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TAHAROA IRONSANDS LTD

CENTRAL AND SOUTHERN BLOCKS MINING PROJECT [FTAA-2512-1153]

WAIKATO REGIONAL COUNCIL SECTION 53 COMMENTS

UNDER THE FAST-TRACK APPROVALS ACT 2024

20 May 2026

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REPORT INFORMATION

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Author	Mark Chrisp – Mitchell Daysh Limited
Review By	Sheryl Roa – Waikato Regional Council
Authorised for Release	AnaMaria d'Aubert – Waikato Regional Council
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Your Comment on the Central and Southern Blocks Mining Project

Please include all the contact details listed below with your comments and indicate whether you can receive further communications from us by email to substantive@fasttrack.govt.nz.

Contact Details		
Please ensure that you have authority to comment on the application on behalf of those named on this form.		
Organisation name (if relevant)	Waikato Regional Council	
First name	Sheryl	Mark
Last name	Roa	Chrisp
Postal address	Waikato Regional Council Private Bag 3038 Waikato Mail Centre Hamilton 3240	Mitchell Daysh Ltd PO Box 1307 Waikato Mail Centre Hamilton 3240
Mobile phone	[redacted]	[redacted]
Email *(a valid email address enables us to communicate efficiently with you)*	[redacted]	[redacted]

1. We will email you draft conditions of consent for your comment			
☒	I can receive emails and my email address is correct	☐	I cannot receive emails and my postal address is correct

Please provide your comments below, include additional pages as needed.

1. INTRODUCTION

Waikato Regional Council (**WRC**) welcomes the opportunity to provide comments under section 53 of the Fast-track Approvals Act 2024 (**FTAA**) in relation to the proposal by Taharoa Ironsands Limited (**TIL / "the Applicant"**) for the Central and Southern Blocks Mining Project (**"the Proposal"**) located at Taharoa on the west coast of the North Island.

This report focuses on the aspects of the proposal that are particularly relevant to the Expert Panel's decision making and/or which are of some concern to WRC. In accordance with Minute 6 of the Expert Panel dated 30 April 2026, this report also provides comments (including proposed edits) in relation to the proposed conditions of the resource consents advanced by the Applicant as presented in Appendix BB of the application.

This report, providing WRC's comments on the proposal under section 53 of the FTAA, has been prepared by Mark Chrisp – a Partner and Principal Environmental Planner in the Hamilton Office of Mitchell Daysh Limited. Mark's qualifications and experience are summarised as follows:

- Master of Social Sciences degree in Resources and Environmental Planning from the University of Waikato (conferred in 1990);
- Certified Commissioner under the Ministry for the Environment's 'Making Good Decisions' course (for over a decade);
- Member of the New Zealand Planning Institute, the New Zealand Geothermal Association, and the Resource Management Law Association;
- Appeared as an Expert Planning Witness in numerous Council and Environment Court hearings, as well as several Boards of Inquiry;
- More than 36 years' experience as a Resource Management Planning Consultant; and
- Of relevance to the current application, Mark has extensive experience in the preparation of resource consent applications for mineral extraction activities. By way of a recent example, Mark is currently the Lead Consultant advancing an application under the FTAA for the Bendigo-Ophir Gold Project in Central Otago.

This report has been reviewed and endorsed by Sheryl Roa – Principal Consents Advisor in the Hamilton Office of WRC. Sheryl's qualifications and experience are summarised as follows:

- Master of Science degree in Freshwater Ecology and Ecotoxicology from the University of Waikato;
- Sheryl's role at the Waikato Regional Council is as Principal Advisor – Consents, which involves consenting and monitoring of Infrastructure and Mines within the Waikato Region;
- More than 26 years' experience as a consenting and monitoring officer;
- Certified Commissioner under the Ministry for the Environment's 'Making Good Decisions' course – Chair endorsement;
- Appeared as an Expert Planning Witness in numerous Council Hearings and in Environment Court hearings;
- Of relevance to the current application, Sheryl has extensive experience in the processing of resource consent applications and the associated monitoring for mineral extraction activities. By way of a recent example, Sheryl was the Project Manager and lead for the Waihi North Project under the FTAA in Waihi.

Mark and Sheryl were responsible for processing the previous application by TIL for the proposal under the Resource Management Act 1991 (**RMA**) including the preparation of the s.42A Report (which included site visits to Taharoa). That application process resulted in a decision being released by an Independent Hearing Panel in November 2024 (granting consent subject to a comprehensive set of conditions). That decision is currently the subject of an appeal by TIL (in relation to the scope of the activities consented and the conditions).

The following is a photo of the Taharoa Mine taken during a site visit in 2023 which shows and the nature of scale of activities.

Figure 1: Aerial View of Taharoa Mine

Although this application is not before the Environment Court, Sheryl and I confirm that we have read the Code of Conduct for expert witnesses as contained in section 9 of the Environment Court Practice Note 2023. We agree to comply with that Code. Our qualifications as experts are set out above. We are satisfied that the matters addressed in this report are within our areas of expertise, except where we state that we are relying on information provided by another person or expert. We have not omitted to consider material facts known to us that might alter or detract from the opinions expressed in this report.

WRC has engaged a range of technical experts to review documents submitted in support of the application by TIL to inform its comments on the proposal. The reports of each of those technical experts (in the form of memos) are presented as appendices to this report.

Following this Introduction, this report is structured as follows:

> Section 2 briefly discusses the regional and national benefits of the proposal.

> Section 3 discusses the air quality issues (i.e. dust) associated with the current and proposed mining activities.

> Section 4 discusses the hydrology effects associated with the proposal.

> Section 5 discusses the effects of the proposed mining activities on wetlands.

- Section 6 discusses the water intake structure on the Wainui Stream.
- Section 7 discusses coastal sedimentation associated with ship loading.
- Section 8 discusses the term of consent sought in relation to the proposal.
- Section 9 provides some commentary and sets out the proposed amendments and/or additions to the consent conditions proffered by TIL.

Unless otherwise addressed within this report, WRC agrees and accepts the applicant's assessment of the proposal in relation to the relevant provisions of the Waikato Regional Plan (**WRP**) and the RMA.

2. REGIONAL AND NATIONAL BENEFITS OF THE PROPOSAL

The Executive Summary of the application summarises the regional and national benefits of the proposal as follows:

> "The Central and Southern Block Mining Project delivers significant regional and national benefits (both economic and social), which are central to the purpose of the FTAA. TIL is the largest single exporter by tonnage in New Zealand and contributes $316 million in annual export revenue. The Project will support 350 full-time equivalent jobs and continue regional spending, with the mine having generated $1.2 billion in regional spending since 2017. TIL also provides, at its election, the ongoing provision of housing, infrastructure and essential services to the Taharoa Village which is closely tied to the mine. The continuation of mining operations is clearly important to the economic and social wellbeing of the local and regional community."

Based on the above, along with more detail presented in Section 2.2 of the application and the Economic Assessment presented in Appendix C of the application, it is my opinion that the proposal will deliver significant regional and national benefits and is therefore consistent with the purpose of the FTAA. I also agree with statements in the application that the environmental effects of the proposal are not sufficiently significant as to be out of proportion such that they outweigh the regional and national benefits. On that basis, section 85 of the FTAA does not require that the application be declined in this instance. However, none of that avoids the need to ensure that the consent conditions appropriately address the environmental effects of the proposal, which is the primary focus of the following sections of this report.

3. AIR QUALITY (DUST)

The emission of dust from the activities currently being undertaken and proposed on the Taharoa Mine site is the main concern held by WRC. There have been numerous complaints from neighbouring landowners about the emission of dust from the sand mining activities and WRC has issued Abatement Notices to TIL in the past.

Mr Peter Stacey (an Air Quality Scientist) has been engaged by WRC to provide advice in relation to the management of dust on the site including the nature of appropriate consent conditions to achieve the avoidance of adverse nuisance effects beyond the boundary of the site. A memo from Mr Stacey setting out his analysis of the air quality issues associated with the proposal is presented as Appendix A.

As a result of his review of the PDP Air Quality Assessment, Mr Stacey considers that:

(a) It would be helpful for the air quality assessment to provide further information regarding the effectiveness of the coconut matting trial, whether wider implementation of this mitigation measure will be progressed, and how dust emissions from large, exposed tailings and nominated rehabilitation areas are proposed to be managed on an ongoing basis.

(b) It would be useful for the assessment to provide an update on the effectiveness and success of the recent rehabilitation works (i.e. the planting of 25,000 plants in the Eastern Block), including whether the planted areas have achieved successful stabilisation and vegetation establishment, and dust mitigation. It is also unclear how long the planted rehabilitation would take to become effective in reducing windblown dust emissions.

(c) The applicant should explain how cumulative dust effects associated with large, exposed areas will be managed over the long term, and whether consideration has been given to including more prescriptive controls on the extent of exposed surfaces.

(d) Additional explanation or analysis is required to demonstrate why MP4 can reasonably be considered representative of naturally occurring background dust conditions, rather than being influenced by mining related dust sources.

(e) The assessment should include elevated tailings and other unstabilised high elevation areas and assess their potential contribution to off-site dust effects.

(f) Given that PM_{10} is regulated under the National Environmental Standards for Air Quality (NESAQ) and the elevated TSP concentrations that have been measured around the site, plus the large scale of the activity and proximity of receptors, a detailed assessment of PM_{10} is required.

(g) It would be helpful for the applicant to briefly confirm the low level of risk associated with $PM_{2.5}$ or respirable crystalline silica (RCS) as pollutants of concern to provide reassurance to the local community and cover off the potential risk associated with these potential discharges.

(h) It would be helpful for the applicant to provide further information on the effect of the removal of the ridgeline along the eastern / northern boundary and some mature pine trees that have been removed along the eastern site boundary of the Central and Southern Blocks on potential dust effects at receptor R4, including whether the loss of this physical screening and sheltering has been considered in the assessment.

In relation to the last point noted above, Mr Stacey states:

> "R4 is located approximately 100 m from the proposed works and appears to represent one of the more highly exposed receptors in proximity to the mining area. In my opinion, it is therefore important that specific measures are put in place to manage effects at this location. I note that Condition 9 requires stabilisation of areas within the Priority Stabilisation Area (being a 100 m wide strip along part of the northern boundary of the Central Block) within three months of mining being completed. While I agree that timely stabilisation following completion of mining is important, it is unclear how long mining activities are proposed to occur in proximity to receptor R4 and whether multiple extraction campaigns may occur in this area over time, potentially resulting in prolonged periods of exposure prior to stabilisation occurring.
>
> Further information should be provided on the proposed duration and sequencing of mining activities near R4, as well as the specific mitigation and contingency measures that would be implemented to manage dust effects at this location while mining is occurring, including whether additional monitoring, temporary shielding, enhanced dust suppression, house cleaning, temporary accommodation, or other response measures have been considered."

I agree with the above. The effects of dust on receptor R4 (Wetini), and other surrounding landowners to a varying but generally lesser extent, is a key aspect of the proposal that needs to be comprehensively addressed and controlled by consent conditions.

Mr Stacey recommends the replacement of TSP monitoring with PM_{10} monitoring. In his opinion, PM_{10} monitoring provides a more appropriate approach for assessing potential health effects while also remaining suitable for management of nuisance dust effects. He

also says that typically, where PM_{10} concentrations are appropriately managed, nuisance dust effects are also reduced.

Mr Stacey also recommends that the Dust Management Chapter of the Environmental Management Plan (EMP) will need to be updated with appropriate trigger levels and response actions. As a "reasonable **starting point**", Mr Stacey recommends:

- 1-hour average PM_{10} concentrations of 55 µg/m^3 or greater requiring immediate investigation and implementation of additional dust mitigation measures; and
- 1-hour average PM_{10} concentrations of 65 µg/m^3 or greater requiring cessation of dust generating activities (excluding dust suppression activities) until concentrations reduce and appropriate mitigation measures have been implemented.

Mr Stacey also recommends that monitoring locations should, where practicable, be located near the site boundary and positioned to appropriately characterise dust discharges at sensitive receptor locations and shown on a plan.

Mr Stacey makes the following overall conclusions and recommendations in relation to consent conditions.

> "Overall, while the proposed conditions capture some of the relevant dust management requirements, many of the detailed operational, monitoring, trigger, contingency, and mitigation measures are not appropriately described by consent conditions or clearly required to be addressed within the EMP. In my opinion, this provides limited certainty to stakeholders at the time the consent is granted, particularly given the scale of the activity, the proximity of sensitive receptors, and the history of dust complaints associated with the site. My view is that the consent conditions should be more prescriptive regarding minimum dust management, monitoring, trigger, and rehabilitation requirements, with less reliance on future certification processes to determine key aspects of dust management at the site."

Mr Stacey's specific recommendations in relation to consent conditions are presented in Section 9 of this report.

4. HYDROLOGY

The proposal will result in a range of ongoing changes and effects to surface waterbodies and groundwater.

Attached as Appendix B of this report is a memo prepared by Dr Sung Soo Koh - Groundwater and Hydrology Scientist at WRC. The conclusions reached in his report are reproduced as follows:

"**Key Conclusions**

I find the technical assessments for both surface water and groundwater to be generally robust and well-supported by data. The proposed management of lake levels via the dam-weir structure and the trigger-based augmentation for the Mitiwai Stream are technically sound. However, the potential for seawater intrusion and its secondary effects on water quality require further investigation.

Recommended Key Parameters

1. Lake Level Pumping Triggers: Amend the triggers in Table 11 (p. 33). The levels (currently 9.36 mRL and 9.3 mRL) should be increased to initiate pumping before the weir flows drop below their respective minimums (10 L/s and 24 L/s).

2. Mitiwai Augmentation: Adopt the trigger-based augmentation plan as set out in Table 10 (p. 39).

3. Wetland Protection: Implement the 30-metre protection buffer and continuous monitoring for Class 2 wetlands as proposed.

Matters for Further Information

1. Salinity Management: Clarify the fate of saline slurry and provide confirmation that salinity leaching will not impact the freshwater reaches of the Wainui and Mitiwai streams.

2. Seawater Intrusion Evidence: Provide piezometric maps for the peak dewatering phase and technical justification for the predicted low reverse-flow rates from the sea.

3. Road Flooding Detail: Provide an estimate of predicted flood depths and subsidence durations for Taharoa Road to assist the decision-maker in evaluating the severity of the impact.

4. Class 2 Impacted Wetland Listing: It would be great if the list of the individual wetlands that fall under Class 2 impact category be mapped and circulated. If there is more detailed monitoring schedule (such as action thresholds and subsequent actions) planned on the groundwater-impacted wetlands, I will be able to consider the validity of the schedule. For now, the report suggests that a form of monitoring would be implemented."

Several changes to consent conditions have been recommended in Section 9 of this report to address the issues raised by Dr Koh.

5. EFFECTS ON WETLANDS

The proposal includes:

> Mining activities within 100 m of a wetland, but not closer than 30 m to the wetland; and

> Mining of seven of the lower value wetland areas and to potentially alter the hydrology of and discharge water into other retained wetlands.

