page 13) of DOC's Section 53 comments.
- 63 The Project has been specifically designed to progressively rehabilitate mined areas and establish substantial new wetland habitat as mining advances. Mine staging involves mining north of Granite Creek first and mining would be completed there in Year 7. There are no wetlands north of Granite Creek that would provide high-quality habitat for wildlife, but construction of wetlands begins immediately following mining in years 1 and 2 in the area adjacent to (north of) Granite Creek. Removal of wetlands

⁸ Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [52].

south of Granite Creek would occur in Years 8 – 11, with construction of additional wetland occurring then. The best wetland habitats for fauna are located south of Granite Creek. The areas of wetland created as mining commences will have had at least five years to develop before removal of wetlands south of Granite Creek. I consider that protection of wetlands north of Granite Creek is neither necessary nor practicable given the nature of the staged mining operation.

- 64 DOC (section 53 comments, paragraph 9.4 and Figure 1) has identified specific wetlands for temporary protection under draft condition 7.6. In my view this protection is unnecessary, but I note that Tāiko Critical Minerals has accepted this approach.

General Assessment, development and review of avifauna management plans

- 65 Dr Parlato (in paragraph 30 of her evidence) and Dr Micol (beginning at paragraph 38) do not consider the AMP sufficiently addresses the effects on native bird species. I have addressed these concerns above.
- 66 In relation to the development and review of the AMP, the Section 51 Report notes that Department of Conservation input/consultation is not currently required.⁹ Dr Parlato also recommends that consultation with the Department of Conservation should be included as a requirement in the development of the Penguin Management Plan.¹⁰
- 67 The Department of Conservation had substantial input into the development of wildlife related conditions (particularly those relating to birds) during the consenting of the Coates' Block, noting that the consent conditions are not identical because the proposals are not the same. In addition, the Department of Conservation is having input to this process via the Section 51 Report and Section 53 comments. Changes to the draft AMP and LMP have been made as a result of the feedback received to date. The review of the AMP provides for input from the Department and the amended conditions also provide for input from the Department to revisions of the LMP (see condition 14.2). Notwithstanding this, the Applicant has accepted that ten days prior to submitting all management plans and all amended management plans to the Consent Authority, these will be submitted to the Department of Conservation for comment. Any comment received from the Department will be provided to the Consent Authority when submitted for certification (see Conditions 6.1 and 6.6).

⁹ Section 51 Report at [3.12]; and Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [3(vi)] and [56].

¹⁰ Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [57].

Consistency with the Central Block conditions

- 68 DOC (section 53 comments, paragraph 2.2), Forest and Bird (paragraphs 11–13) and Dr Micol (Appendix One) consider that the proposed avifauna conditions are weaker than those agreed for the Central Block. The Central Block consents authorised mining together with processing, truck loading and transport, and its conditions reflect that combined suite of activities. A number of the Central Block conditions that Dr Micol seeks to carry over relate to the processing plant, loading and trucking, for example windowless buildings, a Lighting Management Plan, cameras around the processing plant and access road, and restrictions on trucking hours. For the Southern Block, those activities form part of the WCP, which is separately consented and is not part of this application.
- 69 Where the Central Block conditions relate to the mining activity itself, the proposed conditions and AMP are largely consistent with them: [the AMP is prepared in consultation with DOC (condition 13.7); annual kororā surveys are undertaken between 1 August and 30 November (AMP section 4.2); penguin fencing is maintained until mining in that section is complete (condition 13.6); wildlife cameras are deployed to detect kororā and tāiko (condition 13.3); and the annual report includes vehicle strikes and the outcome of any grounded or dead tāiko or kororā (condition 13.11).

