

In the matter of an application for approvals under the Fast Track Approvals Act 2024

By **Tāiko Critical Minerals Limited**

Applicant

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**Statement of evidence of Richard Montgomerie in relation to freshwater ecology**

27 March 2025

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## **Introduction**

- 1 My name is Richard Montgomerie. My role in relation to the application by Tāiko Critical Minerals Limited (**the application**) for approvals relating to the Barrytown Mineral Sands – Southern Block Project (**the Project**) has been to provide expert advice in relation to freshwater ecology.

## **Qualifications and experience**

- 2 I am an owner and the managing director of Ecological Solutions Limited, a specialist terrestrial and freshwater ecological consultancy. I hold the qualification of Master of Science in Freshwater Ecology from Otago University. I have worked as a freshwater scientist and environmental consultant throughout New Zealand since 1998. I have held senior positions at Kingett Mitchell Limited, the Water Research Centre (UK) and Golder Associates, Freshwater Solutions and Ecological Solutions.
- 3 I specialise in assessing and managing ecological effects in streams and rivers. I have assessed and managed effects in streams on a wide range of projects across rural and urban environments including preparing, implementing and monitoring stream restoration plans. I have undertaken numerous native fish assessments and prepared, implemented and monitored fish relocation and fish habitat restoration plans.
- 4 Throughout my 27 year career I have led or held senior consulting roles on mining projects including Pike River Coal, Francis Mining – New Creek, Roa, Echo and Rajah, Westland Mineral Sands, Newmont Waihi Gold, and various sand and hard rock mining operations. I was closely involved with the Tāiko (formerly TiGa) – Barrytown North Central Block consenting project and ongoing monitoring.

## **Expert witness Code of Conduct**

- 5 While this application is not being considered by the Environment Court, I confirm 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 evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## **Scope of evidence**

- 6 The purpose of this evidence is to:
  - (a) provide an overview of aquatic ecological values within and immediate to the proposed mine site;
  - (b) provide an overview of the potential and actual aquatic ecological effects of the proposed construction and operation of the proposed mine with reference to the National Policy Statement for Freshwater Management (2020, amended 2025 the NPS-FM) to inform the assessment and application of the effects management hierarchy; and
  - (c) comment on the proposed conditions.

## **Aquatic ecological values and significance**

### ***Habitat***

- 7 Granite Creek, Little Granite Creek and Clarke Creek originate in the hills east of SH6 and flow through the Site before discharging to the sea. There are seven highly modified natural creeks and several artificial drains within the Site. Modified natural rivers (creeks) within the Site include, from north to south, an unnamed creek in the northern area of the Site (referred to here as Northern Creek), unnamed creek in the north-central area (referred to here as Central Creek), Clarke Creek, Little Granite Creek, Granite Creek, the unnamed creek referred to here as Wasabi Creek and an unnamed creek in the southern area (referred to here as Southern Creek).
- 8 The Site is currently used for dairy farming and mostly comprises highly modified 'humped and hollowed' pasture. Granite Creek and Little Granite Creek have been fenced but the majority of the watercourses within the Site are unfenced. The banks of these unfenced streams are typically unstable and subject to erosion and pugging. The watercourses within the Site have been highly modified by mining and farming activities dating back to the 1930s.
- 9 Aquatic habitat provided by artificial drains was assessed as being of 'low' ecological value as they were not representative of natural stream environments.
- 10 Northern Creek, Little Granite Creek, Granite Creek and Wasabi Creek were highly modified due to channel realignment, but have retained some natural sections and were assessed as having habitat with 'moderate' ecological value due to the gravel/cobble bed being representative of

natural streams, and the moderately diverse habitat. Clarke Creek was assessed as having aquatic habitat of 'low' ecological value.

### ***Benthic Invertebrates***

- 11 Artificial drains and natural creeks support macroinvertebrate communities that reflect the highly modified habitat conditions and are dominated by taxa that are tolerant of poor water and habitat quality. Macroinvertebrate communities in all drains and creeks were assessed as having 'low' ecological value.

### ***Native fish***

- 12 Fish diversity in drains and modified creeks were generally comparable. Fish species of conservation interest recorded from drains included īnanga (Threatened – Nationally Vulnerable), longfin eel (At Risk – Declining), and banded kōkopu, redfin bully and bluegill bully (At Risk Naturally Uncommon) (Dunn et al. 2025). Overall the drains supported moderate-low native fish diversity including species of conservation interest.
- 13 Fish species of conservation interest recorded from modified creeks within the Site include īnanga (Threatened – Nationally Vulnerable), longfin eel and kōaro (At Risk – Declining), and banded kōkopu, redfin bully and bluegill bully (At Risk Naturally Uncommon). Giant kōkopu ('At Risk – Declining') appear to be widespread across the drains and creeks within the Site. The fish communities within the Site have 'high' ecological value.

### **Aquatic ecological effects**

- 14 Mining will be undertaken sequentially in three sections including: Section 1 (Granite Creek North), Section 2 (Granite Creek South) and Section 3 (Cargill Road).
- 15 Temporary watercourse diversions will be constructed to convey surface water in creeks and artificial drains during mining. Granite Creek and Little Granite Creek will not be diverted. The diversion methodology will differ for each creek or artificial drain. Fish management will be implemented prior to and during the diversion of watercourses.
- 16 After an area has been mined and the land contoured and rehabilitated, creeks will be reconstructed in accordance with the conditions of consent, and the Rehabilitation Management Plan prepared by Tai Poutini Resources Limited.
- 17 Progressive rehabilitation of mined areas will be undertaken as mining occurs elsewhere on the Site. Rehabilitation of each area of mining

including watercourses is expected to be completed within 12 months of completion of mining within that section.