Attached as Appendix C of this report is a memo prepared by Kaitlin Morrison – Scientist Wetlands at WRC. The conclusions reached in her report are reproduced as follows:

> "**Conclusions**
>
> I am comfortable with the proposal including the loss of approximately 4.25 ha of natural inland wetland. Provided appropriate monitoring, offsetting and protection of the remaining wetlands and the new wetland is carried out, the overall effects of this loss can be offset.
>
> Having reviewed Sung-Soo Koh's comments relating to the hydrogeology report, I am comfortable with the suggested 30 m buffer in terms of effects on hydrology. However, I still have concerns about whether it is sufficient to prevent effects on avifauna. More evidence is needed to support this size buffer and show there will be no negative effects on sensitive species.
>
> There needs to be a full 12 month baseline of monitoring to obtain baseline values for water level monitoring triggers. As triggers are proposed to be set seasonally (different triggers for each of the four seasons) a robust set of data is needed. If there is a gap in data collection for any reason this needs to be addressed.
>
> Baseline monitoring needs to cover the proposed offset site as well and if "augmenting existing wetlands" is the approach to offset in any area, then baseline monitoring of current values needs to show that the new value is sufficiently increased from baseline that it is providing enough increased value to offset the complete loss of wetlands elsewhere (increased value of restoring existing wetland is likely different compared to creating wetland where there is currently none present).
>
> Monitoring methods for the wetlands around Lake Taharoa are appropriate. However, monitoring is also needed for other wetlands on site. This includes the wetlands to be retained, as well as the offset wetland proposed to be created. Water level monitoring is covered in the hydrogeological assessment,

as well as Sung-Soo Koh's comments. However, ecological monitoring is also needed. I recommend annual monitoring so any changes can be detected in a reasonable timeframe to allow any remedies to be undertaken if needed. This should include vegetation monitoring as per the Natural Inland Wetland and Buffer Management Plan (Appendix DD) but on a more frequent basis (annually) and including all potentially affected wetlands (those noted in the Wetland Management Plan).

I would also recommend avifauna monitoring be included, particularly if the buffers are as small as proposed (i.e. currently 30 m proposed). A suitably qualified and experienced ecologist needs to undertake this work, and WRC needs the ability to review the plans and the results of the monitoring.

I also have concerns relating to the offset site. As mentioned, the wetland assessment notes the offset site "could be compromised" by groundwater drawdown and "may need to be supplemented with water". More certainty is needed that the site can be maintained long-term, and particularly that this water supplementation will not be needed beyond the proposed term of the consent as this would seriously affect the long-term success of the wetland.

Main points:

(a) Need evidence of 30 m buffer being sufficient for ecological protection, not just hydrology.

(b) Need to ensure full 12 month baseline data covering all seasons for trigger/water level setting.

(c) Need ecological monitoring of all wetlands, including the offset site, not just the wetlands associated with the lake.

(d) Monitoring should be more frequent than proposed, recommend annually.

(e) More information needed about long-term viability of the offset site, particularly around the need for water supplementation.

Questions to be addressed:

What evidence can be provided to support a 30 m buffer being sufficient to protect sensitive wetland avifauna species being disturbed by nearby mining activities, machinery etc? Especially effects on nesting birds.

> Exactly what effects is the groundwater drawdown likely to have on the offset site? Will water supplementation be needed long-term? How will the wetland be maintained long-term, particularly beyond the term of the consent?"

Ms Morrison notes that the application mentions there will be 30 m buffers around the wetlands planted. Ms Morrison says that buffers need to be around the entirety of all retained wetlands, as well as around the newly created wetland off-set site, and these wetlands and buffers must also all be appropriately fenced to exclude any potential stock or grazing animal (cattle, pigs, deer, horses) incursion.

Finally, Ms Morrison's memo sets out a number of proposed changes to the consent conditions proffered by TIL which are presented in Section 9 of this report.

6. WATER INTAKE STRUCTURE

TIL abstracts freshwater from the Wainui Stream (which is dammed by TIL to create a water supply reservoir) to support the ironsand mining operation.

The following photos (taken during a site visit in 2023) show the Wainui Stream and the dam, the water intake structure immediately above the dam, and the lower reach of the Wainui Stream below the dam.

Figure 2: Wainui Stream (in the foreground) and the Dam

Figure 3: Water Intake Structure Above the Dam on the Wainui Stream

Figure 4: Lower Reach of the Wainui Stream below the Dam

The existing water intake structure is screened with a mesh size not exceeding 12 millimetre in diameter. That outcome is reflected in a proposed condition advanced by TIL.

The nature of the water intake structure has been assessed by Mr Josh Smith, a Freshwater Ecologist at WRC. Mr Smith's memo is presented as Appendix D.

The Waikato Regional Plan (**WRP**) sets out permitted activity standards for water intake screen mesh depending on the nature of the waterbody in question. The Wainui Stream is identified in the WRP as "Fishery Class" and within that Class it is classified as a "Significant Indigenous Fisheries and Fish Habitat". In relation to the latter, the following permitted activity standards (set on in Section 3.2.4.5 of the WRP) are relevant:

> All water intake structures shall be screened with a mesh aperture size not exceeding 1.5 millimetres in diameter at locations less than 100 metres above mean sea level, or three millimetres in diameter at locations greater than 100 metres above mean sea level.

> The maximum intake velocity for any water intake structures shall not exceed 0.3 metres per second.

In his memo, Mr Smith states, in relation to the above standards:

> "... they provide an important reference point against which the effects of the proposal must be assessed, and against which appropriate consent conditions must be determined. Any departure from the permitted activity standard therefore requires explicit assessment and justification, and does not remove the obligation to avoid, remedy, or mitigate entrainment effects."

For the reasons set out in his memo (primarily relating to a concern about the entrainment of fish), Mr Smith recommends that TIL upgrade the water intake structure to have intake screen mesh of 1.5mm or less in accordance with the applicable WRP standard noted above. This is the same approach that was taken in relation to the previous application for the proposal under the RMA. However, this is not simply a case of swapping out the existing screens for new ones. It is anticipated that an amended design of the water intakes will be required, and it is proposed that any new design be the subject of a review and certification by WRC to ensure that the risk of fish entrainment is minimised.

The conditions proposed by TIL already incorporate the maximum intake velocity of 0.3 metres per second in accordance with the standard in the WRP noted above (and therefore no change is recommended in that regard).

7. COASTAL SEDIMENTATION

Attached as Appendix E of this report is a memo prepared by Dr Michael Townsend – Team Leader for Coastal Marine Science at WRC. Dr Townsend's memo raises a concern about the reliance on unvalidated modelling based on a single survey of coastal sedimentation and the consequential uncertainty in relation to any conclusions that can be drawn from the Marine Ecology Assessment (MEA) prepared on behalf of TIL.

Dr Townsend concludes:

> "The issues outlined above and in my previous report highlight that the level of ecological risk is less certain than presented in the MEA which does not adequately consider the underlying uncertainty. The empirical basis for the MEA was limited to a single survey that was spatially constrained with elements of poor execution (e.g. limited replication for ecology/physical measures) and a strong reliance on unvalidated modelling with respect to sedimentation. Robust gradient-based consent monitoring can help address areas of uncertainty highlighted and is a sensible approach."

Dr Townsend recommends the following changes to the consent conditions:

- A monitoring programme (including a gradient approach via wet sieving with no pretreatment with 3-yearly sampling at locations 250m, 500m, 1km, 2km and 4 km north and south of the point of discharge) that determines the fate of the sediment discharged to the Coastal Marine Area, including its distribution and deposition on the sea floor in areas potentially affected by the discharge.
- A requirement that if the data obtained from the monitoring programme shows a trend that the receiving environment is getting increasingly muddier, then a further assessment of ecological effects will be required along with recommendations to address any adverse effects identified.

Dr Townsend's recommendations above are reflected in the recommended consent conditions presented in Section 9 of this report.

8. TERM OF CONSENT

The applicant seeks a consent term of 35 years.

In an Addendum to the s.42A Report I prepared in relation to the previous application under the RMA for the proposal, I recommended a consent term of 35 years. The Hearing Panel granted consent for a term of 20 years (this now being one of the matters that is the subject of the appeal by TIL in relation to the November 2024 decision).

I remain of the opinion that a consent term of 35 years is appropriate for the proposal for the following reasons:

(a) It is consistent with relevant policy in the WRP. Specifically, Section 1.2.4 of the Waikato Regional Plan includes the following policy:

> "Policy 6: Consent Duration
> When determining consent duration, there will be a presumption for the duration applied for unless an analysis of the case indicates that a different duration is more appropriate having had regard to case law, good practice guidelines, the potential environmental risks and any uncertainty in granting the consent."

(b) It is consistent with the approach that has been taken by WRC and other Councils in relation to other large-scale capital-intensive activities such as:

- Pukekohe Municipal Wastewater Treatment Plant;
- Tongariro Power Scheme;
- Waikato Hydro Scheme;
- Ohaaki Geothermal Power Plant;
- Huntly Power Station;
- Te Awamutu Dairy Factory;
- Newcombe Road Sand Quarry (new sand quarry in the Waipa District);
- GeoFuture (including 5 geothermal power stations on the Wairākei Geothermal Field); and
- Seay Quarry (in the Taupō District).

(c) Mr Coffey has confirmed that the mine is expected to have a life well beyond 35 years;

(d) The mine involves a very high and continuing level of capital investment (noting that the greatest possible certainty is required to make such investments);

(e) Review conditions can address any unexpected outcomes if they arise during the term of the consent; and

(f) Any past lack of environmental performance / number of complaints are compliance issues (it is my understanding that a shorter consent term cannot be imposed as some sort of punitive measure).

9. CONSENT CONDITIONS

The applicant has proffered a comprehensive set of proposed consent conditions (presented as Appendix BB of the application). Based on the conclusions reached in this report (including the various memos prepared by technical experts presented as appendices to this report) the following provides some commentary and/or sets out recommended changes and additions to the consent conditions (additions underlined and deletions ~~struck through~~).

Given that WRC will be the administering agency in relation to any resource consents granted to TIL by the Expert Panel, it has a particular interest in the workability and enforceability of the consent conditions.

The comments and suggested edits / additions to the condition set out below should not be seen as WRC's final view of the conditions. WRC will also need to consider, and seeks the opportunity to comment on, any changes to the conditions suggested by other parties.

Some aspects of the conditions will need to be the subject of further dialog and/or caucusing between technical experts (particularly in relation to the aspects of the conditions that are the subject of commentary below rather than recommended specific changes or additions).

It is anticipated that these matters can and will be the subject of the Panel Facilitated Conference foreshadowed by the Expert Panel in Minute 8, indicatively scheduled for 17 and 18 June 2026. As a next step, it is anticipated that the Applicant will respond to the following as part of its response to comments under section 55 of the FTAA.

9.1 CONDITIONS RELATING TO AIR QUALITY

In his memo (Appendic A) Mr Stacey notes:

> "Many of the detailed measures proposed to manage dust effects are intended to be addressed through the draft Dust Management Chapter of the EMP, which is subject to further refinement and certification by Waikato Regional Council following the granting of consent. While this approach provides flexibility to refine operational management measures over time, I note that it provides limited certainty to stakeholders at the time the consent is granted, as many of the detailed mitigation, trigger, contingency, and operational response measures have not yet been finalised.
>
> ...

In my opinion, it is therefore important that the resource consent conditions establish clear bottom-line requirements and minimum performance standards for management of dust effects, with the EMP then providing the detailed operational procedures required to implement those requirements. I consider this particularly important given the scale of the activity, the close proximity of some receptors, and the history of dust complaints associated with the site."

In summary, Mr Stacey supports the following matters directly within the consent conditions:

(a) Replacement of TSP monitoring with PM_{10} monitoring;

(b) Installation of at least one NESAQ compliant PM_{10} monitor within the Taharoa community, preferably in proximity to Taharoa School/Kura;

(c) Relocation of the MP3 PM_{10} monitor to a location between the northern boundary and R4 (Wetini property);

(d) The EMP must identify the proposed mining sequence, duration of works, dust mitigation measures, monitoring procedures, contingency responses, and methods for minimising the length of time that mining activities occur within 200 m of R4;

(e) The consent holder must retain a section of ridgeline along the northern boundary of the Central Block that provides physical screening and wind sheltering between receptor R4 and mining activities;

(f) Increase the width of the Priority Stabilisation Area from 100 m to 200 m;

(g) Require any sand mining within the Priority Stabilisation Area to be completed within 12 months of the commencement of the new consents;

(h) A prohibition on any further mining within the Priority Stabilisation Area after the first 12 months of the commencement of the new consents;

(i) Require the stabilisation and permanent rehabilitation of the Priority Stabilisation Area within 24 months of the commencement of the new consents, including ongoing maintenance as required thereafter to minimise any dust effects on neighbours;

(j) Staged works and progressive rehabilitation requirements aimed at minimising the extent of exposed and unstabilised surfaces at any one time;

(k) Clear stabilisation and rehabilitation timeframes for exposed areas;

(l) Investigation and reporting requirements following dust complaints;

(m) Requirement for preparation, certification, implementation, and ongoing review of an EMP addressing dust management; and,

(n) Requirement for public access to PM_{10} monitoring data.

Mr Stacey also recommends the consent conditions should also require the EMP to include the following matters:

(a) A monitoring location plan showing all monitoring locations (see plan in Appendix B of Mr Stacey's memo).

(b) Minimum monitoring data capture, validation, maintenance, servicing, calibration, and ongoing performance review requirements, including establishment of k-factors for any PM_{10} monitoring equipment that is not NESAQ compliant.

(c) PM_{10} trigger levels, response actions, and stop work requirements for elevated dust events. While there may be benefit in allowing some flexibility for refinement of trigger levels through the EMP process as additional site specific monitoring data becomes available, in my opinion the proposed trigger values and response framework should be clearly identified within the application and consent documentation as an initial starting point.

(d) Receptor specific mitigation, monitoring, and contingency procedures for works occurring in close proximity to sensitive receptors, including dwellings and curtilage areas located within 200 m of active mining activities.

(e) Wind speed and wind direction trigger levels for dust generating activities.

(f) Automated alert systems and contingency response procedures where monitoring trigger levels are exceeded.

(g) Procedures for management of adverse meteorological conditions.

(h) Procedures for investigating and responding to exceedances of monitoring trigger levels.

(i) Dust complaint investigation and response procedures.

In relation to the above, Mr Stacey explains:

> "Many of the recommendations I have outlined above are intended to address concerns identified by WRC monitoring and enforcement staff regarding the current consent framework and operation of the site, including limitations

associated with the existing monitoring approach, uncertainty regarding rehabilitation and stabilisation outcomes, the need for more robust and transparent monitoring of potential health related effects, and the practical difficulties associated with investigating and responding to dust complaints at this location. In my opinion, these matters support the need for a more prescriptive and transparent dust management framework than is currently proposed."

9.2 CONDITIONS RELATING TO HYDROLOGY

Amend Condition 7 of AUTH142035.03.01 as follows:

"Residual Flow in the fish pass

7. When the water level immediately behind the dam is below RL 10~~9.3~~m, the Consent Holder must ensure there is a residual flow in the fish pass of a minimum of 24 L/s."

Note that the 10 mRL value is subject to technical review. The higher trigger level to ensure temporary pumping initiates before stream/fish passage flows fall below 10 L/s and 24 L/s.

Amend Condition 2 of AUTH142035.14.01 as follows:

2. The Consent Holder shall monitor the base flow in the Mitiwai Stream at the locations shown in Figure 2 below. If extraction of sand is occurring in the Central Block within 'Pit 3' as shown in Figure 1 below, and the base flow of the Mitiwai Stream during the summer months from 1 December – 1 May ~~March~~ as measured at the upstream flow recording site in Figure 3 is 28 L/s or less, then the base flow in the Mitiwai Stream must be augmented at the Flow Augmentation Point shown in Figure 2 to achieve a base flow of 28 L/s or greater as measured at the downstream flow recording site shown in Figure 2.

In relation to the changes above:

- Figure 2 shows flow augmentation point, but the text of the condition did not specify the location.
- The recommended change from (1 Dec - 1 Mar) to (1 Dec - 1 May) is based on regional hydrological patterns, where annual low flows frequently lag behind the low-rainfall season. Alternatively, the applicant's consultant may analyse the historical occurrence dates of annual low flows across the observed timeseries to technically justify their narrower monitoring window.

The draft conditions within Appendix BB currently contain no mention of salinity monitoring or management plan to address potential seawater intrusion into the deep mining pits. The

applicant's consultant may be able to provide technical evidence to support their position that seawater intrusion risks are negligible. This gap needs to be flagged as an outstanding item requiring detailed discussion; either to have conditions to deal with potential seawater intrusion or to prove that the seawater intrusion is not going to happen.

