

**FORM 13: SUBMISSION
ON AN APPLICATION FOR RESOURCE CONSENT
UNDER SECTION 96
OF THE RESOURCE MANAGEMENT ACT 1991**

Office
Use Only



PART A: DESCRIPTION OF APPLICATION

CONSENT NUMBER: WCRC: RC-2023-0046 GDC: LUN3154/23	APPLICANT: TIGA MINERALS AND METALS LTD
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DESCRIPTION OF PROPOSED ACTIVITY:
Establish and operate a mineral sands mine, including construction of associated infrastructure.

LOCATION:
Barrytown Flats, west of State Highway 6 (Coast Road), 9km south of Punakaiki township and 36km north of Greymouth.

PART B: SUBMITTER DETAILS

Full name/s	Dr Roseanna Gamlen-Greene		
Postal address	[REDACTED]		
I am the owner/occupier (delete one) of the following property:	[REDACTED]		
Primary contact person/s	Dr Roseanna Gamlen-Greene		
Email address	[REDACTED]		
Phone number/s	Home:	[REDACTED]	Business:
	Mobile:	[REDACTED]	Fax:

Signature of the submitter (or person authorised to sign on behalf of the submitter): 	Date: Oct 12th 2023
Name (BLOCK CAPITALS): ROSEANNA GAMLEN-GREENE	

*If this is a joint submission by 2 or more individuals, each individual's signature is required.
A signature is not required if you make your submission by electronic means.*

- I/we **support** the application numbers indicated by a tick on the back of this form
- I/we **oppose** the application
- I/we **neither support nor oppose** the application

(tick one)

(tick one)

I/we **wish to be heard** in support of my/our submission.

I/we **DO NOT wish to be heard** and hereby make my/our submission in writing only.

If you wish to be heard, and others make a similar submission would you consider making a joint case with them at any hearing

Yes

No

If you indicated you wish to be heard, you will be sent a copy of the S.42A Officer's Report and a copy of the Decision once it is released. Please indicate below which format you would like to receive these documents in:

Electronic (CD) copy

Hard (paper) copy

I/we **have** served a copy of my/our submission on the Applicant as per Section 96(6)(b) of the RMA

Yes

The specific parts of the application that my submission relates to are: *(give details)*

M – Ecological Effects Assessment – ecoLogical Solutions

Application by TiGa – Version: Final (April 2023) – Tai Poutini Resources

[See attached submission.](#)

My/our submission is that: *(include whether you support or oppose the application or specific parts of it; whether you are neutral regarding the application or specific parts of it; and the reasons for your views).*

I/we seek the following decision from the Local Authority:(give precise details)

Decline the application in its entirety. I oppose the application in its entirety. It violates NZ Coastal Policy Statement 11a and b. However, should the application be approved, I ask that the recommendations presented in my attached submission be used as consent conditions, combined with or adapted by similar recommendations and comments from appropriate authorities such as the Department of Conservation, to ensure that adverse effects on at risk species and threatened or naturally rare ecosystems are avoided.

Specifically: 1) more comprehensive fish surveying and assessment of ecological effects, 2) more comprehensive wetland and lagoon surveying and assessment of ecological effects, 3) a more comprehensive freshwater mitigation scheme be developed, 4) much larger buffers around the streams, wetlands and lagoons and mining site are required, and 5) requirement that no mining-related activity at the site or road transportation be conducted during darkness, dusk or dawn.

I ~~am~~/am not* a trade competitor for the purposes of section 308B of the Resource Management Act 1991.

*Select one.

*I ~~am~~/am not† directly affected by an effect of the subject matter of the submission that—

(a) adversely affects the environment; and

(b) does not relate to trade competition or the effects of trade competition.

*Delete this paragraph if you are not a trade competitor.

†Select one.

I request/~~do not request~~*, pursuant to section 100A of the Act, that you delegate your functions, powers, and duties to hear and decide the application to 1 or more hearings commissioners who are not members of the local authority.

*select one.

Important information – Please read carefully.

Public information

The information you provide is public information. It is used to help process a resource consent application and assess the impact of an activity on the environment and other people.

Your information is held and administered by the West Coast Regional Council and Grey District Council in accordance with the Local Government Official Information and Meetings Act 1987 and the Privacy Act 1993. This means that your information may be disclosed to other people who request it in accordance with the terms of these Acts. It is therefore important you let us know if your form includes any information you consider should not be disclosed.

