

Before the Hearing Commissioners
Appointed by the Grey District Council
and West Coast Regional Council

Under the Resource Management Act 1991

In the matter of Resource consent applications by TiGa Minerals and Metals
Ltd to establish and operate a mineral sands mine on State
Highway 6, Barrytown (RC-2023-0046; LUN3154/23)

Summary Statement and Rebuttal Evidence of Mark Roper

2 February 2024

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Summary of evidence

- 1 My name is Mark Roper. I prepared a statement of Aquatic Ecology evidence dated 19 January 2024. My qualifications and experience are set out in that statement of evidence. I repeat the confirmation given in that statement that I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court. My role in relation to TiGa Minerals and Metals Limited's (TiGa) application (the Application) has been to provide aquatic ecology advice (preparation of evidence) since December 2023.
- 2 The Application Site (the Site) is located on farmland and is therefore situated in a highly modified environment in terms of stream habitat and ecological values. Streams immediately adjoining the Site are Collins Creek and the Northern Drain. Canoe Creek is located to south of the Site. Coastal lagoons and a former dredge pond (Rusty Pond) occur in the lower reaches of streams to the north and west of the Site as described in the evidence of Dr Bramley. Collins Creek and Deverys Creek lagoons make up Canoe Creek Lagoon. These locations are shown in Figure 1 of **Attachment A** in my evidence in chief.
- 3 Collins Creek and the Northern Drain have been adversely affected by previous land use, realignment, bank erosion and sediment inputs.
- 4 The freshwater ecological values of the Northern Drain are 'low'. The section of Collins Creek adjoining the Site has 'high' ecological value due to the presence of 'At Risk' (Declining) fish species. Canoe Creek has 'high' ecological value due to the presence of 'At Risk' (Declining) fish species and the higher quality and less modified state of the habitat.
- 5 Mining has the potential to cause effects on stream hydrology (specifically water quantity). Mr Jens Rekker has concluded that Collins Creek and the Northern Drain are hydrologically isolated from groundwater. In my opinion this is expected to limit potential ecological effects associated with altered stream flow.
- 6 Despite the risk of hydrology effects being assessed as low, water management measures are proposed by the applicant to avoid adverse effects on stream ecology including returning treated mine water to ground and surface locations to maintain stream flows and protect ecological values.
- 7 As set out in the evidence in chief of Mr Jens Rekker, stream flows will be maintained using infiltration trenches, reinjection wells and direct discharge to affected waterbodies. Discharge to an infiltration basin near Canoe Creek is also an option to manage excess water at the Site. Frequent and comprehensive monitoring of ground and surface water levels would be used to confirm compliance and adjust hydrological management of the Site to protect aquatic habitats and freshwater ecological values. With the mitigations outlined in Mr Jens Rekker's

evidence in chief I am satisfied that the surrounding water bodies are only likely to be subject to negligible flow depletion resulting in less than minor effects.

- 8 With respect to effects on water quality, the discharge of treated groundwater derived from mining activities to Collins Creek, Northern Drain, Canoe Creek and Canoe Creek Lagoon will not result in exceedance of relevant water quality guidelines as described by Dr Fitzpatrick. As a result, I have concluded that adverse effects associated with altered water quality on aquatic biota are not expected.
- 9 Water quality monitoring is required by Condition 26.2 and discharge to surface water is only permitted if metal and metalloid water quality parameters in Table A are complied with and the non-metal water quality parameters in Table B are also met (Condition 25.2). Table B includes a limit of 20 NTU for turbidity and a requirement for there to be no change in the NPS-FM attribute states of the receiving surface water bodies. I consider that the proposed water quality limits will protect aquatic habitats and ecological values within the freshwater receiving environment and that adverse effects on fish and aquatic macroinvertebrates will be avoided.
- 10 In my opinion the proposal meets the relevant directive policies of the National Policy Statements (i.e., the New Zealand Coastal Policy Statement (2010) and the National Policy Statement for Freshwater Management (2022). It also meets the policies of the regional and local planning instruments.
- 11 I have reviewed the submissions and the evidence prepared by experts relevant to my own area of expertise. I have addressed the concerns raised by the Department of Conservation and Dr Gamlen-Greene and am satisfied that their respective concerns have been addressed following receipt of their submissions. Based on my review of opposing experts I did not identify any concerns within my area of freshwater ecology expertise that required a response.
- 12 In my opinion, with the mitigations proposed to reduce hydrology and water quality effects, as outlined in the evidence of Mr Jens Rekker and Dr Mike Fitzpatrick the level of ecological effects can either be avoided or managed to a very low level. This is equivalent to no effects (avoidance) or less than minor (very low) effects in the RMA context.

Mark Roper

Dated this 2nd day of February 2024