9.3 CONDITIONS RELATING TO WETLANDS

In her memo (presented in Appendix C), Ms Morrison notes that any condition mentioning a 30 m buffer may need to be altered, depending on what evidence is provided relating to the sufficiency of this in protecting the ecology and wetland species.

Amend Condition 7 of AUTH142035.01.01 as follows:

7. The Consent Holder shall establish and maintain a planted buffer area of within 30m of the natural inland wetlands and perennial waterbodies (**Planted Buffer Area**) in the area identified in the certified plan (or plans) required by Condition 2(~~c~~d) of this consent which must include all of the wetlands within the Consent Area shown on Figure 1 attached to AUTH142035.16.01 as well as the wetland off-set site, by undertaking infill planting, maintenance, and weed control programme within the Planted Buffer Area. The details of this programme shall be set out in a Natural Inland Wetland and Buffer Management Plan appended to the Consent Holder's Environmental Management Plan.

Add a new condition to AUTH142035.01.01 as follows:

11. The Consent Holder shall ensure that livestock (including cattle, pigs, deer and horses) are excluded from wetlands, riparian margins (including downstream of the fish pass on the Wainui Stream), urupa and wahi tapu sites including associated buffers mapped in accordance with Condition 2 of this consent.

Amend Condition 8 of AUTH142035.05.01 as follows:

8. The Consent Holder must engage a suitably qualified and experienced ecologist to undertake baseline monitoring of the extent and health of all the ~~raupo and flax~~ wetlands within the Consent Area shown on Figure 1 attached to AUTH142035.16.01 and on the margins of Lake Taharoa adjoining the Taharoa C Block as well as the off-set site, within the months of February and March following the commencement of this consent, and ~~every 5 years~~ annually thereafter. The outcomes of monitoring shall be provided to Waikato Regional Council.

Amend Condition 10 of AUTH142035.05.01 as follows:

10. If the level of Lake Taharoa drops below 9.6 metres RL as measured by the Local Datum Survey Marker, the Consent Holder shall:

    (a) implement management responses to reduce as far as practicable the water being taken for the purposes of this consent.

    (b) engage a suitably qualified and experienced ecologist to monitor and report on the extent and health of the ~~raupo and flax~~ wetlands on the margins of Lake Taharoa adjoining the Taharoa C Block as well as the off-set site, for a continuous 30 day period. The wetland monitoring report shall be provided to Waikato Regional Council within 10 working days of completion.

    (c) if the wetland monitoring report prepared in accordance with condition 11(b) concludes that adverse effects (other than those caused by natural seasonal conditions) are occurring on any of the ~~raupo and flax~~ wetlands on the margins of Lake Taharoa adjoining the Taharoa C Block or the off-set site, the Consent Holder shall review and update the Lake Level and Water Management Plan to identify measures that can be implemented to address the identified adverse effects and provide a copy to Waikato Regional Council for certification within 30 working days.

In relation to the condition above, Ms Morrison also notes that we need to ensure that "adverse effects" are appropriately defined and any trigger levels for water level monitoring are appropriate. She notes that the water level triggers and management of lake level can probably be covered in the Lake Level and Water Management Plan (provided WRC approves this plan and triggers before it is implemented).

Amend Condition 16 of Schedule 1: General Conditions as follows:

16. The Consent Holder must prepare a Natural Inland Wetland and Buffer Management Plan (NIWBMP), the objective of which is to avoid, minimize, or remedy the adverse effects of mining activity on all of the natural inland wetlands identified on and adjacent to the site (including the off-set site), and to offset the adverse effects of the loss of natural inland wetlands on the site. The WOEMP shall include:

    (a) the methods for monitoring and reporting on the extent and health of the ~~raupo and flax~~ wetlands on the margins of Lake Taharoa adjoining the Taharoa C Block as required by condition 10 of AUTH142035.05.01.

    (b) identification of land to be included in the management of pests, a list of target pest species (which shall include at minimum rats, possums and mustelids), methods to achieve target species outcomes and a description of

monitoring/surveillance proposed in accordance with standard accepted pest management practice; and

(c) management actions to minimise, remedy, offset or compensate for the loss of natural inland wetlands – which shall include a requirement to establish and maintain a minimum of 8.3 ha of new wetland on the site (in form of creating entirely new wetland habitat or augmenting existing constructed wetland(s) to achieve the 8.3 ha requirement).

(d) methods to minimise drawdown effects on retained wetlands in accordance with condition 6 of AUTH142035.1~~68~~.01.

(e) methods to ensure any machinery arriving from off-site is properly cleaned and decontaminated to reduce the chance of introducing pest plant propagules.

(f) Details of the plant and tree species (which shall include but not be limited to manuka and kanuka) to be planted and/or maintained within the 30m buffer area from natural inland wetlands required by condition 7 of AUTH142035.01.01.

Add advice notes following Condition 16 of Schedule 1: General Conditions above as follows:

Advice Note: In relation to Condition 16(c), if "augmenting existing wetlands" is the approach in any area, then baseline monitoring of current values needs to show that the new value is sufficiently increased from baseline that it is providing enough increased value to offset the complete loss of wetlands elsewhere (increased value of restoring existing wetland is likely different compared to creating wetland where there is none present).

Advice Note: In relation to Condition 16(d) the NIWBMP will need to cover the monitoring and triggers to determine any potential effects on the retained wetlands, as well as the offset wetland.

In relation to Condition 31 of Schedule 1: General Conditions, Ms Morrison notes that it only mentions searching for nests between "1 September – 31 January (inclusive)". She recommends searches beyond this "peak breeding season" as it is possible for sensitive native species to be breeding outside of peak times. As discusses in her memo, more evidence is needed to support the proposed 30 m buffer around nests. The accidental nest discovery protocols and training of staff should go beyond just identifying pipit and dotterel nests. Staff should also be able to identify nests of all native wetland bird species that are, or may be, present in the area, or to stop works upon discovery of any nest until it can be identified by an experienced ecologist.

9.4 CONDITIONS RELATING TO THE WATER INTAKE STRUCTURE

Amend Condition 15 of AUTH142035.05.01 as follows:

15. For water taken from the reservoir in the Wainui Stream, within 12 months of the commencement of this consent and thereafter, the intake must be screened with a mesh size not exceeding ~~12~~ 1.5 millimetre in diameter and must be constructed so that:

    (g) placement of the intake does not cause fish to be entrained; and
    (h) that the migration habits and passage of fish are not compromised or adversely affected by the placement of the intake.

Add a new condition to AUTH142035.05.01 as follows:

17. Within three months of the commencement of this consent, the Consent Holder must submit to the Council for certification, plans for the upgrade of the water intake structure which demonstrate compliance with Condition 15 above.

9.5 CONDITIONS RELATING TO COASTAL SEDIMENTATION

Add new conditions to AUTH142035.13.01 as follows:

11. The Consent Holder must undertake a monitoring programme (including a gradient approach via wet sieving with no pretreatment with 3-yearly sampling at locations 250m, 500m, 1km, 2km and 4 km north and south of the point of discharge) that determines the fate of the sediment discharged to the Coastal Marine Area, including its distribution and deposition on the sea floor in areas potentially affected by the discharge. A report on the results of the monitoring programme and an analysis of the same must be submitted to the Council within three months of the completion of each 3-yearly sampling event.

12. If the data obtained from the monitoring programme required by Condition 11 above shows a trend that the receiving environment is getting increasingly muddier, then a further assessment of ecological effects must be undertaken by the Consent Holder along with recommendations to address any adverse effects identified.

10. SUMMARY

WRC has assessed the applicant's substantive application documentation and when comparing the application with the outcome at the consent hearing held in 2024 it is considered that the matters that remain in contention relate to:

- The effect of the air discharges and how to minimise these effects;
- The intake screening; and
- The additional coastal sediment monitoring.

Matters that require further clarification to ensure the effects are effectively and efficiently managed are:

- Clarity around the wetland setbacks and how these and the new wetlands will be protected, enhanced and managed for the long term.
- Additional information relating hydrology to clarify these effects further.

APPENDIX A

Memo from Peter Stacey – Air Quality

AIR QUALITY CONSULTING NZ

MEMORANDUM

To: **Sheryl Roa (WRC Principal Consents Advisor), Mark Chrisp (WRC Contracted Planner)**

From: **Peter Stacey (Air Quality Consulting NZ Limited)**

CC:

Date: 20 May 2026

Re: **Technical Review of Air Quality Assessment for the Taharoa Central and Southern Block Mining Project**

1 Introduction and Scope of Review

Air Quality Consulting NZ Limited (AQCNZ) has been engaged by Waikato Regional Council (WRC) to undertake a review of the air quality assessment prepared in support of the Taharoa Ironsands Limited (TIL) second substantive application for the Central and Southern Block Mining Project under Schedule 2A of the Fast-track Approvals Act 2024 (FTAA).

The air quality assessment titled *Taharoa Ironsands – Central and Southern Block Fast-track Mining Project – AQ Assessment was prepared by Pattle Delamore Partners Limited (PDP) in October 2025*. For the purposes of this memorandum, this assessment is referred to as the "PDP Air Quality Assessment".

The purpose of this review is to undertake a technical assessment of the PDP Air Quality Assessment and identify any potential errors, omissions, uncertainties, or gaps within the assessment. The review also includes consideration of the proposed air discharge related consent conditions put forward by the Applicant, and the provision of recommendations regarding additional or amended conditions considered necessary to appropriately avoid, remedy, or mitigate potential adverse air quality effects associated with the proposed activities.

The following memorandum sets out the findings of my review of the PDP Air Quality Assessment and the air discharge related consent conditions proposed by TIL.

2 Qualifications and Experience

My name is Peter Stacey. I am the Managing Director of Air Quality Consulting NZ Limited (AQCNZ), a specialist air quality consulting practice.

I hold a Bachelor of Science from The University of Auckland and a Graduate Diploma in Business from Auckland University of Technology. I am also accredited by the Clean Air Society of Australia and New Zealand (CASANZ) as a Certified Air Quality Professional (CAQP). I have over 23 years' experience specialising in air quality and have worked in a consultancy capacity for the last sixteen years.

My previous involvement with the Taharoa Mine included assisting WRC with the review of, and provision of technical advice relating to, resource consent application APP142035 for the TIL Central and Southern Blocks mining operations, which are currently before the Environment Court on appeal. This involvement included reviewing technical material, attending expert conferencing, and attending and presenting at the Council hearing.

I have also been involved in assessing applications for regulatory bodies and have been called upon to provide expert evidence at the Environment Court and at Council resource consent hearings.

Although this application is not before the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses as contained in section 9 of the Environment Court Practice Note 2023. I agree to comply with that Code. My qualifications as an expert are set out above. I am satisfied that the matters addressed in this memorandum are within my area of expertise, except where I state that I am relying on information provided by another person or expert. I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

3 Technical Review of the Air Quality Assessment

The PDP Air Quality Assessment has been prepared generally in accordance with relevant good practice guidance followed in New Zealand for the assessment of dust effects. The assessment includes a qualitative Frequency, Intensity, Duration, Offensiveness, Location (FIDOL) assessment of potential dust effects, supported by the analysis of instrumental dust monitoring data collected from the Site. The assessment also identifies the primary dust generating activities associated with the proposed mining operations and sets out a range of existing and proposed dust mitigation and rehabilitation measures intended to minimise adverse dust effects at surrounding receptors.

Notwithstanding the above, my review identified a number of areas where further information, clarification, or additional assessment is considered necessary to adequately characterise and manage potential adverse air quality effects associated with the proposed activities.

I discuss each of these matters in further detail below.

3.1 Rehabilitation and Stabilisation Measures

Coconut Matting Trials

During my last visit to the mine on 22 May 2024, I observed large areas requiring rehabilitation or stabilisation, including tailings placement areas. My understanding was that WRC enforcement staff had identified these areas as a significant source of windblown dust associated with nuisance dust complaints from members of the Taharoa community. My site visit occurred after a trial using coconut matting had been placed to assist with stabilisation of these areas.

The PDP Air Quality Assessment does not provide any information regarding the effectiveness of this trial or its long-term suitability as a dust mitigation measure. Based on the fine nature of this material and that it is exposed to strong winds, I consider that these areas have the potential to be a significant source of dust emissions and contribute to cumulative dust effects, particularly during strong wind events, which appear to be common.

Section 6.2 of the PDP Air Quality Assessment states that other mitigation measures are likely to be more effective than coconut matting. However, the assessment does not provide any explanation or supporting information for this conclusion, and it is therefore unclear whether coconut matting is an effective mitigation method. Given the scale and exposed nature of the tailings areas, it is also unclear whether the proposed mitigation measures would provide effective long-term stabilisation of these surfaces.

In my opinion, it would be helpful for the air quality assessment to provide further information regarding the effectiveness of the coconut matting trial, whether wider implementation of this mitigation measure will be progressed, and how dust emissions from large, exposed tailings and nominated rehabilitation areas are proposed to be managed on an ongoing basis.

Progressive Rehabilitation

I consider that the rehabilitation of completed areas is important to reduce cumulative dust effects. The PDP Air Quality Assessment states that 25,000 plants were to be planted during winter 2025 to rehabilitate a portion of the Eastern Block. In my opinion, it would be useful for the assessment to provide an update on the effectiveness and success of these rehabilitation works, including whether the planted areas have achieved successful stabilisation and vegetation establishment, and dust mitigation. It is also unclear how long the planted rehabilitation would take to become effective in reducing windblown dust emissions.

More generally, the PDP Air Quality Assessment appears to rely on progressive rehabilitation and stabilisation of exposed areas as important measures for reducing cumulative dust effects. While I note that the proposed consent conditions require preparation of a Site Rehabilitation Plan with rehabilitation goals, targets, success criteria, and progressive rehabilitation procedures, the conditions do not appear to include prescriptive limits on the maximum extent of exposed or unstabilised areas at any one time.

In my opinion, the applicant should explain how cumulative dust effects associated with large, exposed areas will be managed over the long term, and whether consideration has been given to including more prescriptive controls on the extent of exposed surfaces.

3.2 Complaints Analysis

I understand there have been numerous dust nuisance complaints over the past three years, as outlined in the memorandum from Edward Prince, Senior Resource Officer at WRC, dated 13 May 2026 (attached as Appendix A to this memo). It would be helpful to understand the findings of the investigations undertaken by TIL in response to these complaints and observations, including any identified dust sources or contributing activities, whether the complaints were substantiated, and what mitigation measures or operational changes were implemented as a result.

3.3 Particulate Monitoring Data

Figure 15 of the PDP Air Quality Assessment presents a scatter plot of hourly Total Suspended Particulate (TSP) concentrations for monitors MP2 and MP4. The accompanying text states that MP4 is predominantly upwind of MP2 and is therefore more representative of naturally occurring dust. However, based on the location of MP4, the monitor is also likely to be influenced by dust from other sources within the mine, including exposed tailings and active mining areas.

Accordingly, I consider that additional explanation or analysis is required to demonstrate why MP4 can reasonably be considered representative of naturally occurring background dust conditions, rather than being influenced by mining related dust sources.

I also note that the polar plots (Figures 11 to 14) appear to present mean concentrations, not maximum concentrations, which may not fully show the primary contributors to particulate discharges.

3.4 Dust Deposition Analysis

The dust deposition analysis presented in Section 5.2 of the PDP Air Quality Assessment is helpful for understanding the approximate distances that deposited dust may travel from lower level or near ground dust sources. However, the assessment does not appear to consider dust discharges from parts of the mine that remain unstabilised and are located at significantly higher elevations (>3 m), such as exposed tailings stockpiles. In my opinion, these elevated and potentially more exposed areas have the potential to generate dust that may remain suspended for longer periods and travel greater distances than indicated by the dust deposition analysis presented, particularly given that wind speeds generally increase with elevation and these areas may be more exposed to prevailing winds. It is also unclear why these areas were not specifically included within the assessment, as they could represent an important source of windblown dust emissions and may materially influence off-site dust effects.