Activities requiring approvals

- 70 The Section 51 Report and Dr Parlato note that the authorised activities listed in Schedule 1 of the proposed Wildlife Approval conditions do not cover the full suite of activities requiring approvals, including handling of uninjured kororā and killing of protected bird species.¹¹
- 71 With respect to handling of uninjured kororā, the necessity to handle uninjured kororā remains unknown, but given the Department of Conservation's position, it makes sense to include this in the Wildlife Act Approval now in case it should later be required.
- 72 With respect to the killing of protected bird species, I note that the AMP provides for deterring birds from nesting in advance of the mining area, but there is no guarantee that it will be effective. On that basis incidental killing of wildlife may occur and this does form part of the application. Schedule 1 of the proposed Wildlife Approval conditions has been amended to include

¹¹ Section 51 Report at [3.13]; and Statement of Advice of Dr Parlato (Section 53 Submissions, Appendix B) at [3(iii)]; and Section 53 Submissions at [3.1] and [10.2].

the incidental killing of protected bird species and the handling of uninjured kororā.

Other avifauna matters

- 73 Dr Parlato (paragraphs 25, 32 and 58 of her advice) recommends targeted surveys for roroa/great spotted kiwi before mining commences, and a Kiwi Management Plan if kiwi are found to use the Site. Kiwi calls recorded by the acoustic recorders to date are attributed to birds in the forest east of the Site. In my view it is very unlikely that roroa would occupy the open pasture habitats within the mining area. The kororā exclusion fencing would also exclude kiwi from the active mining area.
- 74 Dr Parlato (paragraph 40) notes that no protection is proposed for kororā nests found within the mining area. Section 4.5 of the AMP (Discovery of Nesting Kororā) provides for a 'no go' zone of approximately 20m around any confirmed nest burrow, maintained until the chicks have fledged, and condition 13.5 requires replacement burrows or nest boxes at a 2:1 ratio where burrows are affected. Dr Micol's concern about penguin accessways (paragraph 68) is addressed by condition 13.5(c)(i), which requires existing accessways to be maintained, with any works affecting them limited to April–June, outside the breeding and moult period. The AMP also provides for removal of the fence on the northern side of Cargill Road before works commence in Section 3, as Dr Parlato recommends (paragraph 48).
- 75 Dr Micol (paragraph 75) notes that the effects of noise on birds have not been assessed. Mr Jon Farren has provided estimates of ambient surf noise across the Site and of the reduction in mining noise with distance from the dredge. Surf noise is estimated at 55–65 dB within about 250m of the coast and 45–55dB between about 250m and 900m inland. Mining noise is estimated at 60dB at 100m, 55dB at 200m, 50dB at 350m, 45 dB at 600m and 40dB at 1,000m (1 km). Mining noise will therefore fall to or below the level of the surf within about 100–200m of the dredge near the coast, and within about 200–350 m further inland (up to about 600m in calm sea conditions).
- 76 The area within which mining noise exceeds ambient levels is small, moves with the dredge, and largely coincides with the area being mined or about to be mined, from which birds are being deterred in any case. Masking of bird communication occurs only where noise is at or above natural ambient levels (Caltrans 2016), and birds using the coastal margin already communicate against surf noise of a similar or greater level.
- 77 Mining will occur during daylight hours only, so it will not coincide with the dusk and pre-dawn booming of bittern or the nocturnal activity of kororā and

tāiko on land. The dredge produces continuous noise, which is less likely to disturb birds than impulsive noise. Canoe Creek Lagoon lies approximately 500m from the nearest mining area, and the lagoon at the Coates' Block is approximately 1,140m from the nearest mining area, both near or beyond the distance at which mining noise would exceed the surf. In my opinion, noise from the mining activities is unlikely to have more than minor effects on birds using habitats adjacent to the Site.

- 78 Dr Micol (paragraphs 77 and 88) recommends that monitoring be undertaken by an independent contractor. The AMP requires monitoring to be undertaken, and camera imagery reviewed, by suitably qualified ecologists, with results reported to the Consent Authority and the Department of Conservation weekly or monthly and in an annual report. As with normal consulting practice in New Zealand, the ecologists undertaking the monitoring are engaged by, but independent of, the mining operation.

