

BEFORE

Independent Commissioners appointed
by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by C J Industries Ltd
for land use consent RM200488 for
gravel extraction and associated site
rehabilitation and amenity planting and
for land use consent RM200489 to
establish and use vehicle access on an
unformed legal road and erect
associated signage, and discharge permit
RM220578



**MEMORANDUM OF COUNSEL
REGARDING APPLICANT'S SUPPLEMENTARY EVIDENCE
4 November 2022**

Version control note by Alastair Jewell, Principal Planner,
re COMPILED set pdf of applicant evidence.

v2 09/11/22 - added NICOL attachments (doc 05H-2) -
received on 9 Nov 2022 - omitted in error by applicant

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MAY IT PLEASE THE COMMISSIONER

In accordance with Minute 3, the applicant has filed:

1. Supplementary evidence of Tim Corrie-Johnston dated 4 November 2022
2. Supplementary evidence of Reece Hill dated 4 November 2022
3. Supplementary evidence of Wayne Scott dated 4 November 2022
4. Supplementary evidence of Ryan Nicol dated 4 November 2022
5. Supplementary evidence of Jeff Bluett dated 4 November 2022
6. Supplementary evidence of Gary Clark dated 4 November 2022
7. Supplementary evidence of Rhys Hegley dated 4 November 2022
8. Supplementary evidence of Bill Kaye-Blake dated 4 November 2022
9. Supplementary evidence of Hayden Taylor dated 4 November 2022



Sally Gepp

Counsel for CJ Industries Limited



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**EVIDENCE OF TIMOTHY GEORGE CORRIE-JOHNSTON
ON BEHALF OF CJ INDUSTRIES LIMITED
(CORPORATE AND OPERATIONS)**

4 November 2022

1. INTRODUCTION

1.1 My full name is Timothy George Corrie-Johnston.

1.2 I am Site Manager for CJ Industries' operations base at Hau Road and for all of CJ Industries' quarries (two at Riwaka, one at Marahau, and Douglas Road, Motueka). If this application is consented I will be site manager for the Peach Island Quarry. I am authorised to provide this evidence on behalf of the applicant, CJ Industries Ltd. I set out my qualifications in my brief of evidence dated 15 July 2022.

1.3 I live onsite at 134 Peach Island Road with my family. I purchased the property in 2019. I have a drinking water bore on my property.

1.4 In this statement, I address:

- (a) The Addendum s 42A report in relation to RM200488 and RM200489 (land use consents).

- (b) Submissions on RM220578 (discharge permit)
- (c) The s 42A report in relation to RM220578 (discharge permit)

2. EVIDENCE

Addendum s 42A report on land use consents

- 2.1 At paragraph 5.4 the s 42A report says that the applicant has volunteered not to use heavy machinery on Monday – Friday, this is clearly an error and should say “before 7.30 am” – this has now been corrected.
- 2.2 Mr Hegley’s evidence said that he supported Condition 51(b) which provided for the use of broadband warning alarms plant but suggested that it only apply to plant owned or managed by the applicant on the basis that the applicant would have limited control on plant visiting the site, such as trucks from independent contractors. He said that in such instances, reversing could be negated by site layout. The s 42A report queries whether this is the case at paragraph 5.11. The site layout will provide for vehicles to deposit fill and then loop around to the point at which they load up, although the trucks will have to reverse into the clean fill stockpile to dump fill. However, these will all be owned by or contracted to CJ Industries. The intention is that any vehicle allowed onsite must have the broadband-type reversing alarm, so it is not necessary to exclude visiting vehicles from the condition.
- 2.3 At paragraph 5.12 the report refers to the Department of Conservation marginal strip, and says that use and sealing of this road is subject to DOC approval for which a concession application has been lodged. By way of update, this concession was granted on 4 October 2022. The conditions allow for the temporary access road over the marginal strip to be sealed. The easement width is up to 7 metres. On that basis, it is not necessary to exclude the marginal strip from condition 31 and CJ Industries does not object to sealing this part. Either the reference to the marginal strip should be deleted (so the requirement to seal applies to it), or the condition should be framed in a way that allows CJ Industries to seal the proposed access including the marginal strip if it chooses.
- 2.4 Paragraph 5.37-5.38 seek clarification as to whether there is public access during excavations. There is legal public access into Peach Island along the Peach Island paper road which connects to Motueka River West Bank Road at the northern end of Peach

Island, but once it reaches the houses on Peach Island, the paper road looks like part of the paddocks. There is no public access at the southern end of the site (via the bridge) so this paper road is a dead end road. The application proposed to exclude the public, but this is not considered necessary. Very few people are likely to enter the site on the paper road. Quarry vehicles must travel at 15 km/h under the proposed conditions. Mr Clark also comments on this.

- 2.5 Paragraph 6.11 refers to third parties accessing the site to deposit fill. This will not happen. Clean fill will be accepted from approved third parties, but that clean fill will be taken to a separate location (such as CJ Industries' Hau Road site) for inspection. Third parties will not be able to deposit clean fill directly at Peach Island. Only CJ Industries employees or contractors would cart clean fill to the site. This has always been the intention, but it may not have been clear from my first statement of evidence.
- 2.6 Paragraph 6.12 is uncertain regarding who has access via the right of way that crosses the bridge. The bridge is on private property owned by a related company, and there are no easements that apply to it.
- 2.7 The s 42A report disagrees that there is a functional need for the quarry activity and says that while the quarrying of in-situ rock (as opposed to river aggregate) may have a functional need because a specific rock or mineral resource may only exist in a particular environment, river aggregate can be sourced from current or former riverbeds, i.e. from different locations" (at 7.19). My first statement of evidence set out the limitations on availability of aggregate from different locations, and Mr Scott's evidence also addresses this. The quarry clearly has a functional need to locate in this environment.
- 2.8 At Paragraph 7.25 and elsewhere, the s 42A report writer raises concerns about successful implementation of the Soil Management Plan. There is nothing in the Soil Management Plan that appears to be difficult to implement from an operational perspective. The s 42A report raises some perceived inconsistencies between the SMP and other management plans – I will leave it to the management plan authors to comment on that.
- 2.9 Ms Langford's Memorandum refers to topsoil being carted from other sites, and refers to inquiries being made about topsoil from Appleby. I expect this relates to the discussions between CJ Industries about controls needed to manage Bathurst Bur when transporting

topsoil from Appleby to be disposed of as fill at Douglas Road (discussed further below). To my knowledge, CJ Industries has not made enquiries about transporting topsoil from Appleby to Peach Island. Topsoil is a valuable resource, and CJ Industries will try to only re-use topsoil from the Peach Island site rather than importing it. Mr Hill discusses the approach to transportation for soil quality purposes.

- 2.10 A condition specifying that “stockpiles in the Stage 2 area within 100m of the apple orchard boundary shall be removed over the drier months of January to May” is proposed. Instead, CJ Industries proposes not to stockpile soil within 100m of the apple orchard boundary. All other stockpiled materials are within the Stockpile and Storage Area which is well over 100 m from the orchard boundary.
- 2.11 One matter of clarification with regard to the Stockpile and Storage Area: in the site diagram it shows this Area being next to the stop bank, which would involve CJs excavating down 1 m close to the stop bank. That is not intended – the Stockpile and Storage Area will be set back 20 m from the stop bank and there will be no excavation within 20 m of the stop bank.
- 2.12 Council’s amended condition 59 proposes a speed limit of 30 kilometres/hour within the site on sealed surfaces (in addition to the applicant’s proposed condition which had a 15 km/h speed limit on unsealed surfaces). CJ Industries’ preference is for a blanket 15 km/h speed limit within the site and on the haul road whether on sealed or unsealed surfaces.

Discharge permit

- 2.13 I have looked at the additional information and revised draft Groundwater and Cleanfill Management Plan (“GMP”) provided as part of CJ Industries’ further information response. I am confident that all aspects of the proposed approach (e.g. test pit digging to assess groundwater depth) are able to be achieved from an operational perspective. I respond to specific question and comments from submitters and the s 42A report writer below.