The assessment should include these elevated tailings and other unstabilised high elevation areas and assess their potential contribution to off-site dust effects.

3.5 FIDOL Analysis

The FIDOL assessment in the PDP Air Quality Assessment concludes that receptors R1 to R3 and R5 to R10 are likely to experience low nuisance dust effects, primarily due to separation distances and the conclusion that these receptors are relatively infrequently downwind of the Central and Southern Blocks during higher wind speed conditions. However, the assessment indicates that some receptors are downwind of the CSB for approximately 23.1% of the time during winds greater than 5 m/s and 13.4% of the time

during winds greater than 7.5 m/s. In total, winds greater than 5 m/s occur for over 36% of the time. In my opinion, these frequencies do not appear obviously low, particularly in the context of nuisance dust effects associated with strong wind events. Accordingly, it appears that the conclusion of low nuisance dust effects relies significantly on assumed attenuation with distance and the effectiveness of mitigation measures. Given the history of dust complaints and observations of windblown dust from elevated tailings areas, it would be helpful for the applicant to provide further explanation supporting this conclusion.

3.6 PM_{10} Discharges

While the PDP Air Quality Assessment includes extensive discussion of TSP concentrations and nuisance dust effects, the assessment does not appear to include any detailed assessment of PM_{10} concentrations or potential PM_{10} related health effects. The assessment primarily relies on TSP monitoring data, TSP trigger levels, and qualitative nuisance dust considerations.

In my opinion, given that PM_{10} is regulated under the National Environmental Standards for Air Quality (NESAQ), elevated TSP concentrations have been measured around the site, and the activity is large scale and occurs in proximity to receptors, a detailed assessment of PM_{10} is required.

The PDP Air Quality Assessment discusses the contribution of naturally occurring marine aerosols and coastal particulate matter to ambient particulate concentrations within the Taharoa environment, including reference to studies identifying significant marine aerosol contributions to measured PM_{10} concentrations in coastal locations. However, the assessment does not attempt to quantify PM_{10} emissions associated with the proposed mining activities, distinguish mining related PM_{10} from naturally occurring coastal particulate matter, or assess potential PM_{10} concentrations at sensitive receptors.

TIL's proposed conditions intend to change from TSP to PM_{10} monitoring, which will capture data on PM_{10}. However, at this stage, there is no information on ambient PM_{10} concentrations or the contribution from the site.

3.7 $PM_{2.5}$ and RCS Discharges

The PDP Air Quality Assessment does not mention $PM_{2.5}$ or respirable crystalline silica (RCS) as pollutants of concern. In my opinion, $PM_{2.5}$ emissions from the activity are likely to be relatively limited given that windblown dust from mining and exposed areas is typically dominated by larger coarse particles. Similarly, while RCS is commonly associated with activities involving quartz rich rock or crushing operations, ironsand material would not typically be expected to contain elevated concentrations of crystalline silica. As such, $PM_{2.5}$ and RCS are unlikely to represent significant off-site contaminants of concern. However, given the level of community concern associated with this activity, it would be helpful for the applicant to briefly confirm this within the assessment to provide reassurance to the local community and cover off the potential risk associated with these potential discharges.

3.8 Changes in Site Screening and Potential Dust Effects

I understand that part of the ridgeline has been removed along the northern site boundary of the Central Block near receptor R4 (Wetini property), which may have increased the exposure of this receptor to dust emissions from the mine during southwesterly and southerly wind conditions. It would be helpful for the applicant to provide further information on the effect of these changes on potential dust effects at R4, including whether the loss of this physical screening and sheltering has been considered in the assessment.

On a similar note, I also note that some mature pine trees have been removed along the eastern boundary of both the Central and Southern Blocks, which may have increased the exposure of nearby receptors to dust emissions due to the loss of physical screening and wind sheltering. It would be helpful for the applicant to provide further information on the effect of these changes on potential off-site dust effects, including whether the loss of this vegetative screening and sheltering has been considered in the assessment.

R4 is located approximately 100 m from the proposed works and appears to represent one of the more highly exposed receptors in proximity to the mining area. In my opinion, it is therefore important that specific measures are put in place to manage effects at this location. I note that Condition 9 requires stabilisation of areas within the Priority Stabilisation Area (being a 100 m wide strip along part of the northern boundary of the Central Block) within three months of mining being completed. While I agree that timely stabilisation following completion of mining is important, it is unclear how long mining activities are proposed to occur in proximity to receptor R4 and whether multiple extraction campaigns may occur in this area over time, potentially resulting in prolonged periods of exposure prior to stabilisation occurring.

Further information should be provided on the proposed duration and sequencing of mining activities near R4, as well as the specific mitigation and contingency measures that would be implemented to manage dust effects at this location while mining is occurring, including whether additional monitoring, temporary shielding, enhanced dust suppression, house cleaning, temporary accommodation, or other response measures have been considered.

4 Review of Proposed Resource Consent Conditions

4.1 Summary of relevant air quality related conditions

I have reviewed the proposed resource consent conditions provided by the applicant as part of Appendix BB of the application, specifically Conditions 8 to 10 of the land use consent relating to dust discharges and dust effects management and various conditions in Schedule 1.

Condition 8 contains relatively standard outcome based conditions requiring that dust discharges do not result in adverse effects on human health or the health of flora and fauna beyond the site boundary, do not cause objectionable particulate matter effects beyond the boundary of the Consent Area, and do not significantly impair visibility beyond the boundary of the Consent Area.

Condition 9 includes more specific requirements relating to management of dust effects along the northern section of the Central Block, including stabilisation requirements and timeframes for rehabilitation within the Priority Stabilisation Area.

Condition 10 requires monitoring of dust discharges at a minimum of six monitoring locations, including PM_{10} monitoring in proximity to Taharoa School/Kura and nearby residential receptors, as well as monitoring locations intended to represent upwind and downwind conditions relative to the Consent Area.

Schedule 1, General Conditions, Condition 18 is also relevant and requires preparation of a Dust Management Chapter as part of the Environmental Management Plan (EMP). This condition requires the plan to identify the main dust generating activities and sources, describe the dust mitigation measures and operational procedures to be implemented on site, establish trigger levels and contingency measures for dust suppression, outline staff training requirements, and specify dust monitoring, reporting, and record keeping procedures.

Condition 42 also requires the establishment of a publicly accessible website for publication of dust monitoring data.

4.2 Reliance on Future EMP Processes

Many of the detailed measures proposed to manage dust effects are intended to be addressed through the draft Dust Management Chapter of the EMP, which is subject to further refinement and certification by Waikato Regional Council following the granting of consent. While this approach provides flexibility to refine operational management measures over time, I note that it provides limited certainty to stakeholders at the time the consent is granted, as many of the detailed mitigation, trigger, contingency, and operational response measures have not yet been finalised.

4.3 Recommended Minimum Consent Requirements

In my opinion, it is therefore important that the resource consent conditions establish clear bottom line requirements and minimum performance standards for management of dust effects, with the EMP then providing the detailed operational procedures required to implement those requirements. I consider this particularly important given the scale of the activity, the close proximity of some receptors, and the history of dust complaints associated with the site.

The matters that I consider particularly important are as follows:

Replacement of TSP monitoring with PM_{10} monitoring. In my opinion, PM_{10} monitoring provides a more appropriate approach for assessing potential health effects while also remaining suitable for management of nuisance dust effects. Typically, where PM_{10} concentrations are appropriately managed, nuisance dust effects are also reduced.

Combined with the proposed change to PM_{10} monitoring, I consider that the consent conditions should require the EMP to include appropriate trigger levels and response actions. I acknowledge that the MfE Good Practice Guide for Assessing and Managing Dust includes an indicative PM_{10} trigger level of 150 µg/m³ for dust management purposes. However, in my recent experience, where real-time PM_{10} monitoring instruments that are not NESAQ compliant have been adopted for operational dust management, trigger levels of this magnitude are generally not considered appropriate, as they may allow significant dust emissions and nuisance effects to occur before management responses are initiated.

I note that recent quarry consents that I have been involved with, where real-time PM_{10} monitoring instruments that are not NESAQ compliant have been adopted for dust management purposes, have included trigger levels such as the following, which in my view represent a more reasonable **starting point**:

- 1-hour average PM_{10} concentrations of 55 µg/m³ or greater requiring immediate investigation and implementation of additional dust mitigation measures; and

- 1-hour average PM_{10} concentrations of 65 µg/m³ or greater requiring cessation of dust generating activities (excluding dust suppression activities) until concentrations reduce and appropriate mitigation measures have been implemented.

The consent conditions should require the monitoring network to be shown on a plan, either attached to the consent or included within the EMP. Monitoring locations should, where practicable, be located near the site boundary and positioned to appropriately characterise dust discharges at sensitive receptor locations. I have prepared the attached figure in Appendix B showing the locations where I consider monitors should be installed.

I do not consider that all monitoring locations necessarily need to utilise NESAQ compliant monitoring instruments, given the practical constraints associated with power supply, maintenance, calibration requirements, cost, and the harsh coastal environment at the site. However, in my opinion, it would be beneficial for at least one monitor, preferably the proposed monitor located in proximity to Taharoa School/Kura, to utilise a NESAQ compliant PM_{10} monitoring instrument suitable for direct comparison against the NESAQ

for PM_{10}. This monitor could also be used periodically to undertake calibration or correlation checks against the boundary monitoring network to provide greater confidence that the monitoring data provides a reasonable indication of ambient PM_{10} concentrations.

I also note that the draft EMP does not currently appear to include detailed requirements relating to monitor maintenance, data validation, calibration procedures, or establishment of k-factors for any PM_{10} monitoring equipment. In my opinion, the consent conditions should require these matters to be specifically addressed within the EMP. The EMP should also include minimum data quality and validation requirements for the monitoring network, including procedures for data validation, maintenance, calibration, and investigation of monitoring exceedances.

In my opinion, the consent conditions should require the EMP to establish clear wind speed and wind direction trigger levels for dust generating activities occurring near sensitive receptors, including contingency response measures and, where necessary, temporary cessation of activities during adverse meteorological conditions.

I also consider that the consent conditions should require the EMP to include clear procedures for management of works occurring in close proximity to sensitive receptors, including receptor specific mitigation, monitoring, and contingency measures. This is particularly important for dwellings, including curtilage areas, located within 200 m of active mining activities, and is reinforced by the close proximity of receptor R4 to the proposed works. The EMP procedures should include consideration of minimum separation distances where practicable, additional monitoring, enhanced dust suppression measures, and measures aimed at minimising the duration of mining activities occurring in close proximity to residential receptors.

Consideration should also be given to including consent requirements for staged works and progressive rehabilitation aimed at minimising the extent of exposed and unstabilised surfaces at any one time, together with clearer limits and controls relating to stabilisation and rehabilitation timeframes.

In relation to receptor R4, I consider that more specific consent requirements are warranted given the close proximity of the dwelling to the proposed works, the reported removal of part of the ridgeline along the northern boundary, and the importance of maintaining physical screening and wind sheltering. In my opinion, the conditions should require the EMP to identify the proposed mining sequence, duration of works, mitigation measures, monitoring procedures, and contingency responses for works within 200 m of R4. I also consider that the Priority Stabilisation Area should be increased from 100 m to 200 m, with any sand mining in that area completed within 12 months of commencement of the new consents, no further mining within that area after that period, and permanent rehabilitation completed within 24 months of commencement.

Overall, while the proposed conditions capture some of the relevant dust management requirements, many of the detailed operational, monitoring, trigger, contingency, and mitigation measures are not appropriately described by consent conditions or clearly required to be addressed within the EMP. In my opinion, this provides limited certainty to stakeholders at the time the consent is granted, particularly given the scale of the activity, the proximity of sensitive receptors, and the history of dust complaints associated with the site. My view is that the consent conditions should be more prescriptive regarding minimum dust management, monitoring, trigger, and rehabilitation requirements, with less

reliance on future certification processes to determine key aspects of dust management at the site.

In summary, I support inclusion of the following matters directly within the consent conditions:

- Replacement of TSP monitoring with PM_{10} monitoring;
- Installation of at least one NESAQ compliant PM_{10} monitor within the Taharoa community, preferably in proximity to Taharoa School/Kura;
- Relocation of the MP3 PM_{10} monitor to a location between the northern boundary and R4 (Wetini property);
- The EMP must identify the proposed mining sequence, duration of works, dust mitigation measures, monitoring procedures, contingency responses, and methods for minimising the length of time that mining activities occur within 200 m of R4;
- The consent holder must retain a section of ridgeline along the northern boundary of the Central Block that provides physical screening and wind sheltering between receptor R4 and mining activities;
- Increase the width of the Priority Stabilisation Area from 100 m to 200 m;
- Require any sand mining within the Priority Stabilisation Area to be completed within 12 months of the commencement of the new consents;
- A prohibition on any further mining within the Priority Stabilisation Area after the first 12 months of the commencement of the new consents;
- Require the stabilisation and permanent rehabilitation of the Priority Stabilisation Area within 24 months of the commencement of the new consents, including ongoing maintenance as required thereafter to minimise any dust effects on neighbours;
- Staged works and progressive rehabilitation requirements aimed at minimising the extent of exposed and unstabilised surfaces at any one time;
- Clear stabilisation and rehabilitation timeframes for exposed areas;
- Investigation and reporting requirements following dust complaints;
- Requirement for preparation, certification, implementation, and ongoing review of an EMP addressing dust management; and,
- Requirement for public access to PM_{10} monitoring data.

In my opinion, the consent conditions should also require the EMP to include the following matters:

- A monitoring location plan showing all monitoring locations;
- Minimum monitoring data capture, validation, maintenance, servicing, calibration, and ongoing performance review requirements, including establishment of k-factors for any PM_{10} monitoring equipment that is not NESAQ compliant;
- PM_{10} trigger levels, response actions, and stop work requirements for elevated dust events. While there may be benefit in allowing some flexibility for refinement of trigger levels through the EMP process as additional site specific monitoring data becomes available, in my opinion the proposed trigger values and response framework should be clearly identified within the application and consent documentation as an initial starting point;
- Wind speed and wind direction trigger levels for dust generating activities;

- Automated alert systems and contingency response procedures where monitoring trigger levels are exceeded;
- Procedures for management of adverse meteorological conditions;
- Procedures for investigating and responding to exceedances of monitoring trigger levels; and,
- Dust complaint investigation and response procedures.

Many of the recommendations I have outlined above are intended to address concerns identified by WRC monitoring and enforcement staff regarding the current consent framework and operation of the site, including limitations associated with the existing monitoring approach, uncertainty regarding rehabilitation and stabilisation outcomes, the need for more robust and transparent monitoring of potential health related effects, and the practical difficulties associated with investigating and responding to dust complaints at this location. In my opinion, these matters support the need for a more prescriptive and transparent dust management framework than is currently proposed.

5 Closure

If you have any questions regarding the above assessment, please do not hesitate to contact the undersigned.

Yours sincerely,

Peter Stacey
BSc, GradDip(Bus), CASANZ CAQP
Managing Director
Phone [redacted]
Email: [redacted]

Appendix A: WRC Monitoring and Enforcement Memorandum

Memo

File No:	60 40 32A
Date:	13 May 2026
To:	Peter Stacey
From:	Edward Prince
Subject:	**WRC Memo to Peter Stacey on dust complaints at Taharoa Ironsand Limited**

Hi Peter

Please find below a list of dust complaints received by the Waikato Regional Council (WRC) relating to air discharges at Taharoa Ironsands Limited (TIL) mine site in Taharoa. The complaints cover the period from January 2024 to date.