Conditions

- 79 In paragraph 62 of her advice to the Section 53 Submissions, Dr Parlato recommends a number of changes to the conditions. I respond to each of these below:
- (a) That the conditions be amended to provide improved protection for avifauna within the project area. This matter is addressed above.
 - (b) The annual penguin surveys must be undertaken using a certified conservation/penguin detection dog. I agree that this is the best approach, but there is a shortage of certified dogs and being able to secure one at the time they are needed can be challenging. It is impractical to require a dog be used if it is not available.
 - (c) Requirement to maintain penguin fencing until works within the fenced section are completed. I agree with this amendment in part, noting that it shouldn't create a situation where penguins are forced to use Cargill Road. I have suggested changes to condition 13.6 to that effect.
 - (d) Interactions with wildlife should be reported on a weekly basis from 14 September to 31 January (rather than from 1 November). This would only have merit if the reporting resulted in some type of management change, for example in response to a particular interaction. Outside the period 1 November to 31 January the conditions require monthly reporting and I consider that this is sufficient. Notwithstanding that, I note that Tāiko Critical Minerals

have amended the conditions to report on the basis Dr Parlato recommends and I have carried this through to the revised draft AMP.

- (e) Requirement for DOC to be consulted in development and review of Avian Management Plan and Penguin Management Plan. I note that condition 13.9 requires the consent holder to review the AMP annually and it must be provided to the Department for review and comment before being submitted to the council for certification. I agree that consultation in relation to the Penguin Management Plan (if required) would be appropriate. Condition 13.5 now addresses this matter.
- (f) Protection of existing wetland habitat to ensure no temporary loss of wetland extent over the project timeframe. The affected wetlands are highly modified and their ecological value ranges from 'low' to 'moderate'. They do not provide high-quality habitats for fauna. On that basis I do not consider that such protection is warranted.
- (g) Requirement for long-term protection and maintenance of constructed wetland habitat. In my view, as a wetland constructed to address effects (and arguably restore a natural wetland), the wetland would be protected by the National Policy Statement for Freshwater Management (2020) and accompanying National Environmental Standards for Freshwater (2020), including via the relevant regional and district planning instruments. In my experience vegetation can grow rapidly on the West Coast and this is a long-term project. In my view additional protection is not required.
- (h) Requirement for targeted searching for grounded petrel on nights where artificial lighting is required. The draft proposed conditions now require precautionary searches for tāiko where activities have the potential to give rise to groundings (see condition 13.3). In my view this addresses Dr Parlato's concern.

Wetlands

Classification of wetlands

- 80 In paragraphs 12 – 15 Mr Payne sets out his opinion that I have incorrectly classified the wetlands at the Site.
- 81 I can confirm that aerial photographs were used in the assessment, not just to identify areas for survey.

- 82 I agree with Mr Payne (paragraph 13) that the majority of the Barrytown Flats was historically a wetland.
- 83 I disagree that the wetlands present today qualify as natural inland wetlands. Mr Payne states that I have classified the wetlands as 'artificial'. I note that the NPS-FM doesn't use that word, and the relevant matter is whether a wetland (as defined in the RMA) is a 'natural inland wetland' or not. Wetlands that fall into any of the following exclusions are **not** natural inland wetlands:
- (a) A deliberately constructed wetland. The exception is a wetland built to offset or restore a natural wetland.
 - (b) A wetland that has developed in or around a deliberately constructed water body, since that water body was constructed.
 - (c) A geothermal wetland.
 - (d) A wetland within grazed pasture where more than 50% of the vegetation cover is exotic pasture species, unless it is habitat of a threatened species.
- 84 Mr Payne has only considered exclusion (a). Under exclusion (b) a wetland is excluded if it formed in or around a constructed waterbody, regardless of the intention to create a wetland. Examples given by the Ministry for the Environment are wetlands formed by hydroelectricity lakes and farm ponds. Neither were built to be wetlands, but wetlands can, and do, develop around them. No where that I can see do the exclusions require a wetland "be maintained as such".
- 85 I have excluded the wetlands from being natural inland wetlands on the basis of exclusion (b). The hump and hollow wetlands, and the dredge pit wetlands, have developed since the water body was constructed. That a swamp existed prior to dredging for mining and drainage for farming does not make the current wetlands natural. Rather it makes the historic wetlands some of the >90% of wetlands already lost.
- 86 Mr Payne considers that the dredge ponds were not a "deliberately constructed water body" because they were a by-product of mining rather than built to hold water. In my view a dredge pond was deliberately excavated and kept flooded so that the dredge could float and mining could proceed. I consider that this fits exclusion (b) at least as well as a hydro lake does, but I note that this is a matter of legal interpretation rather than an ecological matter.