Submissions on discharge permit application

- 2.14 I have seen the submissions from Wakatu Inc,¹ Te Ātiawa Manawhenua Ki Te Tau Ihu Trust² and Ngāti Rārua³. I acknowledge the points made in relation to cultural effects, and look forward to provision of a Cultural Impact Assessment so that these issues can be considered. CJ Industries supports provision of a CIA and has offered to assist with resourcing for this on several occasions.
- 2.15 Various submitters⁴ refer to the activity's carbon footprint. While there will be some carbon emissions associated with the use of diesel-powered machinery and vehicles, the overall emissions will be much less than they would be if aggregate were brought in from outside Motueka (if a supply could be found).
- 2.16 Some submitters⁵ query whether there is sufficient backfill and whether the duration of consent is based on getting access to backfill. My response is that:
- (a) CJ Industries now owns or has access to three rock quarries that have considerable amounts of granite/overburden available for use as backfill. I do not anticipate any issues sourcing backfill.
 - (b) At any given time, a burrow will not be bigger than 1,600 m², so if there is no backfill available for some reason, extraction would not occur (in order to meet the requirements around backfilling for groundwater protection).
 - (c) The reasons for the 15 year term are set out in my first statement of evidence at paragraphs 3.44 to 3.48. In summary, a 15 year term enables CJ Industries to make use of river gravels when sources are made available by Council, which results in more efficient use of resources. The term is not based on availability of backfill.
- 2.17 One submitter⁶ has raised concerns with fill material resulting in noxious weeds spreading. This may relate to the issue of Bathurst Bur, and the steps that CJ Industries and Council take to ensure that this pest weed does not become established. I **attach** an

¹ Submitter 47

² Submitter 49

³ Submitter 58

⁴ E.g. submitter 43 and submitter 56

⁵ E.g. submitter 34

⁶ Submitter 31

email from Lindsay Barber at TDC setting out the process by which Bathurst Bur was taken to Douglas Road and how it has been managed. In summary, Bathurst Bur was identified at a retirement home development site in Appleby in 2014. This led to discussions between CJ Industries and Council biosecurity staff about relocation of topsoil from the Appleby development to the Douglas Road site. Biosecurity staff gave their agreement to the relocation subject to conditions including that the material had to be placed in existing gravel excavation pits, and a mantle of material of at least 300 mm was to be spread over the surface of the filled pit. The relocation occurred between 2018 and is ongoing. Council checks for Bathurst bur propagules annually, and will continue to do so for the next five years. To date, there has been no sign of Bathurst Bur at Douglas Road, and Council says its Biosecurity staff are confident that a new incursion of Bathurst Bur is extremely unlikely due to the depth at which the soil is buried.

- 2.18 Soil with Bathurst Bur will not be used as fill for the Peach Island operation.
- 2.19 Other weeds are managed in the normal way for a farm. Gorse spraying typically occurs in November, and it would be possible for other weeds to be sprayed at the same time. CJ Industries' Environmental and Consents Officer will be responsible for monitoring weeds. A condition requiring that weeds are monitored as part of an annual cycle and destroyed if found could be included if this was considered necessary.

S 42A report on discharge permit

- 2.20 Paragraph 7.15 refers to staging. Mr Nicol has clarified that his recommendation to commence excavation at locations at the greatest upgradient distance from any water supply bores, as far as can practically be achieved, was meant to apply within a stage, not to which stage happens first. I confirm it is practicable to start excavations within a stage at the end of the stage that is furthest from water supply bores.
- 2.21 Dr Rutter queries whether there will be sufficient cleanfill to fill to 1 m above groundwater in a day (s 42A report at 7.18 and Aqualinc Memorandum dated 10/8/2022). As the burrows will be 20 x 80 m, even if a whole burrow needed to be filled by 1 m this would only amount to 1600 m³ of cleanfill. In practice, a burrow will not be fully open as each burrow will be progressively opened and reinstated, so the volume will be less. There will be ample back fill stored onsite to allow for backfilling

when required. For clarity, CJ Industries will not be excavating if there is not sufficient clean fill on site to fill the burrow.

- 2.22 Dr Rutter discusses the depth above groundwater level that excavation may occur to. In terms of effectively using the aggregate resource at Peach Island, the 0.7 m depth of aggregate (between 1 m and 300 mm) equates to 120,000 tonnes of aggregate over the 7 ha site. As CJ Industries consumes around 80,000 tonnes of aggregate per year to meet the region's demand for concrete and chip seal, this equates to well over a year's supply.

Tim Corrie-Johnston

4 November 2022

From: Lindsay Barber <Lindsay.Barber@tasman.govt.nz>
Sent: Wednesday, 19 October 2022 9:04 AM
To: Richard | CJ Industries
Subject: Bathurst Bur

Hi Richard

Under the Tasman-Nelson Regional Pest Management Plan, Bathurst bur is classified as an eradication species and the Management Agency (Tasman District Council) is required to take the lead role in its control. Ongoing site checks for Bathurst bur are therefore the responsibility of the Council, however we encourage contractors to be vigilant and ask that they "keep an eye out" for any Bathurst bur propagules at the relocation sites we approve.

As requested, below is a summary of the key interactions Tasman District Council Biosecurity staff have had with CJ Industries regarding the relocation of soil potentially contaminated with Bathurst bur seed. The scope of the information I can provide you with is limited to what has been discussed and agreed upon with CJ Industries and is solely from a Biosecurity perspective.

Bathurst Bur was identified at Lower Queen Street in the Avida development site in Appleby in 2014 by TDC Biosecurity Officers. The landowners and relevant contractors were informed of their obligations under the Biosecurity Act 1993; that they could not knowingly communicate the pest and therefore could not move the material off site without a Plan approved by Officers warranted under the Biosecurity Act 1993.

May 2018 – Biosecurity staff engage in discussions regarding the relocation of topsoil material from the Avida development site in Appleby to the CJ Industries quarry site in Douglas Road, Motueka. Other adjacent Bathurst bur site material in the surrounding area of Appleby is also approved for relocation.

Agreement is reached that use of the Douglas Road site for the purpose of depositing this relocated material is approved but is conditional on the following:

1. The soil is not classified as Hazardous Activities and Industries List (HAIL) material.
2. The material is used to fill existing gravel excavation pits.
3. A mantle of material no thinner than 300 mm is spread over the entire surface of the filled excavation pit to cap it off.
4. All other resource consent conditions are complied with by CJ Industries.

Additionally, CJ Industries staff are made familiar with Bathurst bur and can identify this pest weed should it be sighted.

June 2018 – TDC Biosecurity Officers were advised that Bathurst bur material would be relocated to Douglas Road and the work is started. The relocation of material has been ongoing since this time.

In 2020 CJ Industries were the contractors working on the next stage of ApplebyField and soil sourced from this location was relocated to two gravel pits in Douglas Road.

Annual checks for any Bathurst bur propagules in the area are carried out by Council Biosecurity staff. These annual checks are scheduled to continue for five years.

To date, no sign of any Bathurst bur has been found at Douglas Road.

Council Biosecurity staff are confident that soil managed in this way is extremely unlikely to cause a new incursion of Bathurst bur, owing to the depth the soil is buried at, which prohibits germination. Annual checks will nevertheless, continue to be undertaken.

Regards

Lindsay Barber

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BEFORE Independent Commissioner appointed by Tasman District Council

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application by CJ Industries Ltd for to discharge contaminants to land (backfill material) RM220578

EVIDENCE OF RYAN CHARLES SMITH NICOL ON BEHALF OF CJ INDUSTRIES LIMITED (GROUNDWATER AND CLEANFILL)

4 November 2022

1. INTRODUCTION

1.1 My full name is Ryan Charles Smith Nicol. I am a Hydrogeologist with Pattle Delamore Partners (PDP) and have been employed in that role since 2012.