I have monitored the TIL mine site since 2024. My role at WRC is as a Senior Monitoring Officer assessing compliance with infrastructure, geothermal plants and mines within the Waikato Region. My qualifications are a Bachelor of Science Environmental Science and Technology and Environmental Waste Management from the University of Exeter and a Higher National Diploma from Camborne School of Mines in the United Kingdom (UK). I have worked in Environmental compliance roles for 9 years in the UK and 19 years in New Zealand.

The air discharge complaints associated with this site can be found in the table below. Below are some comments on the matters I have identified in my monitoring of this site:

- The resource consents and their conditions that currently apply to the Southern and Central blocks are a product of their time and need updating to meet current expectations and modern standards i.e. they are now not fit for purpose based on the frequency of air discharge complaints WRC is receiving and the known health risks associated with particulate matter.
- The site is very large and comprises many separate compartments which makes it difficult to pinpoint the exact source of the particulate matter.
- How much rehabilitation undertaken at the site is via a Plan supplied by TIL and does not provide sufficient certainty to assess compliance against.
- The system relies on monitoring equipment owned and operated by the consent holder which results in distrust of the data from complainants.
- The sites distance from WRC offices means it takes at least 2.5 hours to reach the site to verify any dust complaints in person.
- Site management is at times un-cooperative with WRC staff when assessing the nature of complaints and providing information on monitoring data and site operational status and activities.
- Te Whatu Ora have requested PM_{10} data to aid in its assessment of whether there are any health effects however, the monitors currently installed at the site only record TSP and not

PM_{10}. This information is required to aid in an assessment of whether there may be health effects as a result of the operations at the site.

- Frequent staff changes at TIL make it difficult to build working relationships between WRC monitoring staff and TIL staff.
- Site management behaviour and lack of information results in complainants contacting WRC direct to address matters.
- Sand and dust from the beaches and dunes upwind complicate the situation and can make an assessment difficult.
- WRC is currently actively investigating a number of air discharge complaints received in January/February this year.

Regards

Ed Prince

Senior Resource Officer

Date	IRIS REQ	Enforcement Y/N	Details	Wind Direction
24/01/2024	EAC9649	Y abatement notice issued	Abatement notice to cease dust discharges beyond boundary	N/a
15/10/2024	REQ213785	N	air quality a huge concern for children and elderly in the village	general
12/12/2024	REQ204725	n	Caller reports huge clouds of dust from site and settling over local township. Dust is very thick. From 7am from southern tailings area.	SSW
12/12/2023	REQ204832	n	messaged us on Facebook to send WRC videos of the Dust happening @ 9am on Tuesday the 12.11.2023. Email stated that Dust had been unbelievable in the past 36 hours and not dust control measures were being implemented in the problematic areas. Tamariki were kept indoors all day and whanau have had to rewash clothes.	
13/12/2023	REQ204764	n	This is an on-going issue regarding the amount of Dust that is reaching our doorsteps, the wind does not help but the dust has been terrible yesterday and today. The dust caused from the mine site located in Taharoa	SSW
13/12/2023	REQ204768	n	Requestor called @ around 12.49pm today to report dust coming from the Taharoa mine. She had taken photos I will attach also. Enclosed are photos taken from my phone @ approximately 12.15pm & 12.50pm It is windy, but rest assure this is DUST not MIST.	SSW
13/12/2023	REQ204786	n	Caller is reporting air pollution of dust from the local mine site Taharoa Ironsands, photos also attached showing significant dust cloud present.	ssw
13/12/2023	REQ204781	n	Has anyone reported the dust pollution out at Tahaaroa? The amount of dust covering the village can't be good for the people living in the village and dust	ssw

			sediment falling into lake Tahaaroa can't be good for native species…	
27/12/2024	REQ215984	N	level 4 dust event	S to Sw
6/01/2025	REQ216100	N	level 4 dust event	S to Sw
11/01/2025	REQ216362	N	DUST FROM TAILINGS PILES SOUTH SITE	SSw
15/01/2025			site visit by WRC staff	
26/10/2025	REQ225102	N	DUST FROM TAILINGS PILES SOUTH SITE	SSw
31/10/2025	REQ225300	N	THICK AND CHOKING DUST REACHING THE SCHOOL	Sw
2/03/2026	REQ229011	N	Please find attached photos taken from my smartphone of "Dust" coming from Mine site, taken at 2.15pm today FYI, I have not and do not intend contacting TIL on this matter, if this can filed , thank you.	S
2/03/2026	REQ229014	N	15.25 Dust storms today No buffer Totally affecting the lake levels Not healthy for our family -	S
2/03/2026	REQ229017	N	15.55 Increase in dust flow Thinking of my mum our mokopuna health hazards Lake levels wainui stream is extremely low dirty and disgusting No buffer what so ever tailing piled up waiting for the wind to blow it all over us Water caught from roof no good to use Tasting dust Wainui stream absolutely covered in dust lake levels water takes to much not healthy for our lake at all	S
15/02/2026	REQ228452	enforcement decision group meeting held - outcome not yet decided	Dust storm Tailing blowing all over No buffer Health hazard for our whanau Lake levels sand blowing straight in Wainui stream thick of tailing dust ---------- Incident location: Taharoa Ironsand Incident time: 3:10 pm Alleged offender: Taharoa mining limited Taharoa Ironsand mining	S to SSW

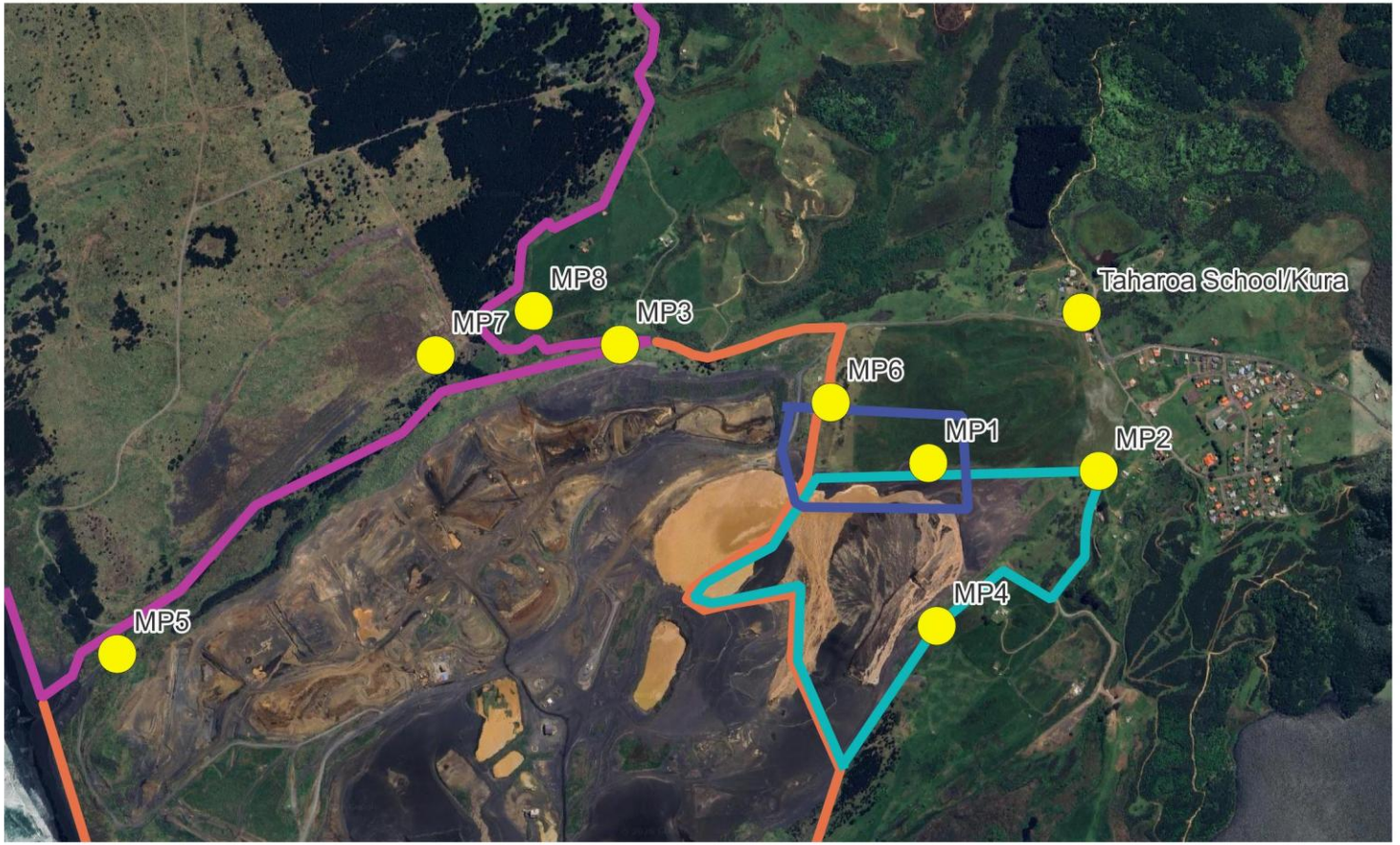
			Alleged offender org: Mining our whenua	
15/02/2026	REQ228453	enforcement decision group meeting held - outcome not yet decided	Dust storm Tailing blowing all over No buffer Health hazard for our whanau Lake levels sand blowing straight in Wainui stream thick of tailing dust ---------- Incident location: Taharoa Ironsand Incident time: 3:10 pm Alleged offender: Taharoa mining limited Taharoa Ironsand mining Alleged offender org: Mining our whenua	S to SSW
15/02/2026	REQ228454	enforcement decision group meeting held - outcome not yet decided	Dust pollution from Tahaaroa Ironsands Limited (TIL) work site is spreading across the local Tahaaroa community and three freshwater lakes used by the local community. Dust is coming from tailings piles with no dust suppression systems to prevent the pollution. This has been an ongoing issues that requires environmental action and sufficient management practices. This matter needs to be looked at by the Waikato Regional Council to ensure TIL adheres to all environmental policies and protection programmes. Widespread dust pollution of this magnitude not only affects local Waterways but has a detrimental affect on the local community and air quality index.	S to SSW
15/02/2026	REQ228455	enforcement decision group meeting held - outcome not yet decided	Mining site did not close considering the winds were high in the village which called a dust storm in the village ---------- Incident location: 1501 Taharoa Road, RD 8, Te Kuiti 3988 Incident time: 2:30 pm	S to SSW
15/02/2026	REQ228473	enforcement decision group meeting held - outcome not yet decided	She called to report that a dust storm is coming from the mine. It is blowing over the three lakes and into the village.	S to SSW

15/02/2026	REQ228475	enforcement decision group meeting held - outcome not yet decided	Dust - Tahaaroa Minesite Dear Sir/Madam Dust off Tailings- Tahaaroa Mines As an Environmental & Health issue, I attach 4 photos of what I captured on my phone camera at approx 3pm today (15/2/26) I can't imagine how the employees on site (today, or any other day this happens) have to endure this. Not good for our kaumaatua, tamariki, or our community. Regards Shani Whitiora ---------- Incident location: Tahaaroa Minesite Incident time: 6:30 pm	S to SSW
16/02/2026	REQ228493	enforcement decision group meeting held - outcome not yet decided	I am formally putting in a complaint towards the Taharoa Ironsand Limited in regards of the many dust and rubbish that is within the air coming over into the village. I do not live there but my family members do and I visit quite often and it's just ridiculous now. Especially when it covers the whole village most days!!!!!! This isn't good for our all of us especially kaumātua or tamariki! ---------- Incident location: 307 Taharoa Road, RD 8, Te Kuiti 3988 Incident time: 1:00 pm	S to SW
16/02/2026	REQ228497	enforcement decision group meeting held - outcome not yet decided	The result of dust affecting the eco system in Tahaaroa. Our whenua and lakes that hold history and kai are being affected by the dust lifting and creating havoc for the villagers. This needs to be addressed. ---------- Incident location: 307 Taharoa Road, RD 8, Te Kuiti 3988 Incident time: 2:00 pm	S to SW
16/02/2026	REQ228517	enforcement decision group meeting held - outcome not yet decided	Recently you would have been provided with photographic evidence of a dust storm in Tahaaroa. This is one of many that are constantly reported to your council. And still no action has been made. For years we send these through and to no avail is anything ever done. Dust is caused by tailings at the mine site and lack of nature. This is pathetic and needs to be addressed.	S to SW

			We have children and elderly residing here who have to breath this is. Do better Waikato Regional council.	
16/02/2026	REQ228521	enforcement decision group meeting held - outcome not yet decided	Recently you would have been provided with photographic evidence of a dust storm in Tahaaroa. This is one of many that are constantly reported to your council. And still no action has been made. For years we send these through and to no avail is anything ever done. Dust is caused by tailings at the mine site and lack of nature. This is pathetic and needs to be addressed. We have children and elderly residing here who have to breath this is. Do better Waikato Regional council.	S to SW
16/02/2026	REQ228571	enforcement decision group meeting held - outcome not yet decided	The dust storms affecting Taharoa have become a regular and serious occurrence. Fine tailings from the Iron sand mining operation are repeatedly blown across the village, our papakāinga at Rotopōhue, and the surrounding marae. This dust does not simply settle on buildings, it contaminates our environment and our lives. Wind carries the tailings into our freshwater lakes and drinking water supplies. It settles on our whenua, our homes, our kai resources, and onto our animals. The effects reach far beyond inconvenience. They impact the health and wellbeing of our whānau, our kaumātua and tamariki, and threaten the safety of the food we gather and grow. The mauri of our wai and whenua is being compromised. For our people, this is not just an environmental issue , it is a cultural, health, and intergenerational wellbeing issue. Our ability to live safely on our ancestral land is being affected. This situation requires urgent attention and meaningful action to	S to SW

			protect the people, the environment, and the future of Taharoa.	

Appendix B: Recommended PM_{10} Monitoring Locations



B

APPENDIX B

Memo from Sung Soo Koh - Hydrology

Memo

File No:	47 03 26
Date:	18 May 2026
To:	Mark Chrisp and Sheryl Roa
From:	Sung Soo Koh
Subject:	**Hydrologist Review – Taharoa Ironsand Limited (TIL)**

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1 Introduction

1.1 Qualifications and Experience

My name is Sung Soo Koh. I am a Groundwater and Hydrology Scientist at the Waikato Regional Council, a position I have held for 10 years. I specialise in groundwater modelling and hydrogeological assessments.

I hold a PhD in Civil and Environmental Engineering. My core professional responsibilities involve the technical review of water take applications to ensure they align with sustainable management practices. This work includes evaluating regional geology, interpreting complex aquifer mechanics, and quantifying the potential impacts of groundwater abstraction on neighbouring water users and sensitive ecological receptors, such as wetlands and downstream water bodies. My professional scope is focused on the evaluation of water quantity impacts.

During my service at the Council, I have reviewed the technical appendices of more than 300 water take applications across the Waikato Region. I am a member of the New Zealand Hydrological Society (NZHS).

I confirm that I have read the Code of Conduct for Expert Witnesses as set out in Section 9 of the Environment Court Practice Note 2023, and I agree to comply with it.

1.2 Involvement Disclaimer

I was not involved in the processing of the previous application advanced by TIL under the Resource Management Act (RMA) that culminated in a decision in November 2024. My assessment is based solely on the current information provided.

1.3 Documents Reviewed

As part of this assessment, I have reviewed the following technical reports produced by WWLA:

- WWLA Surface Water Hydrology Report – Appendix I
- WWLA Groundwater Hydrology Report – Appendix N
- Hydrology/Hydrogeology sections of the Proposed Consent conditions – Appendix BB

2 Surface Water Report (Appendix I)

2.1 Overview of Proposed Abstraction

Water is proposed to be abstracted from the Wainui Stream, which serves as the outlet from Lake Taharoa to the sea, located behind the reservoir dam structure. The system utilises two primary outlets to maintain stream health: a dedicated fish passage and a weir for residual flow. The applicant proposes minimum flows of 24 L/s and 10 L/s respectively, providing a combined minimum outflow of 34 L/s.