- 18 Other potential effects on modified creeks and artificial drains within the Site include:
- (a) Earthworks and sedimentation resulting in altered habitat quality and ecological health of watercourses.
  - (b) Temporary loss or disturbance of aquatic habitat in the creeks and artificial drains.
  - (c) Native fish mortality.
  - (d) Reduced native fish passage.
  - (e) The potential for reduced flows in Canoe Creek as a result of the proposed water take.
- 19 In my opinion implementing the ESCP prepared by Ridley Dunphy Environmental Ltd will ensure that the overall level of effect of the proposed earthworks on freshwater ecology values will be **'low'**.
- 20 The five creeks (Northern Creek, Central Creek, Clarke Creek, Wasabi Creek, Southern Creek) to be diverted will be reconstructed with more natural meandering flow paths than currently. The average stream widths of the rehabilitated streams will be similar to the existing watercourses. The total length of the rehabilitated watercourses will be at least the same as what is existing and as a result there will be no loss of extent of stream habitat. Following complete rehabilitation of the Site, in my opinion the watercourses will provide an increased amount and higher quality habitat than the existing watercourses.
- 21 In my opinion implementing the RMP prepared by Tai Poutini Resources Limited and the accompanying Native Freshwater Fish Capture and Relocation Plan (NFFCRP) prepared by Ecological Solutions Limited will minimise the potential adverse effects of watercourse disturbance. In my opinion the overall level of effect on native freshwater ecology values will be **'very low'** in the short-term and there will be a **'net gain'** once the stream channels have stabilised and riparian plants are established.
- 22 In my opinion implementing the NFFCRP will minimise the potential harm or mortality of native fish and ensure that the overall level of effect on native freshwater fish values assessed as **'very low'**.

- 23 The proposed diversions will not impede fish passage. Any culverts will be installed and maintained to ensure that all native fish that require access to and from the sea can do so and as a result a special permit under the Fisheries Act 1983 is not required. With the proposed mitigations to avoid reducing fish passage in my opinion the overall level of effect will be **'very low'**.
- 24 The proposed water take from the lower Canoe Creek is not expected to affect instream habitat conditions, and in my opinion, the overall level of effect of the proposed water take on the amount and quality of habitat in lower Canoe Creek will be **'very low'**.
- 25 In my opinion applying the proposed conditions ensures that the project is consistent with the relevant NPS-FM policies.

### **Proposed conditions**

- 26 I have reviewed the proposed conditions as they relate to my area of expertise. I consider that they are appropriate and support my assessment of effects, including the following conditions:
- (a) Condition 5.1 requires an Annual Work Plan that details any management required for native fish, extent of creek diversions and reclamations, and need to include a description of measures to prevent adverse effects on natural waterbodies, including drainage works within the consent area, and the collection and treatment of site run-off. I agree with the inclusion of this condition and in my opinion it will assist in preventing adverse effects on creeks.
  - (b) Condition 6.0 requires a Native Freshwater Fish Capture and Relocation Plan. I support this condition and in my opinion it will avoid or otherwise minimise adverse effects on native fish present within the project area.
  - (c) Condition 9.1 sets out the need to reinstate existing creek and drainage patterns to reflect pre-mining catchment areas ensuring no loss of extent, with appropriate riparian planting, in accordance with the Rehabilitation Management Plan. I support this condition and in my opinion it will assist in managing adverse effects on creeks and native fish.
  - (d) Condition 15.1 and 15.2 identifies the need carry out activities in accordance with a Native Freshwater Fish Capture and Relocation Plan in order avoid or otherwise minimise adverse effects on native

fish prior to stream works. I support the NFFCRP covering the whole Site and that it be updated as required.

- (e) Condition 22.1 sets out the need to operate the mine in general accordance with a Water Management Plan and states that the rate of take of water from Canoe Creek gallery is not greater than 10% of Canoe Creek's MALF. I support this condition and in my opinion it will avoid ecological effects in Canoe Creek.
- (f) Condition 24.5 and 24.6 set out the annual instream and riparian habitat, macroinvertebrate and fish surveys in Northern Creek, Central Creek, Clarke Creek, Granite Creek, Wasabi Creek and Southern Creek and that they have to be conducted using Protocol P2 and C1 from the Ministry for the Environment Macroinvertebrate Guidelines and the samples must be analysed by an aquatic ecologist experienced in macroinvertebrate sampling and identification.
- (g) Condition 28.1, 28.2 and 28.3 relate to creek diversions and requires certification of the Rehabilitation Management Plan by West Coast Regional Council prior to any streamworks, implementation of the plan during creek construction and riparian planting to ensure no loss of extent, and monitoring to ensure no loss of ecological health. I support this condition and in my opinion it will ensure no loss of creek extent and values.
- (h) Condition 28.4 requires creek diversion activities to be undertaken in accordance with approved methodologies specified in the ESCP and SSESCPs. I support this condition and in my opinion will minimise potential sediment discharges and ecological effects on watercourses.
- (i) Condition 28.5 relates to temporary and permanent diversions and how they will be designed according to specified design criteria. I support this condition and in my opinion it will ensure that effects on creek extent, ecological function, habitat quality and ecological health will be effectively mitigated.

### **Overall Significance of Effects**

- 27 The Fast Track Approvals Act requires an overall assessment of the significance of effects. With respect to the potential and actual effects on freshwater ecology, having taken into account the species and habitats present, the nature of the proposed activities and actions to avoid, remedy and minimise/mitigate any effects, it is my view that the effects of the proposed project on freshwater values would be negligible.

28 In the medium–long term, the effects of the proposed project would be positive, in that there will be no overall loss of creek extent and that stream ecological values will be enhanced by naturalising and improving the instream and riparian habitat quality of creeks.

**Richard Montgomerie**

**27 March 2026**