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

- (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting and
- (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage

1.3 The applicant has also applied for a discharge permit authorising the discharge of contaminants to land, in circumstances where the contaminants may enter water (RM220578).

1.4 I produced evidence addressing clean fill parameters and a groundwater assessment for the purposes of the land use consents application. That evidence is most relevant to the

discharge permit application, but was filed at that point because aspects of my evidence (in particular, clean fill parameters) were also relevant to the land use activities, to other witnesses' assessments of those activities, and to the proposed consent conditions (e.g. conditions relating to clean fill parameters and backfilling requirements). I indicated by the use of grey shading the aspects of my evidence that were principally relevant to the discharge permit rather than the land use activities.

- 1.5 This evidence does not repeat the evidence already filed, and so this statement should be read together with my statement dated 15 July 2022.

Qualifications and Experience

- 1.6 My qualifications and experience are set out in my statement dated 15 July 2022.
- 1.7 I have visited the proposed Peach Island quarry site on 26 September 2022.

Purpose and Scope of Evidence

- 1.8 The purpose of my evidence dated 15 July 2022 was to assess the groundwater effects of the proposal, and to provide recommendations to avoid, remedy or mitigate adverse effects on groundwater resources at Peach Island. This evidence:
- (a) provides an update with respect to the assessment of groundwater effects, proposed methods to manage contaminant discharges, and methods to avoid, remedy or mitigate effects on groundwater;
 - (b) addresses submissions lodged on RM220578; and
 - (c) responds to matters raised in the s 42A report on the discharge permit application.

Code of Conduct

- 1.9 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014 and I agree to comply with it. My evidence is within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

2. EXECUTIVE SUMMARY

2.1 CJ Industries is seeking resource consent for the discharge of contaminants to land, in circumstances where the contaminants may enter water.

2.2 Following the filing of my evidence dated 15 July 2022, updates to the GMP (dated 2 September 2022) were made. These updates included:

- (a) Additional detail for managing uncertainty in groundwater level depths to avoid inundation of excavations.
- (b) Clarification of “Stable Weather conditions”.
- (c) Minor adjustments to the proposed groundwater quality trigger levels.
- (d) Adjustments to determining if an adverse changes in water quality has occurred.
- (e) Adjustment of proposed random chemical testing of clean fill material.

2.3 In response to a request for further information from Tasman District Council (Council) dated 11 August 2022, further clarification/updates to the following items were made (in addition to the items in paragraph 2.2 above) in my response dated 2 September 2022:

- (a) Updated range of groundwater level fluctuations.
- (b) Groundwater level increase rates.

2.4 Groundwater sampling was undertaken at Peach Island in September 2022 and also at the applicant’s 83 Douglas Road Quarry site in October 2022 where a similar activity to what is proposed at Peach Island currently occurs. The results of the Peach Island groundwater sampling indicated that the measured concentrations generally complied with the proposed trigger values, with the exception of iron and manganese concentrations in one private drinking-water supply bore 21033 (1.29 g/m³ and 0.061 g/m³ respectively) which exceeded the proposed trigger values of 0.3 g/m³ (iron) and 0.04 g/m³ (manganese). The results of the Douglas Road sampling indicated groundwater chemistry downgradient of the consented quarry site were below the proposed Peach Island groundwater chemistry trigger levels and therefore no adverse

effects on downgradient groundwater users are indicated by that sampling, although I acknowledge it is only from a single sampling round.

- 2.5 The removal of the naturally occurring strata and backfilling with clean fill will result in some level of change to the physical structure of the aquifer and groundwater chemistry and therefore meets the definition of a contaminant as defined in the TRMP (Chapter 2) and in the RMA. However, this does not mean that water will be “contaminated” as this term is normally thought of.
- 2.6 The area in which the groundwater chemistry changes are expected to occur will be within the quarry footprint and the immediately surrounding area on the downgradient (northerly) side of the quarry. It is recommended that groundwater monitoring should occur over an area up to 1 km downgradient of the proposed quarry within groundwater bores that are accessible to the applicant to assess the extent of any water chemistry changes. Groundwater chemistry changes across the wider aquifer system are not expected to occur.
- 2.7 The immediate downgradient area where changes to groundwater chemistry may occur is similar to the area within a surface water way in which a discharge is allowed to cause a change in water chemistry. However, for this consent application, additional consent conditions are put in place to ensure that any change in water chemistry due to the quarry does not cause any downgradient water supply bore to fail the drinking-water standards and become unsuitable as a source of water supply. On that basis, the effects on groundwater quality are considered to be consistent with the NPS-FM (2020).

3. EVIDENCE

Discharge permit

- 3.1 The discharge permit seeks consent to discharge a contaminant to land in circumstances where it may enter water. The discharge of clean fill meets the RMA definition of contaminant:

contaminant includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat—

(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or

(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged

3.2 This broad RMA definition of contaminant means that deposited material can be a contaminant even where it does not “contaminate” water, in the sense of adversely affecting water quality. That is the situation here. The removal of the natural strata at the proposed quarry site and backfill with clean fill material in areas of the quarry that will be inundated by groundwater will cause a change in the physical structure of the land (i.e. a change in the hydraulic conductivity of the aquifer where fill is placed) and a potential change in the chemistry of the groundwater could also occur as the natural strata in the quarry excavations will be replaced with material that may have a different structure, porosity, geology, and/or chemistry. This change in the groundwater environment may also cause some changes in groundwater characteristics in the area immediately downgradient of the quarry, however any such changes will be attenuated with increasing distance from the filled areas, such that widespread changes in groundwater characteristics are not expected.

3.3 As set out in my earlier evidence and reiterated here, the conditions of consent are designed to ensure that even within the localised area where changes in groundwater characteristics may occur, they will not be changes that cause an adverse effect on groundwater quality or on any groundwater users.

3.4 By implementing the Groundwater and Clean Fill Management Plan (“**GMP**”), the effect of the placement of the clean fill should have less than minor effects on groundwater quality, and are not anticipated to cause an adverse effect on nearby downgradient groundwater users or the wider aquifer system.

Amendments to assessment and GMP as part of discharge permit application

3.5 Additional changes have been made to the GMP following the filing of my evidence dated 15 July 2022. These changes were made to incorporate management of the discharge component of the activity and to address Council requests for further information dated 11 August 2022. This section of my evidence provides a summary of the changes that have been made to the GMP (dated 2 September 2022).

3.6 The main changes to the GMP are:

- (a) Additional detail regarding how the applicant will manage uncertainty in knowing groundwater level depths to avoid inundation of excavations.
- (b) Clarification of “Stable Weather conditions” during which excavation and backfilling activities would occur.
- (c) Minor adjustments to the proposed groundwater quality trigger levels.
- (d) Adjustments to determining if adverse changes in water quality are occurring.
- (e) Adjustment of proposed random chemical testing of clean fill material.

Additional detail for each of these changes are discussed below.

3.7 As exposure of groundwater within an excavation is considered to be a potential source of contamination to groundwater, avoiding accidental exposure of groundwater within excavations at the proposed Peach Island quarry is required. The GMP was updated to manage uncertainty regarding the depth to groundwater to avoid accidentally exposing groundwater during excavations. Groundwater levels beneath a particular excavation will be managed operationally via a combination of automated groundwater level monitoring and physical checks of groundwater on the day of excavation. This process is summarised below and also in Table 2 of the GMP dated 2 September 2022.

- (a) Groundwater level elevations will be continuously monitored using telemetry at the site in dedicated monitoring bores 24543, 24544, 24545 and 24546.
- (b) The groundwater level elevation data measured in the four bores listed above will be used to create interpolated groundwater level contours that will be available to the Quarry Operator and excavator operator(s).
- (c) Prior to excavations taking place, the Quarry Operator and excavator operator(s) shall check the interpolated groundwater level based on the groundwater level elevation map produced using the data from bores

24543, 24544, 24545 and 24546 for the location of where the excavation will occur.