2.2 Assessment of Data and Modelling Methodology

The core of the technical assessment relies on a time-varying water balance model. This model was used to evaluate various water-take scenarios alongside the physical constraints of the dam-weir control structure to determine impacts on lake levels and outlet flows.

I accept the facts and data sources as presented in the report. The data sources have been correctly identified, and the technical presentation is standard and sound. Furthermore, I consider the catchment inflow modelling and subsequent scenario analysis to be adequate and robust for the intended purpose of this assessment.

2.3 Key Findings and Proposed Triggers

The modelling clearly demonstrates that the design level of the dam-weir is the dominant control over the local hydrology, including lake levels and outflows. This physical structure effectively overrides other operational rules such as water take frequencies and rates.

The applicant has proposed the following management triggers:

- **Fish Passage:** Maintain a minimum flow of 24 L/s.
- **Residual Flow:** Maintain a minimum flow of 10 L/s to the Wainui Stream.
- **Wetland Health Monitoring:** To be initiated at 9.6 m RL.
- **Cease Take:** Abstraction must stop if the lake level reaches 8.53 m RL.

I note that these recommendations are more stringent than the consent conditions used in the existing consent. Historical data suggests the lake level is unlikely to approach near the "cease take" threshold of 8.53 m RL because of the invert level of the dam-weir structure. However, it is expected that the wetland health monitoring trigger (9.6 m RL) will be reached relatively frequently.

2.4 Requirement for Recalculated Pumping Triggers

The applicant proposes using temporary manual pumps to sustain the minimum flows in the event that the weirs fail to maintain the required minimum flows (as detailed in Table 11, p. 33 of Appendix I). The current proposal suggests deploying these pumps only once the lake level falls below the weir inverts (9.36 m RL and 9.3 m RL).

While I agree with the use of pumping as a contingency, I recommend that these triggers be increased. The triggers should be recalculated to identify the lake levels at which outflows *begin* to drop below the 10 L/s and 24 L/s thresholds, rather than waiting for flow to cease entirely. Initiating pumping slightly earlier will ensure the continuity of flow to the Wainui Stream and prevent a "zero-flow" scenario.

2.5 Flooding Risk to Taharoa Road

The report identifies a flooding risk for Taharoa Road, which has a surface level of 10.5 m RL. A review of the 12-year recording history shows the lake has reached this level three times (2017, 2022, and 2023), indicating a flooding frequency of approximately once every four years.

There is currently no active mechanism to mitigate these high-flow conditions without structural modifications to the dam and weir arrangement. I consider the current frequency to be generally acceptable; however, it is for the decision-maker to determine the acceptable severity and duration of flooding. To assist this, the consultant should revisit the lake level records to estimate the specific depth of flooding over the road and the time taken for floodwaters to subside.

2.6 Surface Water Conclusions and Recommendations

Overall, I find the surface water modelling to be valid and robust. The considered scenarios provide useful insights into the lake's hydrological behaviour and confirm that the proposed mechanisms offer a higher level of protection against low lake levels than the status quo.

My recommendations for this section are:

- **Recalculate Pumping Triggers:** Adjust the triggers in Table 11 (p. 33) to ensure manual pumping begins before weir flow reaches zero.
- **Consultation on Flooding:** Consult with road users regarding the acceptability of the identified flooding frequency, noting that flooding depths exceeding 10 cm may make the road unpassable for standard vehicles.

3 Groundwater Report (Appendix N)

3.1 Technical Rigour and Modelling Framework

A numerical groundwater model was constructed using a comprehensive dataset, including the applicant's site-specific field investigations. Overall, I consider the technical rigour of the modelling work to be high. The model is robust and provides a reliable basis for assessing the potential hydrogeological impacts of the proposed activity. While I am in agreement with the majority of the report's findings, there is one specific area regarding seawater intrusion that requires further technical clarification.

3.2 Effects on Surface Water Bodies

- **Mitiwai Stream Depletion:** The assessment identifies a discernible depletion effect on the Mitiwai Stream. To mitigate this, the applicant proposes a monitoring-based trigger action plan (detailed in Table 10, p. 39). I consider this a sound approach to preserving the stream's minimum flow. I am also comfortable with the proposed augmentation release point, which is situated just upstream of the predicted depletion reach.
- **Wainui Stream Depletion:** I agree with the assessment that the depletion effect on the Wainui Stream will be minimal. Although groundwater depletion will occur as the mining pit deepens, the existing surface water operational rules (the combined 34 L/s minimum flow) will ensure the stream remains at required levels regardless of the groundwater interaction.

3.3 Impact on Wetlands

The report appropriately classifies the local wetlands into four categories based on their relationship to groundwater impacts:

- **Class 1 (Direct removal by excavation):** To be addressed via compensatory planting elsewhere.
- **Class 2 (Impacted by groundwater, non-riparian):** The proposed mitigation—a 30-metre protection buffer and continuous water level monitoring—is a reasonable and standard management approach.
- **Class 3 (Riparian wetlands):** These are protected by the surface water minimum flow conditions, ensuring sustained water supply.
- **Class 4 (Outside groundwater impact):** No management action is required.

I agree with the technical thresholds used to define these classes and support the mitigation recommendations provided for each.

3.4 Seawater Intrusion and Salinity Risk

The groundwater model indicates that seawater intrusion is likely when mining depths fall below mean sea level (specifically when mining pit bottom exceeding -14 mRL). In some phases, mining reaches -35 mRL, creating a hydraulic head difference between the sea and the pit of up to 20 metres.

I have specific technical concerns regarding the interpretation of these results:

- **Flow Rate Underestimation:** The report suggests that the landward seepage of seawater increases by only 24 m3/day (approximately 0.28 L/s) during peak dewatering. Given a 20-metre head difference, I am concerned this may be an underestimate.
- **Aquifer Response:** It is puzzling that the deep hydrogeological layer shows no discernible response to such a significant hydraulic gradient. Further clarification on the model's sensitivity in this layer is required.
- **Salinity Fate and Leaching:** If seawater enters the pit, the salinity of the mined slurry will increase. My primary concern is the eventual fate of this brackish water. We must ensure there is no risk of salt leaching into the freshwater reaches of the Wainui and Mitiwai streams from tailings deposits or slurry pipelines.

3.5 Information Requirements (Groundwater)

To resolve these concerns, I recommend the applicant provide the following:

- **Piezometric Mapping:** A piezometric map representing the "worst-case" peak dewatering scenario to illustrate the cone of depression and the gradient between the pit and the coast. The appendix N has implied information titled the worst-case drawdown, but we need to consider the water table elevation with respect to the mean sea level and judge the hydraulic gradients that may pull the seawater towards the pits.
- **Model Clarification:** An explanation of the modelling mechanism that results in the deep aquifer's lack of response to the 20-metre head differential.
- **Salinity Assessment:** A water-balance-based estimate of worst-case salinity concentrations in the slurry and a confirmation of where this water is discharged to ensure the protection of freshwater environments.

4 Conclusion & Recommendations

Key Conclusions

I find the technical assessments for both surface water and groundwater to be generally robust and well-supported by data. The proposed management of lake levels via the dam-weir structure and the trigger-based augmentation for the Mitiwai Stream are technically sound. However, the potential for seawater intrusion and its secondary effects on water quality require further investigation.

Recommended Key Parameters

1. **Lake Level Pumping Triggers:** Amend the triggers in Table 11 (p. 33). The levels (currently 9.36 mRL and 9.3 mRL) should be increased to initiate pumping before the weir flows drop below their respective minimums (10 L/s and 24 L/s).
2. **Mitiwai Augmentation:** Adopt the trigger-based augmentation plan as set out in Table 10 (p. 39).
3. **Wetland Protection:** Implement the 30-metre protection buffer and continuous monitoring for Class 2 wetlands as proposed.

Matters for Further Information

1. **Salinity Management:** Clarify the fate of saline slurry and provide confirmation that salinity leaching will not impact the freshwater reaches of the Wainui and Mitiwai streams.
2. **Seawater Intrusion Evidence:** Provide piezometric maps for the peak dewatering phase and technical justification for the predicted low reverse-flow rates from the sea.
3. **Road Flooding Detail:** Provide an estimate of predicted flood depths and subsidence durations for Taharoa Road to assist the decision-maker in evaluating the severity of the impact.
4. **Class 2 Impacted Wetland Listing:** It would be great if the list of the individual wetlands that fall under Class 2 impact category be mapped and circulated. If there is more detailed monitoring schedule (such as action thresholds and subsequent actions) planned on the groundwater-impacted wetlands, I will be able to consider the validity of the schedule. For now, the report suggests that a form of monitoring would be implemented.

Review of Proposed Conditions (Appendix BB)

I recommend the following specific amendments and flags be applied to the draft consent conditions contained in Appendix BB based on what I discussed above:

- **Page 12, Consent AUTH142035.03.01 (Condition 7) — Contingency Pumping Triggers:** The proposed 9.3 m RL threshold must be flagged as subject to further technical review. This trigger needs to be recalculated to a higher lake level to ensure that temporary manual pumping is initiated *before* the weir outflows drop below the minimum fish passage (24 L/s) and residual flow (10 L/s) requirements, rather than waiting for the flow to cease entirely.

- **Page 37, Consent AUTH142035.14.01 (Condition 2) — Mitiwai Stream Augmentation Location:** While Figure 2 on page 38 visually identifies a flow augmentation point, the text of Condition 2 does not explicitly define the physical location of this discharge. The condition text is to be amended to specify that the augmentation water must be discharged immediately upstream of the predicted depletion reach to prevent localised stream drying.

- **Page 37, Consent AUTH142035.14.01 (Condition 2) — Mitiwai Stream Monitoring Season:** I recommend extending the active monitoring and augmentation window from the applicant's proposed summer period (1 December – 1 March) to cover late summer and autumn (1 December – 1 May). This adjustment is my recommended default based on regional hydrological patterns, where annual low flows frequently lag behind the low-rainfall season. Alternatively, the applicant's consultant may analyse the historical occurrence dates of annual low flows across the observed timeseries to technically justify their narrower monitoring window.

- **General Omission — Salinity and Seawater Intrusion Management:** The draft conditions within Appendix BB currently contain no mention of salinity monitoring or management plan to address potential seawater intrusion into the deep mining pits. I asked in my memo above that the applicant's consultant to provide technical evidence to support their position that seawater intrusion risks are negligible. This gap needs to be flagged as an outstanding item requiring detailed discussion; either to have conditions to deal with potential seawater intrusion or to prove that the seawater intrusion is not going to happen.

APPENDIX C

Memo from Kaitlin Morrison – Wetlands

Memo

File No: 47 06 08

Date: 18 May 2026

To: Mark Chrisp and Sheryl Roa

From: Kaitlin Morrison – Scientist Wetlands

Subject: Taharoa Ironsands Mine Fast-track

I have worked in the role of Wetland Scientist at Waikato Regional Council for 4.5 years. I have a Bachelor of Science (Technology) majoring in Biological Sciences. I have worked in ecology and conservation for over 16 years, and specifically in the field of wetland ecology for the last 11 years.

I was asked to review documents for the Taharoa Ironsands Mine Fast-track application, in relation to wetland identification and effects. I was involved in the previous resource consent process and visited the site on 17 November 2023 as part of that process.

I have reviewed documents relating to wetlands including:

- Substantive Application 02.-Substantive-Application-Report904323295.1_Redacted.pdf
- Appendix K Terrestrial Ecology – Wetlands and Vegetation Assessment e3462a558d115a61ce1bba3e7d48effc20ab6ae9.pdf
- Appendix M Terrestrial Ecology – Fauna Assessment 7b902c3bb44c2fb3d3028aabbb52b7defc05686f.pdf
- Appendix N Hydrogeology Assessment (Groundwater Effects) WWLA Report
- Appendix T Draft Environmental Management Plan Microsoft Word - Draft EMP updated for fast track application 16 October 2025 v2.0
- Appendix BB Proposed Resource Consent Condition and Memo CS Project conditions - 23 October - updated re WRC advice and Jared updates(904162044.2) (002)
- Appendix DD Draft Natural Inland Wetland and Buffer Management Plan 33.-Appendix-DD-Draft-Natural-Inland-Wetland-and-Buffer-Management-Plan904189473.1_Redacted.pdf
- Appendix EE Draft Lake Level and Water Management Plan Microsoft Word - Taharoa Lake Level Water MP FINAL draft for fast track 15102025

The main difference between this Fast-track Approvals Act 2024 (FTAA) application and the previous RMA application that relate to wetlands are:

- The FTAA application includes mining activities within 100 m of a wetland, but not closer than 30 m to the wetland. The 2020 RMA Application did not.
- The FTAA application also includes mining of seven of the lower value wetland areas and to potentially alter the hydrology of and discharge water into other retained wetlands. The 2020 Application did not.

Wetland Setbacks / Buffers

The distance of activities from wetlands was discussed in the previous application. WRC's view was that all mining should stay outside of a 100 m buffer from all wetlands, unless there was evidence that work within 100 m would not affect the hydrology of that wetland. We requested hydrological assessments of all wetlands, their connection to groundwater and in particular, the effect mining nearby would have on each wetland.

In this FTAA application a hydrogeology/groundwater assessment (Appendix N) has been undertaken which provides further clarity on this issue.

This application is proposing providing 30 m planted buffers around wetlands within which works will not occur (at wetlands that are being retained). The effects on the hydrology of nearby wetlands is addressed in the hydrology assessments and associated reports, however, this does not address potential effects on ecology. I cannot see any evidence supporting the use of specifically 30 m as a buffer for wetlands. Is there evidence to explain and support 30 m as the specific buffer size?

There is still some concern around the effects of mining activities on fauna species from works as close as 30 m from wetlands. Several sensitive wetland bird species were detected, or are known to be present, both onsite and nearby. These species could be impacted by the proposal through effects such as noise, light and vibration.

The application mentions there will be 30 m buffers planted. Buffers need to be around the entirety of all retained wetlands, as well as around the newly created wetland offset site. These wetlands and buffers must also all be appropriately fenced to exclude any potential stock or grazing animal (cattle, pigs, deer, horses) incursion.

Wetland Avifauna

The consent conditions require "Between 1 September – 31 January (inclusive), prior to vegetation clearance within wetland, grassland and shrubland habitat, a suitably qualified and experienced ecologist shall undertake surveys for wetland birds" and "If a wetland bird, NZ dotterel or NZ pipit nest containing eggs or chicks is discovered, vegetation clearance is prohibited within 30 metres of the nest, until fledging occurs or as directed by a suitably qualified and experienced ecologist.", as well as protocols for incidental nest discovery. I would recommend that works directly in wetlands, such as the removal of wetlands proposed in the Southern Block, should occur outside the peak wetland bird breeding seasons, and searches by suitable qualified ecologists should be undertaken to detect any present wetland birds before any work occurs within wetlands at other times (especially either side of the "peak breeding season". Any detected nests or birds need to be avoided and work should cease around nests (including a buffer, preferably greater than 30 m around particularly sensitive species such as bittern, crakes) until the nest is completed / fledged. This is another area where I am not sure what evidence they are using to support specifically a 30 m buffer, as a greater buffer around sensitive species would provide better reduction of disturbance.

The accidental nest discovery protocols mention training of staff to identify pipit and dotterel nests. This should go beyond just identifying pipit and dotterel nests. Staff should also be able to identify nests of all native wetland bird species that are, or may be , present in the area, or to stop works upon discovery of any nest until it can be identified by an experienced ecologist.