West Coast Regional Council 388 Main South Road, Paroa, Greymouth 7805 PO Box 66, Greymouth 7840 Telephone (03) 768 0466 Toll Free 0508 800 118 Facsimile (03) 768 7133 Email info@wcrc.govt.nz Website www.wcrc.govt.nz	Grey District Council 105 Tainui Street PO Box 382 Greymouth, 7840 planning@greydc.govt.nz 03 769 8600
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Note to submitter

If you are making a submission to the Environmental Protection Authority, you should use form 16B.

The closing date for serving submissions on the consent authority is the 20th working day after the date on which public or limited notification is given. If the application is subject to limited notification, the consent authority may adopt an earlier closing date for submissions once the consent authority receives responses from all affected persons.

You must serve a copy of your submission on the applicant as soon as is reasonably practicable after you have served your submission on the consent authority.

If you are a trade competitor, your right to make a submission may be limited by the trade competition provisions in Part 11A of the Resource Management Act 1991.

If you make a request under section 100A of the Resource Management Act 1991, you must do so in writing no later than 5 working days after the close of submissions and you may be liable to meet or contribute to the costs of the hearings commissioner or commissioners. You may not make a request under section 100A of the Resource Management Act 1991 in relation to an application for a coastal permit to carry out an activity that a regional coastal plan describes as a restricted coastal activity.

Please note that your submission (or part of your submission) may be struck out if the authority is satisfied that at least 1 of the following applies to the submission (or part of the submission):

- it is frivolous or vexatious;
- it discloses no reasonable or relevant case;
- it would be an abuse of the hearing process to allow the submission (or the part) to be taken further;
- it contains offensive language;
- it is supported only by material that purports to be independent expert evidence, but has been prepared by a person who is not independent or who does not have sufficient specialised knowledge or skill to give expert advice on the matter.

Submission RE: Resource consent application from TiGa to mine at Barrytown Flats.

WCRC: RC-2023-0046

GDC: LUN3154/23

Introduction

I have a PhD in ecology, specialising in freshwater ecology, and have conducted research on Canoe and Devery creeks, and other freshwater bodies along the Coast Road. I have also researched the contribution of Westland Petrels (tāiko) to nutrients in the adjacent freshwater and terrestrial ecosystems. I have spent a lot of time in Barrytown Flats and the Coast Road area and grew up nearby, at Motukiekie Rocks.

I oppose the proposed mining operation in its entirety. The potential negative effects of the proposed mining activity are being downplayed and overlooked.

Area of focus

M – Ecological Effects Assessment – ecoLogical Solutions

Application by TiGa – Version: Final (April 2023) – Tai Poutini Resources

M – Ecological Effects Assessment – ecoLogical Solutions

3.2 Wetlands (methods)

- The fact that not all wetlands within 100 m of the proposed mining area render the ecological effects assessment incomplete.
- The fact that no surveying of wetland fish was conducted also makes these methods incomplete.
- There may be threatened or at risk species present or high ecological values in these unsurveyed areas, but we cannot know without surveying. This renders the ecological effects assessment incomplete.

3.3.6 Fish Fauna (methods)

- Relying on the New Zealand Freshwater Fish Database and only one to two surveys at one time point per stream, as well as one eDNA sample per stream is insufficient to give an accurate picture of the fish diversity. To accurately assess the diversity of fish in coastal streams on the south island west coast, especially ones near wetlands, you need: 1) expert electric fishing – from people who are experienced and trained in this specific environment,

with the species you expect to find in coastal south island west coast streams. Different electric fishing techniques are used to draw out different species. 2) double-sided pike trapping overnight – to catch species like lamprey or brown mudfish. 3) spotlighting in streams at night to target adult migratory galaxiids. Additionally, 4) it is becoming increasingly common for eDNA to be used in conjunction with these aforementioned three standard methods, but it is usual to take more than one eDNA sample.