- (d) To assess the occurrence of groundwater beneath the excavation, the excavator operator(s) will undertake a temporary excavation down to a depth of 1 m below the working level of the excavation on the day. This check on the occurrence of groundwater will be used to inform the depths to which excavations can occur. Only the digging implement of the excavator shall enter the temporary excavation and if groundwater is encountered, the excavation shall be back filled using only the material removed from it within 30 minutes of encountering groundwater to at least 0.3 m above the level at which groundwater was encountered.
- (e) Excavations between 0.3 m and 1 m above groundwater level shall be undertaken during stable weather conditions (defined in paragraph 3.8 below) and will be backfilled using clean fill material within the same day as extraction.
- (f) The Quarry Operator will ensure that there will be sufficient clean fill material on site to enable backfilling of excavations to depths between 0.3 m and 1 m above groundwater level to at least 1 m above groundwater level within the same day as extraction.

3.8 To avoid confusion, the previously used terminology of “dry weather conditions” has replaced with “Stable Weather conditions”. Excavations to depths between 0.3 and 1 m above groundwater level will only occur at the proposed quarry if stable weather conditions are met. Stable weather conditions are defined in the GMP as occasions when the requirements listed below are met:

- (a) Groundwater levels measured in the dedicated onsite monitoring bores 24543, 24544, 24545 and 24546 display either a declining or stable trend.
- (b) The flow record for the Motueka River at the TDC recorder site at Woodmans Bend displays either a declining or stable trend.

3.9 In addition to this, excavations will cease when any of the following occur:

- (a) TDC issue any flood warnings for the Motueka River catchment.

- (b) Any weather warnings are issued for the Nelson/Tasman region that might be expected to cause groundwater levels at the quarry to rise.
- (c) When groundwater levels measured in bores 24543, 24544, 24545 and 24546 display an increasing trend.

Backfilling will still be allowed to occur during any of these scenarios to ensure that at least 1 m of material is maintained above groundwater level, up to the elevation of the existing ground surface.

3.10 Minor updates to the groundwater quality triggers were made to some of the trigger values in Table 3 of the draft GMP. The proposed trigger values use half maximum acceptable values (MAV) and the guideline values (GV) sourced from the New Zealand Drinking Water Standards (DWSNZ) 2005 (Revised 2018) (MOH). The use of the proposed groundwater quality trigger values are generally consistent with the trigger values approved as part of consent conditions for a resource consent (CRC204349) granted to Fulton Hogan Limited for a similar activity at Miners Road, Canterbury. The differences from that consent are related to trigger values for electrical conductivity, hardness and iron. As there is no GV provided for electrical conductivity in the DWSNZ, no trigger level has been provided for electrical conductivity. The DWSNZ provide a GV of 200 g/m³ for hardness but also state that the taste threshold for hardness is 100 to 300 g/m³. In addition, the DWSNZ also state that hardness values below 100 g/m³ can result in corrosion of pipework. Therefore, a trigger level for hardness of 200 g/m³ is considered to be suitable. Iron was not included as a trigger for the afore mentioned consent CRC204349 for a similar activity at Miners Road, Canterbury but has been included as a trigger as part of the proposed Peach Island quarry. The trigger value for iron of 0.3 g/m³ is the aesthetic guideline value proposed by Taumata Arowai (2022), which will come into effect on 14 November 2022.

3.11 In the initial version of the GMP, the MAV was applied as a trigger level for the downgradient drinking water supply bores as these bores are located at a greater downgradient distance from the quarry boundary compared to the downgradient, dedicated monitoring bores. However, for consistency the trigger levels provided in Table 3 of the GMP (half MAV) are now proposed to be used to assess changes in water quality in both the dedicated monitoring bores and downgradient drinking water supply bores. The GMP was amended to reflect this change.

- 3.12 As an additional check on the quality of the fill material, the GMP has been updated from the specification of random chemical testing of fill material of 1 in 50 trucks (in the previous draft) to a requirement of random chemical testing of fill material every 1 sample per 500 m³ of material trucked to the site. In addition, random chemical testing to verify the quality of the placed fill material at the site will be undertaken annually. This random chemical testing at the trucks and in the placed fill is consistent with the WasteMINZ (2018) guidelines.

Other parts of response to request for information

- 3.13 This section of my evidence provides a summary of my response to the request for further information from Council dated 11 August 2022. My response is dated 2 September 2022. As noted in paragraphs 3.5 to 3.113.12, a number of changes to the GMP were made to address concerns from TDC in their RFI. Other than those changes, the main items of the response are:
- (a) Updated range of groundwater level fluctuations.
 - (b) Groundwater level increase rates.
- 3.14 Further groundwater level data was made available to me after the filing of my evidence dated 15 July 2022. The updated groundwater level data indicates that groundwater level fluctuations at the proposed Peach Island Quarry site are in the order of 2 to 3.5 m with the highest groundwater level recorded in bore 24545 (Piezo 3 – 0.5 m below ground level (bgl)), measured on 9 November 2020 and the lowest groundwater level recorded in 24544 (Piezo 2 – 5.1 m bgl), measured on 18 August 2020.
- 3.15 An assessment has been undertaken to determine how quickly groundwater levels increase in response to a high flow event in the Motueka River/high rainfall event. Daily average flow data recorded in the Motueka River at the TDC Woodmans Bend recorder site shows that flows within the Motueka River increased from 124 m³/s on 7 November 2020 to 649 m³/s on 8 November 2020, indicating a high flow/flood event. Rainfall at the nearby NIWA rainfall recorder site in Motueka (agent number 12429) was also high, at 83.6 mm recorded by on 8 November 2020. Changes in groundwater levels within the monitoring bores at the proposed Peach Island Quarry indicated groundwater level increases in the order of 1 m/day in bores located closest to the river with decreasing rates further away from the river. This additional information provides further support

for my opinion that by ensuring there will always sufficient back fill material and earthmoving machinery on site to raise the excavated area by 1 m (or up to the pre-quarry land surface), the quarry will be able to avoid any exposure of groundwater in the pit, even if groundwater levels start to display a rising trend.

Assessment of groundwater chemistry at Peach Island and downgradient of CJ Industries' quarry at Douglas Rd

- 3.16 Additional testing has been undertaken to further establish background water chemistry in the Peach Island Aquifer. Groundwater sampling at Peach Island was undertaken by PDP in five bores (24543, 24544, 24545, 24546 and 21033) in September 2022. The locations of these bores are shown in Figure 1 attached.
- 3.17 CJ Industries also operate a quarry at 83 Douglas Road under resource consents RM150896 (granted in 2016) and RM210649 (granted in 2021). One of these quarry consents involves the extraction of gravel aggregate down to a depth of 4 m below existing ground level with the excavated pit backfilled using clean fill material (note this consent does not require that clean fill meet the current WasteMINZ (2018) definition). The resource consent for quarrying at 83 Douglas Road also allows for the exposure of groundwater within the excavation pit. This quarry is nearing the end of its operational life. Gravel extraction has ended and backfilling of the excavation pit with clean fill material is nearing completion. The applicant's 83 Douglas Road quarry site is located around 2 km downstream of the proposed Peach Island site and is expected to have generally similar geology to the proposed Peach Island site.
- 3.18 The overall proposed quarrying and backfilling activities at Peach Island are expected to be similar to the activities undertaken at the 83 Douglas Road site except the proposed Peach Island quarry will be operated with more stringent controls particularly regarding the type of fill material used as backfill and additional controls on excavation depths to avoid exposure of groundwater. Therefore, the quarrying and backfilling activities at CJ Industries 83 Douglas Road site provides a useful case study for effects on groundwater chemistry that may occur at Peach Island.
- 3.19 There has been previous groundwater sampling of bores in the vicinity of the 83 Douglas Road site. However, the available data is intermittent, and it is unclear where some of the samples were collected from, or the methods used to collect the samples. Further to

this, no groundwater quality sampling that incorporates multiple downgradient bores sampled on the same day has been undertaken previously at Douglas Road as it is not required under the resource consents for the site.