Wetland Monitoring

In the assessment 88 wetlands were identified. Of these, 13 will be lost due to mining, and 25 of the remaining wetlands will potentially be affected by mining activities. This is a large proportion of the wetlands that will be lost or potentially affected by the proposed activities. I agree with the need for

baseline monitoring, which should be of all wetlands (both those to be lost and retained) as well as the offset site, prior to works occurring, to assess the value before proposed works occur or before wetlands a lost. Most of the monitoring of existing wetlands, other than those associated with Lake Taharoa, seems to be related to water levels. However, this should include also include condition monitoring of the existing wetlands and their ecology.

I agree with the recommendations for wetland monitoring to include:

- A plan to monitor and manage water levels in all wetlands in the proposed groundwater drawdown areas; and
- A plan to monitor lake margin wetland near Taharoa C Block, including baseline monitoring.

The proposed wetland monitoring methods in the Draft Natural Inland Wetland and Buffer Management Plan (WMP) are appropriate and follow current best practices for long-term wetland monitoring. This is important to assess the long-term health of the wetlands. This monitoring should include the proposed monitoring of sites within the lake margin wetland, as well as of all potentially affected wetlands on site.

However, the proposed monitoring of the "potentially affected" wetlands appears to be by monitoring for each of the four "groups" of wetlands. The WMP recommends "Monitoring and modelling should determine the lowest and mean natural water level in each wetland in Dec-Feb, Mar-May, Jun-Aug, Sep-Nov." and "Ongoing daily monitoring of wetland levels will be required until dewatering of adjacent pits has been completed, and groundwater levels have returned to background conditions.". Information provided appears to propose monitoring of the water level at only select sites within each "group" of wetlands. My view is that monitoring should be of all potentially affected wetlands for the duration of any works that may affect them. Each wetland will have its own normal water levels, and despite being part of a "group" of wetlands, will likely be affected individually depending on where works occur in proximity to them. Sung-Soo Koh has reviewed the Hydrology Assessment and provided comments relating to the appropriateness of the proposed monitoring and management of the hydrology.

The above monitoring is of water levels in potentially affected wetlands. There should also be ongoing monitoring of these potentially affected wetlands for vegetation, fauna, and ecology. Monitoring, such as following similar methods to the lake margin monitoring, should be undertaken to ensure there are no effects on the ecology of the wetlands over time. This will help show the works are being managed to appropriately protect the ecology and health of the potentially affected wetlands. However, the proposed ecological monitoring around the lake is only every five years. This will show long-term changes to the wetlands but is not enough to detect more immediate effects of mining on wetlands and wetland vegetation. Appropriate triggers need to be developed to halt work before it reaches a level where it will negatively impact the wetlands, both in terms of water level changes and changes to the wetlands themselves. To achieve this, monitoring would need to be more regular than every five years, and would need to cover all potentially affected wetlands, not just those associated with Lake Taharoa. I would recommend annual monitoring of vegetation. I would also recommend avifauna monitoring be included, particularly if the buffers are as small as proposed (i.e. currently 30 m proposed).

Monitoring at the retained wetlands is important to ensure they are not being affected by mining activities. Monitoring at the offset site is needed for the same reason, as well as to ensure the potential effects of groundwater drawdown do not effect the viability or success of the proposed offset.

There still need to be some thought around how trigger levels will be set based on monitoring. It is noted that results of monitoring such as "changes in relative cover and species diversity derived from plot data, and wetland condition index need to be interpreted with caution". I agree with this but, determining indicators to trigger change, also need to ensure they aren't missing any significant

changes, especially with proposed monitoring only being every 5 years. This is not often enough to detect any effect in time to implement any measures (beyond water level monitoring and direct management of water levels). A combination of indicators need to be considered, and if there is a change in multiple indicators, even if minor, further monitoring and changes to works should be triggered.

The consent conditions (AUTH142035.05.01 10(b)) say "if the wetland monitoring report prepared in accordance with condition 11(b) concludes that adverse effects (other than those caused by natural seasonal conditions) are occurring on the raupō and flax wetlands on the margins of Lake Taharoa adjoining the Taharoa C Block, the Consent Holder shall review and update the Lake Level and Water Management Plan". More clarification will be needed in the WMP about what exactly those "adverse effects" are and at what level they trigger a response.

Wetland Loss and Offset Site

Unlike the previous application, this FFTA application would result in the loss of 4.25 ha of wetland at the Southern end of the site. It is proposed to be offset by the creation of at least 8.3 ha of wetland.

A concern with the application as presented, is in relation to the proposed offset / wetland restoration area. The reasons for choosing this location make sense, in terms of being adjacent to already present, high value wetland, suitable hydrology, etc. However, I noted in the Natural Inland Wetland and Buffer Management Plan (Appendix DD) it was reported that "The groundwater modelling report indicates that during the mining of the pits on the Southern Block, groundwater levels beneath nearby wetlands will drop by up to 4 m and a groundwater gradient from east to west will be created… For groundwater-influenced wetlands, this could result in a change in wetland hydrology, loss of wetland extent, and the proposed offset site could be compromised." This is also noted in the Terrestrial Ecology – Wetlands and Vegetation Assessment (Appendix K), as well as that "this site is subject to groundwater drawdown from mining activities and may need to be supplemented with water."

This application proposes a loss of 4.25 hectares of wetland extent and the proposed method to offset this loss is the creation of 8.3 ha of new wetland at the eastern edge of the Lake Taharoa C block, close to Lake Taharoa. The fact this site is "subject to groundwater drawdown from mining activities and may need to be supplemented with water" means there is a real risk that wetland establishment and long-term success at this site may be affected. From these statements in the provided application reports, it appears this groundwater drawdown/potential water supplementation risk will continue beyond the establishment of the new wetland area.

WMP notes that assessment of the hydrology of this area is needed before any restoration works can occur. There will also need to be consideration as to how altering the landform to create these wetlands will affect the wider area and potentially the hydrology of other nearby wetlands etc. This is also important given there will already be effects of groundwater drawdown on the offset site.

There needs to be more certainty, in a site proposed for offsetting, that it will not be negatively affected by the works that are requiring the consent. There also needs to be more certainty around the long-term success of the site, without the need for ongoing management of water levels. Will the newly created wetland area be viable beyond the term of the consent, as at that point it would no longer be able to be "supplemented with water", or is there certainty that this water supplementation would not be needed once mining ceases and the wetland will persist in perpetuity? To achieve more certainty with this wetland creation, activities affecting groundwater in the area would need to cease or change enough that they are not affecting the wetland. Any monitoring of the wetland needs to continue for long enough after water supplementation ceases to be certain the wetland is self-sustaining and will remain without said water supplementation continuing.

There also needs to be an adaptive approach to the offsetting calculations to allow for adjustments if there are determined to be greater effects on wetlands than currently anticipated. This includes at wetlands where there is the potential for them to be affected by groundwater drawdown but where exact effects are not yet know. There needs some flexibility in the offset site to allow for a greater area of wetland creation if needed, though the first response should be to prevent any further loss or effects on wetlands.

Baseline monitoring needs to cover the proposed offset site as well and if "augmenting existing wetlands" is the approach to offset in any area, then baseline monitoring of current values needs to show that the new value is sufficiently increased from baseline that it is providing enough increased value to offset the complete loss of wetlands elsewhere (increased value of restoring existing wetland is likely different compared to creating wetland where there is none present).

Conclusion

I am comfortable with the proposal including the loss of approximately 4.25 ha of natural inland wetland. Provided appropriate monitoring, offsetting and protection of the remaining wetlands and the new wetland is carried out, the overall effects of this loss can be offset.

Having reviewed Sung-Soo Koh's comments relating to the hydrogeology report, I am comfortable with the suggested 30 m buffer in terms of effects on hydrology. However, I still have concerns about whether it is sufficient to prevent effects on avifauna. More evidence is needed to support this size buffer and show there will be no negative effects on sensitive species.

There needs to be a full 12 month baseline of monitoring to obtain baseline values for water level monitoring triggers. As triggers are proposed to be set seasonally (different triggers for each of the four seasons) a robust set of data is needed. If there is a gap in data collection for any reason this needs to be addressed.

Baseline monitoring needs to cover the proposed offset site as well and if "augmenting existing wetlands" is the approach to offset in any area, then baseline monitoring of current values needs to show that the new value is sufficiently increased from baseline that it is providing enough increased value to offset the complete loss of wetlands elsewhere (increased value of restoring existing wetland is likely different compared to creating wetland where there is currently none present).

Monitoring methods for the wetlands around Lake Taharoa are appropriate. However, monitoring is also needed for other wetlands on site. This includes the wetlands to be retained, as well as the offset wetland proposed to be created. Water level monitoring is covered in the hydrogeological assessment, as well as Sung-Soo Koh's comments. However, ecological monitoring is also needed. I recommend annual monitoring so any changes can be detected in a reasonable timeframe to allow any remedies to be undertaken if needed. This should include vegetation monitoring as per the Natural Inland Wetland and Buffer Management Plan (Appendix DD) but on a more frequent basis (annually) and including all potentially affected wetlands (those noted in the Wetland Management Plan).

I would also recommend avifauna monitoring be included, particularly if the buffers are as small as proposed (i.e. currently 30 m proposed). A suitably qualified and experienced ecologist needs to undertake this work, and WRC needs the ability to review the plans and the results of the monitoring.

I also have concerns relating to the offset site. As mentioned, the wetland assessment notes the offset site "could be compromised" by groundwater drawdown and "may need to be supplemented with water". More certainty is needed that the site can be maintained long-term, and particularly that this water supplementation will not be needed beyond the proposed term of the consent as this would seriously affect the long-term success of the wetland.

Main points:

- Need evidence of 30 m buffer being sufficient for ecological protection, not just hydrology.
- Need to ensure full 12 month baseline data covering all seasons for trigger/water level setting.
- Need ecological monitoring of all wetlands, including the offset site, not just the wetlands associated with the lake.
- Monitoring should be more frequent than proposed, recommend annually.
- More information needed about long-term viability of the offset site, particularly around the need for water supplementation.

Questions to be addressed

What evidence can be provided to support a 30 m buffer being sufficient to protect sensitive wetland avifauna species being disturbed by nearby mining activities, machinery etc? Especially effects on nesting birds.

Exactly what effects is the groundwater drawdown likely to have on the offset site? Will water supplementation be needed long-term? How will the wetland be maintained long-term, particularly beyond the term of the consent?

Consent conditions

I note the below comments or potential changes to the current proposed consent conditions as per 'Proposed Resource Consent Conditions and Memorandum: Bond Condition for Taharoa Ironsands Limited Central and Southern Blocks Fast-track Project' Appendix BB.

Any condition mentioning a 30 m buffer may need to be altered, depending on what evidence is provided relating to the sufficiency of this in protecting the ecology and wetland species (though based on Sung-Soo Koh's comments it is appropriate in terms of hydrology).

A condition needs to ensure the entirety of the perimeter of all wetlands and buffers, including the offset site, are appropriately fenced to exclude any potential stock or grazing animal (cattle, pigs, deer, horses) incursion.

I have asked questions around the long-term supplementation of water to the offset site. Consent conditions need to ensure the offset site is protected in perpetuity and does not need intervention such as supplementary water beyond the term of the consent.

AUTH142035.01.01 #7 addresses buffer planting around wetlands. This need to be clear that it covers the entire perimeter of all retained wetlands, as well as the offset site, to a minimum width of 30 m (or the size determined after evidence is provided determining if 30 m is sufficient).

AUTH142035.05.01 #8 addresses baseline monitoring of raupō and flax wetlands around Lake Taharoa, as well as 5 yearly monitoring. As discussed previously this needs to include monitoring at all wetlands, including the offset site, and I recommend more frequent monitoring (annual).

AUTH142035.05.01 #10(c) addresses action to be taken if the monitoring report "concludes that adverse effects (other than those caused by natural seasonal conditions) are occurring on the raupō and flax wetlands on the margins of Lake Taharoa". As above this needs to include other wetlands, plus we need to ensure that "adverse effects" are appropriately defined and any trigger levels for water level monitoring are appropriate. The water level triggers and management of lake level can probably be covered in the Lake Level and Water Management Plan (provided WRC approves this plan and triggers before it is implemented). "Adverse effects" on wetlands (including the wider ecological

monitoring I have recommended at other wetlands beyond just the mentioned raupō and flax ones) will also need to be defined and approved by WRC (maybe in the Natural Inland Wetland and Buffer Management Plan).

AUTH142035.16.01 #3 Mentions 8.3 ha of wetland offset. Need to ensure conditions allow flexibility in the proposed offset works. If there are greater negative effects on wetlands than anticipated, if water management of retained wetlands does not work as proposed, or if a greater area of wetland is removed/affected than proposed, there may need to be an increased area of offset wetland created (though the first response should be to prevent any further loss or effects beyond the already proposed 4.25 ha).

Schedule 1
#16 As previously discussed need to include other wetlands on site, plus the offset site, not just the raupō and flax wetlands associated with the lake. Also, the Natural Inland Wetland and Buffer Management Plan needs to be approved by WRC.

#16 (c) mentions "establish and maintain a minimum of 8.3 ha of new wetland on the site (in form of creating entirely new wetland habitat or augmenting existing constructed wetland(s) to achieve the 8.3 ha requirement).". If "augmenting existing wetlands" is the approach in any area, then baseline monitoring of current values needs to show that the new value is sufficiently increased from baseline that it is providing enough increased value to offset the complete loss of wetlands elsewhere (increased value of restoring existing wetland is likely different compared to creating wetland where there is none present).

#16 (d) "methods to minimise drawdown effects on retained wetlands in accordance with condition 6 of AUTH142035.18.01." Conditions need to cover the monitoring and triggers to determine any potential effects on the retained wetlands, as well as the offset wetland.

#31 Only mentions searching for nests between "1 September – 31 January (inclusive)". I recommend searches beyond this "peak breeding season" as it is possible for sensitive native species to be breeding outside of peak times. As previously discussed, more evidence is needed to support the proposed 30 m buffer around nests. The accidental nest discovery protocols and training of staff should go beyond just identifying pipit and dotterel nests. Staff should also be able to identify nests of all native wetland bird species that are, or may be, present in the area, or to stop works upon discovery of any nest until it can be identified by an experienced ecologist.

D

APPENDIX D

Memo from Josh Smith – Water Intake Structure

Memo

File No: 47 06 08

Date: 15 May 2026

To: Sheryl Roa and Mark Chrisp

From: Josh Smith – Scientist Water

Subject: Taharoa Ironsands Mine Fast-track

Introduction

My name is Josh Smith.

Qualifications - Master of Science (MSc, Hons. I have 28 years' experience in the field of freshwater ecology, specialising in New Zealand freshwater fish.

I am familiar with the Taharoa area, and the mining activities being undertaken by Taharoa Ironsands Ltd. I have a good understanding of the freshwater ecology of the Waikato region and the ecology of the Taharoa lakes.

In my role as Scientist – Water at Waikato Regional Council (WRC), I was asked to review documents for the Taharoa Ironsands Mine Fast-track application (TIMFTA), in relation to freshwater ecology and effects. I was involved in the previous resource consent process and visited the site on 17 November 2023 as part of that process.

I have reviewed documents relating to freshwater ecology including:

- Substantive Application 02.-Substantive-Application-Report904323295.1_Redacted.pdf
- Appendix L, Freshwater Ecology Assessment (Substantive Application)
- Appendix G, Key Issues Table (Substantive Application)
- Appendix T Draft Environmental Management Plan Microsoft Word - Draft EMP updated for fast track application 16 October 2025 v2.0
- Appendix BB Proposed Resource Consent Condition and Memo CS Project conditions - 23 October - updated re WRC advice and Jared updates (904162044.2) (002)

Fish Screening

The main issue regarding freshwater ecology in the current TIMFTA is fish screening at the water take system. The applicant would like to continue operating with the current "fish screening" setup. Waikato Regional Council would like to see best practice for industry applied to fish screening at this water take to protect native fish values.