- 87 With respect to the hump and hollow wetlands, the drains (hollows) were constructed to drain the land (i.e., deliberately constructed waterbodies). In my view, wetlands that have formed around these drains, also fall under exclusion (b). I acknowledge that it is possible that they might sometimes fall under exclusion (d), but that was not the case for the majority of the wetlands here. The proviso relating to habitat of a threatened species applies only to exclusion (d), and in any case no threatened species are known to be present in the hump and hollow wetlands.
- 88 I accept that wetlands that don't fit one of the exclusions set out above are natural, and there are 'natural inland wetlands' at this Site as set out in the EclA.
- 89 I would note that whilst classification decides which NPS-FM and NES-F provisions apply, it does not determine the ecological value of the particular wetlands. The effects on the wetland habitats that have developed in the dredge ponds in particular, and the effects on fauna, still need to be addressed and in my view the approach taken has done that.
- 90 I also note that the West Coast Regional Council has not disputed the wetland classification.

Assessment of Ecological Value

- 91 Mr Payne states in paragraph 16 that the ecological value of the wetlands has been underestimated and (incorrectly) in paragraph 18 that fauna has not been considered when assigning wetland value.
- 92 Mr Payne (paragraph 17) considers that indigenous-dominated wetlands should score at least 'moderate' for Representativeness, and that Rarity/distinctiveness should be 'high' or 'very high' because of its potential as habitat for 'threatened' and 'at risk' fauna (paragraphs 20 and 22). On that basis he concludes in paragraphs 35 and 36 the wetlands should be valued 'high' or 'very high'.
- 93 In reviewing Table 24 of the EclA, I note that the overall value of the hump-and-hollow wetlands should have been recorded as 'low' rather than 'negligible' (a score of 'low' for all four matters). I correct that here. This does not change the level of effects assessed.
- 94 I accept that the dredge-pit wetlands, where they support stands of raupō, harakeke and pukio, have some representativeness value. On reflection, 'moderate' is an appropriate score for the representativeness of those wetlands, which gives them an overall value of 'moderate' under the EIANZ guidelines. Combined with a 'very high' magnitude of effect, which Mr

Payne agrees with (paragraph 23), this gives a 'high' level of effect on those wetlands before remediation.

- 95 I do not agree that Rarity/distinctiveness should be raised to 'high' or 'very high' on the basis of potential habitat alone. Fauna values are assessed separately through the species-based assessment, so raising the habitat score for the same species would count them twice. Neither Australasian bittern nor brown mudfish have been recorded within the Southern Block to date.
- 96 An overall value of 'high' requires a 'high' score for at least one matter and 'moderate' for the remainder. Mr Payne does not dispute that every wetland type scores 'low' for diversity and pattern. If Mr Payne's proposed scores for representativeness and rarity/distinctiveness were adopted in full, applying Table 5 of the EIANZ guidelines would not produce an overall value higher than 'moderate' for any wetland type. This does not support Mr Payne's conclusion that the wetlands should be valued 'high' or 'very high'.
- 97 When applying the EIANZ guidelines species are valued separately according to their threat status (see Table 6 of the EIANZ guidelines). Regardless of the wetland value, any 'threatened' or 'at risk' fauna present would be assessed at 'high' or 'very high' in its own right.