3.20 In order to provide a direct comparison between background water chemistry at Peach Island and data for bores downgradient of the Douglas Road site, the sampling in October 2022 was undertaken. Groundwater samples were collected from four bores in the vicinity of the 83 Douglas Road site. Based on groundwater contours from TDC (Weir and Thomas, 2018), groundwater flow directions in the vicinity of the 83 Douglas Road site are in a general northeast direction, indicating losses from the Motueka River, a similar situation to what has been observed by the groundwater level monitoring at Peach Island (i.e. Motueka River flow losses contributing to recharge of the Peach Island Aquifer). Based on the groundwater flow directions, three bores considered to be downgradient of the Douglas Road excavation area were sampled (21555 (screened between 14 and 16 m bgl), 24306 (no depth information) and 24345 (no depth information)). There are no bores in the area considered to be upgradient of the 83 Douglas Road excavation area. However, samples were also collected from a fourth bore (20927 (screened between 12 and 14 m bgl)) located approximately 300 m southeast of the closest extent of the 83 Douglas Road excavation area. This bore is considered to be generally cross-gradient of the excavation area and therefore is expected to be representative of background water quality. An additional sample of exposed groundwater within the open excavation at the applicant's 83 Douglas Road site was also collected to assess any direct changes in groundwater chemistry as a result of the quarrying activities at the site. The locations of the four bores and the sample of the exposed groundwater in the 83 Douglas Road quarry excavation relative to the Douglas Road backfill area are shown in Figure 2, attached.

3.21 All groundwater samples taken at Peach Island in September 2022 and at Douglas Road in October 2022 were collected by a PDP staff member who is a suitably qualified and experienced person to carry out such sampling. All groundwater samples were collected as per the requirements of NEMS (2019) for the sampling and measuring of discrete groundwater quality data. Monitoring bores located at Peach Island that did not have an existing pump were sampled using low flow sampling techniques as outlined in NEMS (2019). Bores with a pump were pumped until at least three well casing volumes had been removed and field parameters had stabilised as outlined in NEMS (2019), so as to

ensure the samples were representative of the surrounding groundwater. All samples to be analysed for dissolved metals were filtered on site using 0.45 µm filter and collected into acid preserved bottles after filtering, which is in accordance with best practice sampling procedures.

- 3.22 A summary of the groundwater chemistry results from the sampling at Peach Island in September 2022 are provided in Table 1, attached. The results have been compared against the proposed trigger values as outlined in the GMP. The data show that groundwater chemistry in the vicinity of the proposed Peach Island quarry is generally of good quality with the exception of an exceedance of the trigger values for iron (0.3 g/m³) and manganese (0.04 g/m³) in private drinking-water supply bore 21033 (iron concentration of 1.29 g/m³ and manganese concentration of 0.061 g/m³). There were no other exceedances of the proposed trigger levels in the Peach Island bores with concentrations generally well below their respective trigger level and no detections of any hydrocarbon and VOC compounds.
- 3.23 A summary of the groundwater quality results from the sampling at the applicant's 83 Douglas Road site in October 2022 are provided in Table 2, attached. The data have been compared against the proposed trigger values for the proposed Peach Island quarry. The data show that the results from the cross gradient bore (representative of background water chemistry i.e. not downgradient of the existing quarry at 83 Douglas Road) and the three downgradient bores did not have concentrations that exceeded any of the proposed Peach Island quarry trigger levels. Concentrations in the downgradient bores generally had slightly higher concentrations compared to the cross-gradient bore, indicating a change in the total cations and anions, possibly as a result of the upgradient quarry activities. The results of the sample of the exposed groundwater within the 83 Douglas Road quarry excavation exceeded the proposed Peach Island trigger levels for total alkalinity (trigger value of 100 g/m³ and measured concentration of 210 g/m³), total hardness (trigger value of 200 g/m³ and measured concentration of 220 g/m³), aluminium (trigger value of 0.1 g/m³ and measured concentration of 1.92 g/m³), iron (trigger of 0.3 g/m³ and measured concentration of 1.98 g/m³), manganese (trigger value of 0.04 g/m³ and measured concentration of 1.69 g/m³), and *E coli* (trigger value of 1 MPN/100 ml and measured concentration of 400 MPN/100 ml). It is difficult to determine the source of the elevated parameters in the quarry pit water sample, although

elevated total alkalinity and total hardness indicate that concrete could be source of the contamination as concrete is allowed to be used as fill material at the Douglas Road site.

- 3.24 The results of the exposed groundwater in the quarry excavation indicate that there is degradation of the exposed groundwater within the pit. However, the water samples from the downgradient bores at Douglas Road do not display any changes in groundwater chemistry of concern and therefore are not adversely affecting downgradient groundwater users. Further to this, the closest downgradient bore for drinking-water supply purposes at Douglas Road (24306) is in the order of 50 m from the backfilled quarry pit and does not show any degradation of water quality (including *E. coli* detections). This can be compared to the closest drinking water supply bore at Peach Island, which is around 88 m downgradient of the proposed Peach Island quarry.
- 3.25 The Douglas Road groundwater sampling undertaken in October 2022 provides an example of a more significant quarry activity than what is proposed for Peach Island , because the proposed Peach Island quarry activity will be undertaken with stricter controls and operational management (i.e. more limitations on the type of fill material than, no uncontrolled exposure of groundwater) compared to the operational quarry at 83 Douglas Road. Therefore, the Douglas Road site provides a worst-case scenario that indicates any changes in groundwater chemistry of downgradient bores at Peach Island will not result in adverse effects on downgradient groundwater users.

Cultural impact assessment

- 3.26 I understand that a Cultural Impact Assessment is being prepared but is not yet finalised. I will respond to any technical groundwater quality or quantity matters raised in the Cultural Impact Assessment that are relevant to clean fill or groundwater by way of reply evidence.

Consistency with policy direction

- 3.27 The provisions relevant to groundwater are found in Chapters 5 ,8, 12, and 33 of the TRMP (Chapter 33 specifically relates to discharges to land and freshwater) and in the National Policy Statement for Freshwater Management 2020 (“NPSFM”). I note that in the NPSFM, “freshwater” is expressly defined to include groundwater (Clause 1.5). As set out in my evidence of 15 July 2022, I remain of the opinion that the proposed quarry,

implemented in accordance with the GMP, can operate in a manner that is consistent with the provisions relevant to groundwater as found in the TRMP and NPSFM.

Matters raised in submissions

- 3.28 A summary of the submissions on the discharge permit relating to groundwater and/or clean fill are:
- (a) Groundwater quality downgradient of CJ Industries' Douglas Road quarry.
 - (b) Removal and replacement of existing gravel with fill material changing properties of the aquifer.
 - (c) Backfilling of excavations with contaminated material causing degradation of groundwater quality and allowing 2% of contaminants in the clean fill material.
 - (d) Mobilisation of contaminants from flooding.
 - (e) Duration of post quarry monitoring.
 - (f) Consistency between the GMP and other proposed management plans.
 - (g) Proposed water quality triggers and parameters to be tested (specifically nitrate-N).
- 3.29 Groundwater quality monitoring undertaken in bores located downgradient of CJ Industries 83 Douglas Road quarry is detailed in paragraphs 3.17 to 3.25. The groundwater quality data collected during October 2022 provides the best indication of groundwater quality effects from that operation and indicates that the less restricted quarrying activities (compared to what is proposed at Peach Island) at the applicant's Douglas Road quarry are not causing adverse effects on downgradient groundwater users (i.e. no exceedance of the proposed Peach Island groundwater chemistry trigger values).
- 3.30 Concerns have been raised by submitters regarding the proposed activity changing the physical structure of the aquifer and the "filtering properties of the land". The extraction of naturally deposited gravel and backfilling with clean fill material at the proposed Peach Island quarry will result in a change to the physical structure of the aquifer as well as a

potential change in chemistry of the groundwater. The GMP requires that only natural clean fill material can be accepted by the applicant for back filling purposes and this material must meet the requirements of Table 1 of the GMP for acceptance of clean fill material. As a result of the replacement of naturally deposited strata, some change in the physical structure of the aquifer and water chemistry is expected. Physical changes in the aquifer structure could cause increased variations in hydraulic conductivity and therefore variations in the rate of groundwater flow and groundwater quality across the site. Natural variations in hydraulic conductivity are expected within the heterogeneous existing strata, and therefore further changes to hydraulic conductivity and groundwater levels as a result of the proposed activity are expected to be generally within the existing range of hydraulic conductivities and groundwater levels.