Response to Appendix G (Substantive Application - key Issues Table – point 4)

- While freshwater ecological condition may have improved since 2017, these observations do not demonstrate that entrainment effects associated with the current 12 mm intake screens are absent. Given the known and documented vulnerability of early fish life stages to entrainment and the limited sensitivity of population-level

monitoring metrics to those effects, specific assessment of entrainment risk would be required to substantiate claims that the intake does not adversely affect aquatic life.

- The statement that the Waikato Regional Plan fish screening standard "does not apply" because the activity requires resource consent is misleading. While the mesh size specification is expressed as a permitted activity standard, it represents the Plan's benchmark for avoiding adverse fish entrainment effects. Where an activity proceeds by way of consent rather than as a permitted activity, those standards do not cease to be relevant. Rather, they provide an important reference point against which the effects of the proposal must be assessed, and against which appropriate consent conditions must be determined. Any departure from the permitted activity standard therefore requires explicit assessment and justification, and does not remove the obligation to avoid, remedy, or mitigate entrainment effects.
- Replacement with finer mesh screening would require design modification and operational consideration; however, without detailed assessment of alternative intake configurations, it cannot be concluded that such screening is impractical. It is doable and all other industry (water take) groups comply to standards as part of resource consents.
- Modern fish screens are self-cleaning – lots of solutions are available i.e., rotating screens/drum screens. These solutions often come with other benefits - improved mechanical reliability, hydraulic efficiency, water quality consistency, and system resilience, while reducing maintenance burden and long-term operating costs. If weed is an issue self-cleaning screens will provide a solution here.
- This system needs to be updated to protect fisheries values.
- The current system is located at the lake outlet – the key exit and entry point for native fish migrations. Weak swimming small-bodied fish (early life stages) both moving in and out of the lake are "bottle-necked" at this location. One fish species present (inanga) is classified as threatened and an additional five fish species present are classified as "At Risk" (Dunn et al. 2023). As a result, the current system will be impacting both "Threatened" and "At Risk" native fish species.
- While the intake system remains operationally functional, available evidence does not directly demonstrate that the current intake configuration effectively mitigates entrainment risk. Consequently, industry guidelines remain a relevant benchmark for assessing whether equivalent ecological outcomes are being achieved. To continue using the existing screening and pumping configuration the applicant would need to provide evidence that fish aren't being entrained.
- Based on the current design significant ecological effects are likely; it would need to be proven that this activity wasn't causing harm to native fish. It is technical practicable to upgrade this site - other industries (water takes) comply with updated consents and industry standards (please see examples below).
- Note – The applicant's ecologist would also like to see modified screens in place (Appendix L). "The lack of fine screening remains a concern for small or larval fish moving downstream (and potentially upstream as also noted in the same report). Operational constraints are acknowledged, but it is recommended that alternative mitigation measures or retrofitting be considered to better align with ecological and regulatory expectations" (Appendix L (Taharoa Ironsands Mine Fast-Track Consent Application Freshwater Ecological Assessment of Effects Taharoa Ironsands Limited Prepared by: SLR Consulting New Zealand SLR Project No.: 850.v15262.00001 22 October 2025 Revision: V1.0). Page 102).

Proposed conditions

My response (blue) to "Under proposed conditions" (Appendix BB, Substantive Application)

15) For water taken from the reservoir in the Wainui Stream, the intake must be screened with a mesh size not exceeding 12 millimetre in diameter and must be constructed so that: (a) placement of the intake does not cause fish to be entrained; and (b) that the migration habits and passage of fish are not compromised or adversely affected by the placement of the intake. 12-millimetre mesh will continue to cause fish entrainment; evidence would be needed to prove otherwise to retain the current setup – I would recommend the applicant comply with the WRP rules for fish screening (1.5 mm mesh or less).

16) For water taken from the reservoir in the Wainui Stream, the Consent Holder must ensure that the intake velocity does not exceed 0.3 metres per second at all times. The intake must be cleaned and maintained to ensure that the intake velocity is maintained at 0.3 metres per second or less. If requested by the Waikato Regional Council, the Consent Holder must provide information to demonstrate that the intake velocity does not exceed 0.3 metres per second. Meets permitted activity limits (approach velocities 0.3 m/s or less).

In addition to the above conditions, a WRC freshwater ecologist should view and certify any fish screening design plans before being constructed.

Some examples of fish screening in the Waikato Region

1) Watercare Services Limited Water Treatment Plant (Auckland take). Fish screens at this location (lower Waikato River) were specifically designed to avoid fish impingement and are based on the current general principals and best practice guidelines for intake screens from New Zealand.

Intake screens are four Johnson T-54 Passive Intake screens with **1.5 mm** slot widths consistent with the Waikato Regional Plan's mesh size criteria of 1.5 mm, to minimise entrainment of fish. The screen through-slot velocities are less than **0.15** metres per second. The design of the intake structure also helps avoid impingement - the intake structure is located approximately 25 m off the river's true right bank (not in the centre of the river channel) and at least 0.5 m above the riverbed. This positioning minimises potential fish impingement and entrainment issues by: avoiding the main upstream migration pathway for whitebait species that generally move within the top 1 m of the water column along river margins; avoiding the main upstream migration pathways for bully species that generally move in the top 2 m of the water column and along the river bottom; avoiding the main pathway for elvers that mainly move along the bottom of the river channel at mid water depths; and Placing the intake structure to **achieve highest sweep velocities, thereby minimising both impingement and entrainment of larval fish moving downstream.** Previous studies on the Waikato River (Meredith et al., 1989) have found the greatest density of fish larvae (and eggs) occurs in the middle of the river channel, which is consistent with larvae seeking regions of higher flow velocity to enhance seaward transport.

2) Watercare Services Limited Water Treatment Plant (Hamilton take). Fish screens at this location (Waikato River at Hamilton) were specifically designed to avoid fish impingement and are based on the current general principals and best practice guidelines for intake screens from New Zealand. Intake screens are passive intake screens with **3.0 mm** slot widths consistent with the Waikato Regional Plan's mesh size criteria of 3.0 mm (at sites greater than 100km inland, to minimise entrainment of fish. The mean screen through-slot velocities are less than **0.06** metres

per second which are below the **0.2** consented level. The design here also utilises sweep velocities.

3) New Zealand Steel Water Intake. The water intake at this location (lower Waikato River, approximately 20km from the river mouth) was specifically designed to avoid fish impingement and are based on the current general principals and best practice guidelines. The mean screen through-slot velocities are on average **0.10** metres per second which are below the 0.2 consented level.

The intake was designed to minimise the entrainment (being sucked into the intake) and impingement (being squashed or rubbed against the structure) of fish. Features that were included to avoid fish uptake are: 1) The intake is situated 20m away from the river bank and in a typically strong current area, where runs of small, migrating fish (fish with the highest risk of entrainment) are less likely to occur; 2) Intake is located parallel to the river flow resulting in lower 'approach' velocities (i.e. water moving into the intake) and higher 'sweep' velocities (i.e. water moving past the intake); 3) Overlapping louvres angled at approximately 20° to the flow direction with approximately 25mm clear spaces to deter larger fish; 4) Water jets along the louvres at the intake create a high water velocity environment for fish in the immediate louvre area, increasing the sweep velocity. A high sweep velocity and the turbulent area created by the jets is designed to create a 'hostile' environment to deter fish from entering the immediate vicinity of the intake; 5) Automatic closure of intake gates if jet pumps fail; 6) Water abstraction was designed to occur slowly through the louvres and at a rate that should not exceed maximum best practice levels, with the velocity of water being abstracted through the louvres (i.e. approach velocity) not exceeding velocities that the fish can successfully swim against. 7) The intake is gravity operated, where water passes through the intake when the water level in the balance pond is lower than that of the river. Flow through the intake is therefore determined by the rate of pumping from the balance pond.

References

Dunn, N.R.; Closs, G.P.; Crow, S.K.; David, B.O.; Goodman, J.M.; Griffiths, M.; Hicks, A.S.; Hickford, M.J.H.; Jack, D.C.; Kitson, J.C.; Ling, N.; Waters, J.M.; Wylie, M.J.; Hitchmough, R.A.; Makan, T. 2025: Conservation status of New Zealand freshwater fishes, 2023. New Zealand Threat Classification Series 46. Department of Conservation, Wellington. 66 p.

Additional references/resources

This document provides best practice fish screening guidance for industry NIWA Client report

DOC / NIWA – Fish Passage at Water Intake Infrastructure Fish passage at water intake infrastructure - Sjaan Bowie

Charteris, S.C. (2006) Native fish requirements for water intakes in Canterbury, Department of Conservation 52 pp.

APPENDIX E

Memo from Michael Townsend – Coastal Sedimentation

Memo

File No:	60 40 32A
Date:	18 May 2026
To:	Sheryl Roa and Mark Chrisp
From:	Michael Townsend – Team Leader Coastal and Marine Science
Subject:	**Taharoa Ironsands Mine Fast-track**

My name is Dr Michael Townsend. I am the Team Leader for Coastal Marine Science at Waikato Regional Council. I hold a Bachelor of Science degree with honours in Oceanography with Marine Biology from the University of Southampton, UK and a PhD in Environmental Economics and Management from the University of York, UK; which focused on the ecosystem functioning of marine benthic fauna. I have 20 years' experience in marine ecological research specialising in benthic ecology. I have co-authored >36 scientific journal articles, 2 book chapters, and over 40 technical reports and I led the development of ANZECC Guidance for Estuary Sedimentation for the Ministry for the Environment (2015).

I was asked to review documents for the Taharoa Ironsands Mine Fast-track application, in relation to marine ecology and the possible effects of iron sand mining operations. I was involved in the previous resource consent process and visited the site on 4th July 2024. I have reviewed the following documents:

- Substantive Application
- Appendix G, Key Issues Table (Substantive Application)
- Appendix T Draft Environmental Management Plan
- Appendix BB Proposed Resource Consent Conditions
- Appendix V Marine Ecology Assessment (referred to herein as the MEA)
- Appendix FF Discharge and Dispersion Modelling Assessment

The main difference between this Fast-track Approvals Act 2024 (FTAA) application and the previous RMA application relevant to my consideration are:

- An update of the discharge and dispersion modelling (Appendix FF) introducing explicit operational scenarios with an expanded focus on sediment deposition and the spatial footprint of deposition.
- An update of the MEA (from the version 3 to 5, Appendix V) covering a wider scope moving beyond the dewatering discharge on benthic ecology to the inclusion of stormwater, coastal structures and fisheries and harbour-scale effects.

These updates have not changed many of the points I raised in my technical specialist review dated 17th November 2023 and my reasoning. In the previous report I highlighted several limitations of the study design and sampling including:

- Very limited spatial replication, with only 4 sites in total with ~250 m vs ~2 km separation (2 "impact", 2 "reference", with doubts on the suitability of the reference sites to function as such in a true sense).
- Sampling constraints and low replication compromising data quality
- A heavy reliance on model output without validation
- The reliance on 'one-off' sampling without temporal replication

Reliance on modelling outputs in the assessment of ecological effects

There is an over reliance in the MEA on the modelling to be a predictor of the natural environment or at least it used with certainty – for example, see the language in Section 5.2 of MEA. Section 3.4 of the updated discharge and dispersion modelling report (Appendix FF) predicts little/negligible sedimentation occurring at both the discharge location and further afield (e.g. 2km away) over a 3-month or a year period (Figures 3.15 to 3.17). Extrapolating model findings out for longer periods e.g. taking the 3-month figure of 0.002mm (equivalent to ~0.008mm per year), this would be 0.4mm over a 50-year period at the discharge location. Empirical information presented in the MEA, suggests that there may be large differences in sediment parameters likely associated with the activity – there is elevated mud content of the sediment in the proximity of the mooring location (28% mud[1]) compared with 2 km away (19% mud). I still hold the views captured in statements 21 and 22 from the joint witness statements from 29th May 2024 as follows:

- Statement 21: "The experts agree that there is a divergence between the modelling outputs showing no accumulation of sediment at the mooring buoy compared to the sample results showing higher mud percentages at that location".
- Statement 22: "The experts acknowledged that the discharges had been occurring for much longer than the modelled period, and under a wider range of climatic/oceanographic conditions, so some differences between model outputs and observed seabed conditions could be anticipated."

If the model does not cover longer time periods accurately, i.e. it does not or cannot explain what has occurred with respect to sedimentation and the changing sediment environment over the last 35 years with certainty, then it also lacks utility for confidently concluding ongoing levels of sedimentation at the mooring site and how the sediment environment might be expected to change further here. The model cannot be used to confidently claim that the levels of sedimentation over the next 35 years will be inconsequential, especially if there are substantial increases in discharge.

The difference between 19% and 28% mud, if this change was to occur at an estuarine site, would represent a shift from a 'fair' to a 'poor' ecological quality status following the thresholds developed by Stevens et al. (2024). Obviously, the application of the estuarine indicators (there aren't any commonly used for subtidal environments) must be caveated, but this is based on a large dataset and robust foundation of ecological health gradients. This study recognised 25% mud content as an approximate threshold above which unacceptable declines in species and their abundances may occur.

The lack of a spatial gradient in the MEA i.e. sites at 250m then 2km from the discharge, means there is lack of understanding across a substantial area.

As such, it is unknown how far elevated levels of sediment mud content extend out from the discharge points, and whether the mooring sites would remain at 28% mud content moving into the future over the lifetime of the consent. If sediment mud content shifted to 40% or >50% over the lifetime of the consent, this would eventually result in changes to the ecology and the functioning of the marine ecosystem i.e. a chronic low-level disturbance altering community composition over a wide spatial

[1] The MEA reports different mud percentages for the mooring and reference sites on pages 5 and 12. The numbers are different, but the relative difference (9%) is the same.

scale. It is the uncertainty of how or if this area may change further with respect to ongoing discharges that is the focus of my concern and making monitoring essential.

In summary:

The issues outlined above and in my previous report highlight that the level of ecological risk is less certain than presented in the MEA which does not adequately consider the underlying uncertainty. The empirical basis for the MEA was limited to a single survey that was spatially constrained with elements of poor execution (e.g. limited replication for ecology/physical measures) and a strong reliance on unvalidated modelling with respect to sedimentation. Robust gradient-based consent monitoring can help address areas of uncertainty highlighted and is a sensible approach.

Conditions of consent:

It is my understanding that Appendix BB does not include a requirement to develop a marine monitoring programme as resource consent condition, this being highlighted as a key area of disagreement (e.g. page 6 in Appendix 6).

Following my previous consent condition recommendations and in alignment with the previous hearing panel, I suggest that a marine monitoring programme be developed with a gradient-based approach. This should focus on the sediment environment with sediment grain-size (mud content) as the primary interest and sediment heavy metals content as a secondary interest. Ecological assessment would be required should adverse trends in the sediment environment be recorded. Specifically, I recommend the following as a consent condition to AUTH142035.13.01:

- A monitoring programme (including a gradient approach via wet sieving with no pretreatment with 3-yearly sampling at locations 250m, 500m, 1km, 2km and 4 km north and south of the point of discharge) that determines the fate of the sediment discharged to the Coastal Marine Area, including its distribution and deposition on the sea floor in areas potentially affected by the discharge.
- A requirement that if the data obtained from the monitoring programme shows a trend that the receiving environment is getting increasingly muddier, then a further assessment of ecological effects will be required along with recommendations to address any adverse effects identified.

References:

Stevens LM. Roberts KL, Forrest BM, Morrisey D, Zeldis JR, Dudley BD, Mangan S, Lam-Gordillo O, Lundquist C, Lohrer AM, Plew DR. 2024. Advice on Indicators, Thresholds and Bands for Estuaries in Aotearoa New Zealand. Salt Ecology Report 141, prepared for Ministry for the Environment, June 2024. 182p.