Effects on wetlands

- 98 In paragraph 36, Mr Payne states his view that the potential adverse effects on wetlands have been understated as a result of misclassifying wetlands and not including wetland fauna. As I have described above, I do not agree with that position for the reasons stated.
- 99 Mr Payne's recommended solution is to undertake targeted surveys for cryptic wetland fauna. Seasonal bird counts are ongoing, including using acoustic recorders and timing surveys to detect cryptic species. The use of trail cameras to detect kororā for two years pre-mining is already set out in the draft AMP and it would be useful to add trail cameras at key wetland locations to increase detectability of bittern and crane (as recommended by Dr Parlato). I have recommended a change to the conditions relating to avian management to address this matter.

Wetland Effects Management

- 100 As set out above, Mr Payne considers that wetlands arising from hump-and-hollow drainage and historic dredge pits have been incorrectly classified as not natural inland wetlands, and that, once reclassified, the Project would remove 35.8ha of wetland within the mining footprint (paragraphs 14–15 and 33). In my opinion, Mr Payne has applied the wrong exclusion test.
- 101 As set out in Table 11 of the EclA, I consider that there are c. 6.7ha of natural inland wetland removed by the Project, not 35.8ha as Mr Payne contends.
- 102 Classification determines which provisions of the NPS-FM and NES-F apply. It does not determine ecological value. I have therefore assessed the effects of the Project on all wetlands within the mining footprint, whether natural or not, and the constructed wetland is designed to replace all of them.

Characterisation of the constructed wetland

- 103 Mr Payne considers that the constructed wetland is more accurately described as compensation than remediation, because the wetlands within the mine path will be removed and replaced with a new wetland created de novo (paragraphs 24, 38 and 42). I do not agree.
- 104 Case law supports that an offset is different from a mitigation measure on the basis that mitigation measures reduce the impact of an adverse effect arising from the activity, while the term offset implies that the adverse effect remains, but is counterbalanced by another positive effect – being the offset. RMA instruments include the concepts of offsetting, and principles around the use of offsets. In summary, an offset is effectively a "like for like" additional positive benefit, usually off-site or outside the point of impact, which provides a net gain in ecological outcomes to counterbalance residual adverse effects. This is referred to in more detail in Ms Booker's legal reply.
- 105 In terms of the effects management hierarchy set out in the (more recent) NPS-FM, mitigation corresponds to remedying the effect at the affected site, which is how the EclA describes the wetland construction. I consider the distinction between mitigation (such as remediation) and offsetting depends on both geography and the nature of the proposed management action(s) and whether they are taken on-site (i.e., within the development footprint) concurrent with operations so as to reduce the immediate impacts

of the project (e.g., constructing a wetland on the same farm as mining proceeds).

- 106 Because the applicant's proposed wetland creation is entirely contained within the boundaries of the Site and occurs concurrently with mining (some of it in advance of any wetlands being removed), my view is that it is more appropriately considered as on-site remediation, not compensation.

Extent of Remediation

- 107 Condition 16 requires a constructed wetland of at least 53.1ha. As designed, the proposed wetland complex comprises 53.1ha:

- (a) 14.3ha of raupō;
- (b) 5.9ha of *Carex* rushland;
- (c) 5.3ha of shallow marsh;
- (d) 2.8ha of mid-depth open water;
- (e) 4.8ha of deep open water;
- (f) 16.8ha of flaxland and dry-edge vegetation; and
- (g) 3.2ha of raised islands.

- 108 Even on Mr Payne's narrow measure, which counts only raupō, *Carex* rushland, shallow marsh and mid-depth water (28.3ha), the constructed wetland is about four times the extent of natural inland wetland being removed. Across the full 53.1ha it is about eight times. The remediation is therefore substantially greater than the loss of natural inland wetland, it is not a marginal improvement in wetland extent such that detailed accounting would be required.