- The freshwater surveyors did not follow the New Zealand Freshwater Fish Sampling Protocols (Joy, David and Lake 2013) – as in addition to electric fishing, trapping for Northern Drain would have been recommended, as well as spotlighting and trapping for Collins Creek and Canoe Creek.
- There was no concerted effort to look for wetland fish such as brown mudfish (at risk species), particularly in Northern Drain. Mudfish cannot be detected with electric fishing.
- Electric fishing does not work well in water waters that are slow-moving and turbid like Northern Drain.
- Only taking one eDNA sample per stream can lead to false absences (Rousell et al 2015). It is best practice to take numerous samples across either space or time.
- What time of day and year were the fish samples collected? Sampling time impacts the likelihood of false absences depending on the species, as some are only active at certain times of the day or present at certain times of the year if they are migratory.
- What length of stream was surveyed at each time? And for what length of time? Although the sampling was standardised, it cannot be deduced from the report whether there was sufficient sampling effort.

9.2.2 Effects on Avifauna

- The proposed mining activity violates NZ Coastal Policy Statement Policy 11a as the proposed changes in activity and lighting will not avoid all negative effects of the mining on threatened or at risk species.
- The report fails to mention the negative effect that the significant increase in the number of vehicles on the road will have on the little blue penguin (kororā) and tāiko (via road mortalities). Road mortalities of these birds already happen both north and south of Barrytown Flats, and increasing the traffic significantly will increase the probability of more mortalities.
- The proposed actions to mitigate the negative effects of light pollution on the tāiko are insufficient. The hours of reduced operation proposed still overlap with dusk – and tāiko also fly at dusk. Furthermore, on a rainy day, it becomes darker earlier, and that was not considered in the report. Additionally, it says processing will happen at all hours, which could result in tāiko groundings.
- There is no mention of the negative effects of dust on birds and how that would be avoided.

“Maintenance of a 20 m buffer from the edge of mining to the lagoon area. This boundary is to be permanently marked so as to avoid crossing it inadvertently.”

- Twenty metres is not sufficient to mitigate the effects of mining on the lagoon and its bird inhabitants. Furthermore, the lagoon boundary will change over time due to natural erosion. Additionally, run-off from the mine to the lagoon is a concern.

“Although interrogation of the eBird database suggested up to 18 species of ‘threatened’ or ‘at risk’ birds potentially use the site and the adjoining SNA, seasonal surveys have confirmed that not all of these species are **likely to be present, at least not continuously.**”

- Just because certain birds aren’t there continuously or don’t breed there does not mean it’s not important habitat for them. If we had that attitude about all habitats that birds use, there would be no justification for keeping anything. Birds move, and they need habitats to move between. This coastal lagoon ecosystem is rare in this area; hence it is a proposed significant natural area.

9.3 Effects on Wetlands

- These findings are undermined by the fact that not all wetlands within 100 m of the mine site were assessed as part of this report.
- Also, as stated earlier, wetland fish were not surveyed for.
- The projected drop in the water table would be damaging for the adjacent wetlands and the negative effect is being downplayed. Additionally, once again, no fish sampling was done in the wetlands – making it impossible to fully assess the effect of a water table reduction.

9.4.3 Effects on Water Quantity

“In addition, flows in Collins Creek will be augmented in order to avoid flow reductions. Augmentation will also be required in order to mitigate the potential reduction of groundwater flows to Canoe Creek Lagoon.”

- The proposed augmentation plan is not sufficiently detailed to convince me that it will be successful. Also, it is likely the augmented water will not have the same chemical profile as the naturally occurring water.

9.4.5 Effects on Stream Ecology

- Given the streams were not adequately surveyed for fish (as above in 3.3.6), the effects of the proposed mining cannot be adequately assessed.
- At least two at risk species were identified (longfin eel and bluegill bully). I do not think the proposed mitigation measures would completely avoid all negative effects on these at risk species – again violating NZ Coastal Policy Statement Policy 11a.
- The location of the proposed settling ponds is too close to Collins Creek. In the event of high rainfall, the ponds are likely to overflow into Collins Creek, which in turn will flow into the Canoe Creek Lagoon.
- The location of panel 10 of mining is too close to Rusty’s lagoon, a proposed significant natural area.
- The location of panel 8 is too close to Northern Drain, which is hydrologically connected to Rusty’s lagoon, a proposed significant natural area.

“Kōmanawa Solutions (2023) concludes that turbidity may be elevated above the low background levels in Collins Creek during some periods of the mining operation.”

- Sedimentation/turbidity is harmful to native fish such as galaxiid spp and redfin bully (Rowe et al 2000; Richardson et al 2001; Richardson and Jowett 2002), as well as brown trout (Greer et al 2015) and these species were identified in the surveys.
- I am not convinced that mitigation efforts will completely avoid increases in suspended sediment/turbidity in the streams.