- 3.31 Concerns regarding the deposition of contaminants during quarrying activities have been raised by submitters, specifically that “that if 1,000,000 tonnes of gravel are extracted and up to 2% is allowed to be backfilled with contaminants this could be 20,000 tonnes of contaminants”. Section 3.0 and Table 2 of the GMP provides a definition of acceptable clean fill material sourced from offsite that can be used as backfill at the proposed Peach Island quarry which includes the requirement that any biodegradable material must not exceed 2% by volume per load. This is not indicating 2% of contaminants, but organic material. The 2% rate is a practical requirement recognising that incidental amounts of biodegradable material can become incorporated into some loads. No material from any site listed on the Tasman District Council Hazardous Activities and Industries List (HAIL) register or any site where the Quarry Operator has a reasonable expectation of HAIL activities will be accepted. Further to this, material sourced from offsite will only be accepted by completing either a PSI/DSI or by chemically testing a representative composite sample of imported fill material to demonstrate that total soil contaminant concentrations do not exceed regional soil background concentration limits (Cavanagh, 2015). Further to this, the GMP outlines that all fill material will be inspected offsite for any prohibited materials as well as random chemical testing of fill material being undertaken (outlined in paragraph 3.12). These controls will avoid contaminated material being accepted and used for back fill at the proposed quarry. Further to this, only 400,000 and 550,000 tonnes of aggregate is estimated will be excavated from the proposed Peach Island.

- 3.32 Mobilisation of contaminants during flooding has been raised by submitters. As outlined in paragraph 3.31 above, fill acceptance criteria will avoid any contaminated material being accepted for back fill purposes. Therefore, mobilisation of contaminants from material placed as back fill at the proposed Peach Island quarry during flood events is not expected.
- 3.33 Post quarrying/backfilling, monitoring of groundwater quality for a period of at least two years is proposed in the GMP. Given that the pattern of any groundwater quality changes is likely to have been well established during the period of quarry operations, this period of monitoring after the cessation of quarrying activities is considered to be sufficient to capture any longer-term patterns of groundwater quality changes that may have occurred as a result of the proposed quarry activities. Additional monitoring beyond two years following the cessation of quarrying and back filling would be unlikely to capture any additional changes that would not have been observed from groundwater quality monitoring undertaken up to that point. The proposed post quarrying/backfilling groundwater quality monitoring is therefore considered to be sufficient, based on the expected scale of changes that might occur.
- 3.34 A query regarding the consistency of the GMP with other proposed management plans was raised by a submitter. The applicant's counsel approached the submitter's counsel for clarification on the inconsistencies on 27 September 2022 but at the time of the preparation of my evidence, no clarification has been received by the applicant's counsel. One submitter queried the meaning of "GCFMP", a term used occasionally in the GMP. I confirm that this refers to the Groundwater and Clean Fill Management Plan, which should be referred to by the acronym GMP.
- 3.35 The proposed groundwater quality parameters and trigger levels are provided in Table 3 of the GMP and includes both nitrate-N and ammoniacal-N species of nitrogen. The proposed trigger levels are the GV and half MAV of the DWSNZ 2005 (MOH, 2018). The removal of the natural strata and back filling with natural clean fill material is expected to result in a change in the physical structure of the aquifer and groundwater chemistry. Provided that the clean fill acceptance criteria as outlined in the GMP is adhered to, any changes in groundwater chemistry are expected to be within the proposed trigger levels and therefore will not adversely affect down gradient groundwater users. Further to this, the proposed trigger levels are generally consistent with previously granted resource consents for similar activities. Given that the Peach

Island Aquifer is an unconfined aquifer in an area of rural land-use activities and on-site discharges of wastewater and stormwater, and areas of the aquifer are at times subjected to inundation from flood events in the Motueka River, it is possible that concentrations of some groundwater quality parameters may occasionally exceed the relevant MAV and GV from time to time, irrespective of any effects from the proposed quarry and its associated clean filling.

Matters raised in s 42A report

- 3.36 In this section, I respond to matters raised in the s42A officers report on the discharge permit, specifically Sections Item 2.2 of the s42A officers report and the recommended condition relevant to groundwater.
- 3.37 I have reviewed the proposed conditions and I am in general agreement with the conditions that have been proposed by the Officer.
- 3.38 Proposed condition 48 requires a minimum of three groundwater samples to be collected at least two months apart prior to commencement of quarrying activities to establish background water quality levels. I have recommended that a further round of sampling is undertaken in November 2022, prior to the hearing of this application. Given that groundwater sampling at Peach Island has previously been undertaken in September 2022 and a second sampling round will be undertaken in November 2022, proposed condition 48 will be satisfied by the time of the hearing. The November sampling will occur after this evidence has been filed, but I expect that the results from that sampling will be available to be presented at the hearing.
- 3.39 Proposed condition 51 requires that the discharge of clean fill material will not result in a change in water quality within any existing water supply bore within 1 km downgradient of the proposed of more than 50% of the relevant MAV and GV of the DWSNZ 2005 (2018). The applicant has installed dedicated monitoring bores located upgradient and downgradient for assessing groundwater chemistry changes at the proposed Peach Island quarry. As these bores are the closest to the downgradient margin of the quarry they will be the first to show any changes in groundwater chemistry. Monitoring of bores located further downgradient will be beneficial for assessing water chemistry changes, provided the bores are made available for groundwater monitoring purposes (i.e. privately owned water supply bores etc). The criteria in proposed condition 51 should refer to the values

in Table 3 of the GMP to avoid any confusion or uncertainty about what the limiting values might be. I agree with the approach of using 50% of the relevant MAV, because that relates to health effects, but propose using the GV trigger values listed in Table 3 of the GMP to allow for natural variations of the groundwater chemistry. It is also my opinion that proposed condition 19 should be also be adjusted to reflect this wording and simply refer to the limits in Table 3 of the GMP as the reference values that samples are compared to

- 3.40 Proposed condition 89 refers to excavation controls and states that “.....*All excavations shall be undertaken in accordance with the GMP to ensure that excavations do not occur below a level 0.3 m above actual ground water level at the time of excavation...*”. The GMP allows for temporary excavations to depths less than 0.3 m above groundwater level to confirm the occurrence of groundwater and inform the depth to which excavations will occur on that day. Therefore, I propose that this condition is amended to read “All excavations other than test pit excavation shall be undertaken in accordance with the GMP ...”. I agree that excavations below 1 m above groundwater level shall be undertaken during stable weather conditions and will be backfilled to at least 1 m above groundwater level at the end of the same working day.
- 3.41 Proposed conditions 94 to 96 of the s42A report refer to clean fill material that will be considered suitable for backfilling purposes. I am in agreement with these conditions.
- 3.42 Proposed conditions 103 to 108 of the s42A report refer to groundwater quality monitoring and requires groundwater samples to be collected every three months after the commencement of quarrying activities at the proposed site and continue for at least two years after the cessation of quarrying/backfilling. Proposed condition 104 indicates that an adverse effect is considered to have occurred if there is a change in concentration of more than 20% when compared against the results of the three samples collected prior to quarrying commencing (proposed condition 48). It is possible that natural variations in groundwater chemistry could result in changes in water chemistry of more than 20%. Such a change could occur due to natural variability of the water quality, irrespective of any effect from the quarry. Proposed condition 104 appears to be inconsistent with proposed condition 51 which allows changes in groundwater quality of up to half of the relevant MAV and GV which are limits that are focussed on avoiding adverse effects. In my view the proposed conditions in the GMP are a better approach that is focussed on avoiding any adverse effect on nearby groundwater users as a result

of the proposed activity rather than the proposed conditions 103 to 108 of the s42A report.