- 109 Even if Mr Payne's classification were accepted, in my opinion the extent of the constructed wetland would still exceed the extent of wetland lost.

- 110 Mr Payne's figure of 28.3ha excludes the 16.8ha of flaxland and dry-edge vegetation. Harakeke (*Phormium tenax*) is a wetland indicator species [rated FACW in the New Zealand wetland plant list], and flaxland established on saturated soils at the margins of the constructed wetland would meet the RMA definition of a wetland and the NPS-FM definition of a natural inland wetland. The 16.8ha includes flax growing on saturated / seasonally inundated ground, adding to the 28.3ha Mr Payne has calculated. If Mr Payne's classification is accepted, it would be an easy

matter to amend condition 16 to specify the minimum area of flaxland wetland separately from dry-edge planting to ensure that no loss of wetland extent is provided for.

Quality of remediation

111 More importantly, in my opinion the constructed wetland will be of substantially higher quality than the wetlands it replaces. Most of the wetlands to be lost are small, shallow, fragmented hump-and-hollow wetlands within grazed pasture dominated by exotic and common native species, pugged by livestock, and with little structural diversity or buffering. By contrast, the constructed wetland will:

- (a) be a single contiguous complex of more than 53ha, rather than many small, isolated patches;
- (b) be fenced from livestock and buffered by indigenous planting from the surrounding farmland;
- (c) provide a range of water depths and habitat types (shallow marsh, mid-depth and deep open water, raupō, *Carex* rushland and flaxland) that are largely absent from the existing wetlands; and
- (d) be hydrologically connected to Granite Creek and the reinstated watercourses, providing fish passage and connectivity with other freshwater habitats.

These attributes provide habitat for the cryptic wetland fauna Mr Payne identifies, including bittern, crakes and brown mudfish, which the existing hump-and-hollow wetlands do not.

Demonstrating net gain

112 Mr Payne seeks a Biodiversity Offset Accounting Model to demonstrate that the constructed wetland achieves no net loss or a net gain (paragraphs 27, 40 and 43). In my opinion, given that the existing wetlands are of generally low or moderate quality and poorly ecologically connected, the constructed wetland is several times larger than the extent of natural inland wetland to be lost, and of substantially higher quality, the outcome is not finely balanced. Any reasonable accounting approach will show a net gain in wetland extent and values once the constructed wetland has established.

Attachments

113 The following documents are attached:

- (a) Attachment A: a revised draft Avian Management Plan
 - (b) Attachment B: a revised Lizard Management Plan
- 114 Attachment C: qualifications of any Wildlife Handlers (this information has been provided to DOC separately).

Conclusion

- 115 I remain of the opinion, with respect to the effects on terrestrial ecology and wetlands, having taken into account the context, the species and habitats present, the specific location, nature and duration of the proposed activities and the actions proposed to avoid, remedy and minimise/mitigate any effects, it is my view that the short-term impacts of the current project would be negligible. That is a barely distinguishable change which would have negligible effect on the known population or range of the species and habitats present.
- 116 In relation to cumulative effects, I note that throughout my assessment I have considered the cumulative effects arising from the Central Block, WCP and Southern Block together, noting that the Central Block and Southern Block will be mined sequentially, not together, and that the best habitats for birds and lizards (including the coastal lagoons and intact wetlands to the north and shrubland and SNA vegetation outside the mine footprints) will not be mined, the mine life is temporary (medium term), limited in extent and moves across the areas to be mined rather than creating a large open pit for the entire mine life.
- 117 In the medium – long term, the impacts of the current project would be positive, in that there will be a substantial increase in the extent and value of wetland, shrubland and forest habitats within the site, and the riparian vegetation will better connect the habitats than the pre-mining condition.
- 118 In my view the proposal is consistent with both the New Zealand Coastal Policy Statement (**NZCPS**) and National Policy Statement for Indigenous Biodiversity (**NPSIB**) as set out in my earlier assessment.