Proposed Significant Natural Area

- The proximity of the mining area to the proposed significant natural area (SNA) is alarming. Birds in this area will be disturbed by the mining activity – both by noise, light and dust.
- Northern Drain is undoubtedly hydrologically connected to the proposed SNA – therefore, the mining will negatively affect the proposed SNA as it will certainly impact Northern Drain.
- Irrespective of whether the lagoon is an SNA, the lagoon area is a rare and vulnerable ecosystem type in this coastal environment, and therefore this proposal violates NZ Coastal Policy Statement 11b, as this lagoon will be negatively affected.

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5.54-5.57 Effects on avifauna

“Overall, the ecological assessment concludes that with the avoidance and mitigation methods applied to the proposal, the effects on avifauna, including tāiko, will be low, or no more than minor in nature, with adverse effects being avoided on threatened and at risk species.”

- Strongly disagree that adverse effects will be avoided on at risk species or that effects will be low or no more than minor – see my points above regarding attachment M.

5.58 Effects on wetlands

“The effects on wetlands are primarily avoided through the maintenance of water levels, therefore considered to be **less than minor** in nature”

- Strongly disagree that adverse effects will be avoided and will be less than minor in nature. There was no surveying of fish in the wetlands (making it impossible to assess impact), and there is no mention of the fact that streams that are hydrologically connected to wetlands will be impacted, which will in turn impact the wetlands. Also see my points above regarding attachment M

5.59-5.64 Effects on stream ecology, water quality and quantity

“...however the effects of these changes with all mitigations outlined above employed will result in **no more than minor** ecological effects on the surrounding receiving environments.”

- Strongly disagree that the ecological effects will be no more than minor – see my points above regarding attachment M.

5.71-5.74 Dust

- Do not agree that dust mitigation methods will be sufficient to avoid negative ecological and human effects of dust. See more below regarding Waikato North Head Mine.

Effect on humans - Transport method – trucks

- At Waikato North Head Mine, using trucks to transport ironsands was rejected because of noise, safety for other road users and dust problems.
- The road both north and south of Barrytown Flats has far more sharp corners than the road connecting the Waikato North Head Mine to the steel mill. At many locations, the consequences of going off the road between Barrytown and Rapahoe, and Barrytown and Fox River are fatal as the road hugs the cliff in many places, with little barrier to stop vehicles going off a cliff.
- That section of the West Coast has a lot of rain, which will decrease the visibility and traction of vehicles on the road, and having a large number of trucks on the road in inclement conditions will make the road less safe for other road users.

References

M.J.C. Greer, S.K. Crow, A.S. Hicks & G.P. Closs (2015) The effects of suspended sediment on brown trout (*Salmo trutta*) feeding and respiration after macrophyte control, *New Zealand Journal of Marine and Freshwater Research*, 49:2, 278-285, DOI: [10.1080/00288330.2015.1013140](https://doi.org/10.1080/00288330.2015.1013140)

M. Joy, B. David, & M. Lake (2013). *New Zealand freshwater fish sampling protocols. Massey University: Palmerston North, New Zealand.*

D. Rowe, M. Hicks & J. Richardson (2000) Reduced abundance of banded kokopu (*Galaxias fasciatus*) and other native fish in turbid rivers of the North Island of New Zealand, *New Zealand Journal of Marine and Freshwater Research*, 34:3, 547-558, DOI: [10.1080/00288330.2000.9516956](https://doi.org/10.1080/00288330.2000.9516956)

J. Richardson, D.K. Rowe & J.P. Smith (2001) Effects of turbidity on the migration of juvenile banded kokopu (*Galaxias fasciatus*) in a natural stream, *New Zealand Journal of Marine and Freshwater Research*, 35:1, 191-196, DOI: [10.1080/00288330.2001.9516989](https://doi.org/10.1080/00288330.2001.9516989)

J. Richardson & I.G. Jowett (2002) Effects of sediment on fish communities in East Cape streams, North Island, New Zealand, *New Zealand Journal of Marine and Freshwater Research*, 36:2, 431-442, DOI: [10.1080/00288330.2002.9517098](https://doi.org/10.1080/00288330.2002.9517098)

J.M. Roussel, J.M. Paillisson, A. Treguier & E. Petit (2015). The downside of eDNA as a survey tool in water bodies. *Journal of Applied Ecology*, 823-826.