- 3.43 Paragraph 7.15 of the s42A report references proposed condition 12 of the GMP which recommends that commencement of quarrying should occur at the greatest upgradient distance from a water supply bore. The intention of the condition proposed in the GMP was that quarrying works should commence at the most upgradient location within a stage area, not necessarily the furthest upgradient stage area. The purpose of this proposed condition in the GMP was to provide additional time to collect further downgradient groundwater samples for understanding seasonality in background groundwater chemistry. I do not consider that there is a conflict with the proposal to commence work in Stages 2 and 3 and then move to Stage 1.
- 3.44 Paragraph 7.18 of the s42A Officers report raises concerns regarding the volume of clean fill required to backfill at least 1 m above groundwater level. The applicant is proposing to excavate areas of the proposed quarry when there will be sufficient clean fill material available at the site to backfill any excavation. During times of low groundwater levels, daily excavations would not necessarily be to depths of less than 1 m above ground level, depending on the working depth of the excavation for that particular day. A recommendation by the Officer's hydrogeologist to "have a base level to quarry to" is not considered suitable for the proposed Peach Island quarry due to the range of groundwater levels as noted in paragraph 3.14 of my evidence.
- 3.45 Paragraph 7.43 of the s42A report lists groundwater related matters considered by the Officer to still be outstanding or in contention. Paragraph 7.43a raises concerns about whether the applicant will be able to prevent inundation of excavations during prolonged periods of groundwater level increase. As described in 3.44 of my evidence above, accidental inundation of excavations will be managed by the footprint of excavations being restricted to no more than 1,600 m², and by a requirement to have a sufficient stockpile of fill material at the site to backfill the excavation. The largest range of groundwater levels measured to date at the site is 3.5 m (bore 24544) and the period of time between the lowest and the highest water level measurements in this bore was 83 days. The maximum rate of groundwater level increase in this bore was in the order of 1 m/day (paragraph 3.15 of my evidence). Further to this, no excavations are proposed if groundwater levels display an increasing trend (as defined under "stable

weather conditions”) so no excavations would be occurring during prolonged periods of groundwater level increase. Therefore, it is expected that the applicant will be able to manage excavations and backfilling to avoid inundation of the excavations.

3.46 Paragraphs 7.43b, 7.43c, 7.43d and 7.43e raise concerns regarding the use of trigger level proposed in the GMP and whether they are suitable to avoid adversely affecting downgradient groundwater users. The Officer has noted the definition of a contaminant as defined in the TRMP in Paragraph 4.9 of the s42A report which is any material that will change the physical structure of the land and chemical and biological condition of the groundwater. While no fill material with concentrations exceeding the regional soil background concentrations limits will be accepted as backfill, the removal of naturally deposited strata with natural clean fill material will result in some level of change to the physical structure of the aquifer and groundwater chemistry. Therefore, an area of the aquifer downgradient of the proposed quarry could be expected to display some level of change in water chemistry.

3.47 The s42A report raises a concern that the limits based on 50% of the MAV and the guideline values in the drinking-water standards may allow for significant deterioration in groundwater quality which is not acceptable in terms of the National Policy Statement for Freshwater Management (NPS-FM) (NZG, 2020). However:

- (a) The potential change in groundwater characteristics only applies to the local groundwater environment immediately downgradient of the clean fill activity. Beyond this zone, any changes in the characteristics of the water are attenuated back to their background levels. This attenuation zone could be considered as a form of “reasonable mixing zone”. Discharges to surface water are provided a reasonable mixing zone in the TRMP (Policy 33.1.3.5), which allows for changes in water quality for a specific reach, provided that the discharge does not result in degradation of water quality beyond the area where the change in water chemistry will occur. That approach in the TRMP is presumably acceptable in terms of the NPS-FM.
- (b) I agree with the s42A officer that no changes in the characteristics of groundwater quality changes are anticipated or monitoring required beyond a 1 km zone downgradient of the quarry and that lack of any

wider impact is achieving the NPS-FM requirements. If there were to be no allowance for an attenuation zone then I would expect that all onsite wastewater discharges, stormwater soakage systems and solid waste facilities and many rural land-use activities would be considered unacceptable, because they will all cause localised changes to groundwater characteristics in the immediate vicinity of the discharge. As far as I am aware, a large number of consents have been granted on terms that allow localised changes in groundwater characteristics since the NPS-FM 2020 came into force. For all those common-place rural activities to be deemed to be unacceptable would be an unrealistic outcome of what the NPS-FM is intended to achieve.

- (c) The approach proposed by the applicant is an even higher standard in that it has additional limits within the attenuation zone to ensure users of drinking-water wells are protected against adverse effects. The proposed trigger limits in the GMP allow for some change in groundwater chemistry within a localised area downgradient of the quarry, but also restrict any changes to half MAVs and less than the GVs to ensure that groundwater users are not adversely affected.
- (d) Provided that bores for groundwater quality monitoring purposes are accessible to the applicant, the distance downgradient of the proposed quarry within which groundwater chemistry changes should be monitored to determine if any changes in chemistry have occurred, has been assumed to be 1 km downgradient (based on proposed condition 51 of the s42A report) although this is considered to be very conservative and the actual distance downgradient in which changes in groundwater chemistry occur is expected to be smaller. While specific to *E. coli* and turbidity, the decision documents for resource consents RM210649 and RM200392 issued by TDC for similar quarrying activities note that bores more than 300 m downgradient of the excavation pits are unlikely to show changes in *E. coli* and turbidity concentrations as a result of the activities. Further to this, a recent sampling survey of groundwater quality from the applicant's 83 Douglas Road site indicates that no adverse effects on groundwater users have occurred at the closest

downgradient user (located around 50 m downgradient of the quarry).

Therefore, I expect that any changes in groundwater chemistry at this site will similarly be limited to an area downgradient of the proposed quarry and will not result in any noticeable changes or cause adverse effects on groundwater users within that area or the wider groundwater aquifer.

3.48 Paragraph 7.43f raises concerns whether the proposed response to contamination observed from groundwater sampling is robust enough. If an exceedance of a proposed trigger level occurs, then the GMP currently requires repeat sampling of the bore in which the exceedance occurred as well as the upgradient monitoring. If the repeat sampling indicates another exceedance in a downgradient bore, all quarry activities shall cease and an investigation into the source of the elevated concentrations undertaken. The TDC Hydrogeologist has recommended in the s42A report that all monitoring bores should be resampled regardless if an exceedance of the trigger levels has occurred and that any exceedance should be assumed to be from the proposed quarrying activities until proven otherwise. I agree that repeat sampling could assist with determining the source of the trigger level exceedance. However, the investigation into the source of an exceedance should include reviewing all accepted clean fill material as well as other sources of contamination such as other landuse activities and bore head security which can lead to groundwater contamination before assuming that the changes are associated with the quarrying activities. The response to an exceedance of a trigger level is outlined in Sections 7.1 and 7.2 of the GMP and includes; repeat sampling of the bore in which the exceedance occurred, investigating the cause of the exceedance (including material used as clean fill, land use activities, bore head security etc), cease any activities that caused the exceedance (if associated with the quarrying activities), provide an alternate drinking-water supply to any downgradient users in which the exceedances proven to be associated with the quarry activities have occurred following repeat sampling. This process as provided in the GMP is a suitable and robust response to managing exceedances of the proposed Table 3 (GMP) trigger level concentrations.