Dr Gary Neil Bramley

5 October 2026

ATTACHMENT A: REVISED DRAFT AVIAN MANAGEMENT PLAN

ATTACHMENT B: REVISED LIZARD MANAGEMENT PLAN

ATTACHMENT C: QUALIFICATIONS OF PROPOSED WILDLIFE HANDLERS

Matt Charteris

Matt Charteris holds a Postgraduate Diploma in Science (Zoology) from the University of Otago (1996) and has completed the following lizard surveys:

- Alpine gecko surveys (summer/autumn 2006) as team leader of 60 days' survey effort in the sub-alpine Travers and Paparoa Ranges for DOC's Alpine Gecko Recovery Programme;
- Canterbury gecko surveys and transfers on the Port Hills in Christchurch for rock hazard removal projects following the Christchurch earthquakes (including locating, capturing, measuring, photographing and holding individual lizards for up to two months, release, post-release monitoring and habitat restoration). The Wildlife Act Authority was issued to him as a consultant for Geotech Ltd;
- Surveying for lizards on the Stockton Plateau and Buller Bay beaches for Hydro Developments Ltd;
- Surveying for forest gecko in South Westland for Okuru Water Ltd;
- Assisting Kate Simister (Department of Conservation, Westport) with surveys for foreshore skinks in the Buller region.

His herpetological skills include:

- Nocturnal and diurnal surveying, including GPS-based detection;
- Capturing, holding in hand, measuring and photographing lizards;
- Holding lizards in captivity;
- Transferring geckos and skinks;
- Lizard monitoring;
- Establishing new habitat.

With respect to lizards, he has worked with and learned from Dr Marieke Lettink, Tony Jewell and Dr Rod Hitchmough.

Matt is the owner of Waybacks Limited, which has provided field ecologist services to a range of private sector clients and the Department of Conservation, primarily throughout the South Island, since 2004. From 2013 to 2024 he was also a science advisor and technician with DOC's Research and Development team. Matt is based in Charleston and would lead any field aspects in consultation with either Graham Ussher (with respect to lizards) or Gary Bramley/Sarah Withers (in relation to birds).

Matt has a broad range of survey and bird handling experience, including banding, transponder insertion, blood sampling and burrowscoping of petrels. Since 2007 he has been a team member on the long-term Westland petrel (tāiko) population dynamics study, initially for Latitude 42 Ltd and subsequently

for DOC's Conservation Services Programme. From 2007 to 2024 he was a ranger and science advisor for the West Coast Penguin Trust, surveying kororā and tawaki on the West Coast, and he has undertaken kororā surveys for the Kawatiri Coastal Trail. He has also surveyed forest birds generally and led transfers of kākāpō and snipe. He took part in rodent and weka eradications in the Tītī/Muttonbird Islands, Stewart Island (Taukihepa, Pukeweka, Solomon, Mokonui and Mokoiti) and on Chalky and Passage Islands, Fiordland, and coordinated the 2019 weka eradications on Maud and Long Islands (Marlborough Sounds). In 2011 he was an aviculturist caring for more than 80 Henderson Island rail held in captivity during the rat eradication on Henderson Island (Pitcairn Islands).

Dr Gary Bramley

Gary Bramley has a BSc in Zoology and an MSc(Hons) in Ecology from Massey University (1995) and a PhD in Biology from the University of Waikato (1999). He is a Level 2 certified bander for waterfowl and parrots and a Level 3 certified bander for rails and passerines and has held a number of Wildlife Act Authorities relating to bird capture, handling and translocation and salvage and relocation of lizards, both in his own name and on behalf of clients. He has prepared and supervised the delivery of Avian Management Plans at a wide range of sites and for a range of projects across New Zealand including for kororā at the Picton/Waitohi ferry terminal and dotterels and coastal birds at Mangawhai Central. He has undertaken translocations of North Island robin (*Petroica australis longipes*) and North Island weka (*Gallirallus australis greyii*) and supervised translocation of North Island kōkako from Mataraua Forest to Puketi Forest in 2015/2016. Gary has been a consulting ecologist for more than 25 years and has worked throughout the country, including providing species management advice to iwi and hapū.

Dr Sarah Withers

Sarah Withers has a BSc and MSc (First Class Honours) in Biological Sciences from The University of Auckland. Sarah received her PhD in Biological Sciences in 2013. She is a Level 2 certified bander for Passerines and has held a number of Wildlife Act Authorities relating to bird handling, bleeding, banding and translocation, both in her own name and as part of wider collaborative research projects. She has been a practicing ecologist for over 20 years and has conducted conservation research on a range of native bird species including hihi (*Notiomystis cincta*) and titipounamu (*Acanthisitta chloris*). She has undertaken multiple translocations of titipounamu from Hauturu-o-toi (Little Barrier Island) to Tiritiri Matangi Island in the Hauraki Gulf, and from Boundary Stream Mainland Island to Cape Kidnappers Sanctuary in the Hawkes Bay,

from 2009-2012. She has conducted ecological consultancy advice for a number of projects seeking conservation management advice for titipounamu. She is the author of multiple published papers focussed on the ecology, evolution and conservation of New Zealand native birds.

Patrick Stewart

Patrick (Paddy) Stewart holds a graduate Diploma in Sustainable Management and is a candidate for a Post Graduate Diploma in Environmental Management. He has 35 years of experience in restoration ecology including shorebird handling and monitoring training (Pūkoro Mirinda Shorebird Centre) and passerine handling (Department of Conservation). He was a Shorebird Ranger for two seasons and worked as a Waikato Conservation Monitoring officer including a stint with Moehau Kiwi Sanctuary which included handling birds with the kiwi team. He is the owner of Sound Counts Limited which has been completing observer based and autonomous acoustic (birds) and ultrasonic surveys (bats) throughout New Zealand since 2007. Paddy has been responsible for completing all the seasonal bird surveys at Barrytown and Westland Mineral Sands Nine Mile site to date and has completed large scale (2,500 – 10,000ha) observer surveys over more than 20 years including:

- Seabirds – Cooks, mottled, and black petrels. Blue and Fiordland Crested Penguins
- Waders - South Island pied oystercatcher
- Waterbirds – whio
- Forest and alpine birds – NZ falcon, kiwi, kea, takahe
- North and South Island long tailed bats

He has held a range of Wildlife and Collection Permits including:

<i>National Permit Number</i>	<i>Species</i>
<i>WK - 32689</i>	<i>Native frog surveys</i>
<i>69564 - FAU</i>	<i>Native frog surveys</i>
<i>WK - 21715</i>	<i>Native frog surveys</i>
<i>Wk - 15059-RES</i>	<i>Flora collection</i>
<i>WK-21-882-FAU</i>	<i>Herpetofauna - frogs and lizards</i>
<i>Wk-22492-RES</i>	<i>Live pitfall and malaise traps</i>
<i>WK-13742_INS</i>	<i>Flora collection</i>

Paddy has also completed the following relevant work:

- Long-term North Island brown kiwi call monitoring on the Coromandel Peninsula for the Moehau Environment Group and Whenuakite Kiwi

Care Group, including a published comparison of observer and acoustic recorder call counts at Whenuakite (Stewart & Hasenbank 2018, *Notornis* 65: 179–186);

- Acoustic recorder surveys for cryptic wetland birds, including matuku-hūrepo/Australasian bittern, at Waikawau and Toreparu wetlands for the Waikato Regional Council;
- Specialist review of the automated call recorder section of DOC's Kiwi Best Practice Manual;

His field skills include:

- Nocturnal and diurnal surveying for cryptic birds;
- Acoustic recorder deployment, call identification and data analysis;
- Survey design and trend monitoring;

Since 2002 Paddy has been part of the Environmental Management teaching team at Toi Ohomai Institute of Technology (and its predecessor institutions), where he teaches the Biological Surveying courses, advises students on research projects, and leads students on multi-day field trips.