3.49 Paragraphs 7.44 to 7.57 of the Officers s42A report raise concerns regarding any potential groundwater quality changes downgradient of the proposed quarry not meeting the outcomes and requirements of the NPS-FM (2020). The NPS-FM applies to all freshwater including groundwater. The Officer has acknowledged in paragraph 7.47 of the s42A report that indirect effects of the proposed activities on surface water ways via

groundwater are considered to be negligible due to significant dilution effects. The NPS-FM (2020) proposes national water quality bottom line concentrations for specified parameters including nitrogen species (i.e. nitrogen-N (Table 6 of the NPS-FM) and ammoniacal-N (NPS-FM)). However, the national water quality bottom line concentrations are listed in the NPS-FM for rivers and lakes, not groundwater, and as a result of the accepted significant dilution effects, any elevated concentrations within groundwater would have a negligible effect on concentrations in surface water ways with the relevant NPS-FM national bottom line concentrations. For example, in the very unlikely event that nitrate-N concentrations reached the proposed trigger level of 5.65 g/m³ in monitoring bores downgradient of the site, there would be significant dilution effects before any concentration of this magnitude reached any surface water way, thus retaining the national bottom line nitrate-N concentration of 2.4 g/m³.

- 3.50 Paragraph 8.2 raises concerns that the proposed trigger levels will exceed the NPS-FM bottom line for nitrate-N. As outlined in paragraph 3.49, the NPS-FM bottom line concentrations are for river environments and therefore should not be applied directly to groundwater. As noted in paragraph 3.49 there is sufficient dilution in surface waterways to avoid adverse effects. It is not appropriate to apply the rivers and lakes bottom lines in the NPS-FM to groundwater.

4. CONCLUSION

- 4.1 The main potential effect on groundwater from the proposed quarry at Peach Island is the mobilisation of contaminants from inundated fill material.
- 4.2 Although only natural clean fill material from sites that meet the requirements of Section 3 of the proposed GMP will be used as backfill, the removal of the naturally occurring strata and backfilling with clean fill will result in some level of change in the physical structure of the aquifer and groundwater chemistry.
- 4.3 The area in which the changes are expected to occur will not be the wider aquifer system but within an area limited to the quarry and also an area immediately downgradient of the quarry. Groundwater quality monitoring within 1 km downgradient of the proposed quarry will define the exact scale and extent of any changes.
- 4.4 Provided the quarry is operated in accordance with the GMP, effects on groundwater quality will be managed to avoid breaching the limits in Table 3 of the GMP and thereby

avoid adverse effects on groundwater users within 1 km downgradient of the quarry. Beyond 1 km downgradient of the proposed quarry, no changes in groundwater chemistry are expected. The area within 1 km downgradient of the proposed quarry in which some changes in water chemistry is expected to occur is considered to be conservatively large. This approach is similar to the area within a surface water way in which a discharge is allowed to cause a change in water chemistry.

- 4.5 Any changes in water chemistry within 1 km downgradient of the proposed quarry will be at a level that will not be detectable by downgradient users and the proposed trigger levels afford a level of change in groundwater chemistry that will not adversely affect downgradient groundwater users (i.e. half MAV) and is therefore considered to be consistent with the NPS-FM.
- 4.6 Therefore, provided that the quarry is operated in accordance with the GMP, I consider that the effects on groundwater quality from the proposed activity are less than minor.

Ryan Charles Smith Nicol

4 November 2022

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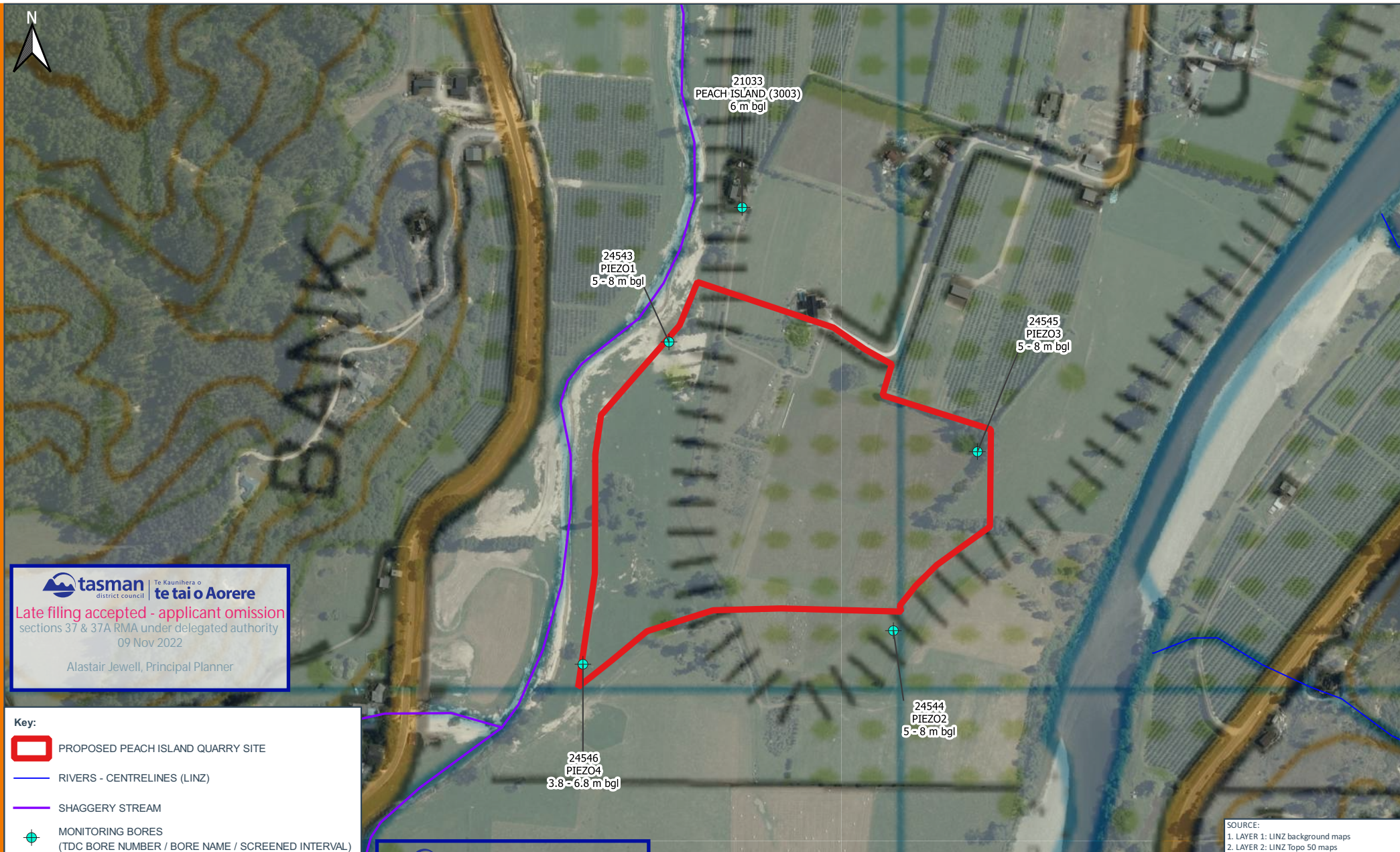
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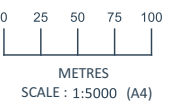


tasman Te Kaunihera o **te tai o Aorere**
 district council
Late filing accepted - applicant omission
 sections 37 & 37A RMA under delegated authority
 09 Nov 2022
 Alastair Jewell, Principal Planner

Key:

- PROPOSED PEACH ISLAND QUARRY SITE
- RIVERS - CENTRELINES (LINZ)
- SHAGGERY STREAM
- + MONITORING BORES
(TDC BORE NUMBER / BORE NAME / SCREENED INTERVAL)

SOURCE:
 1. LAYER 1: LINZ background maps
 2. LAYER 2: LINZ Topo 50 maps



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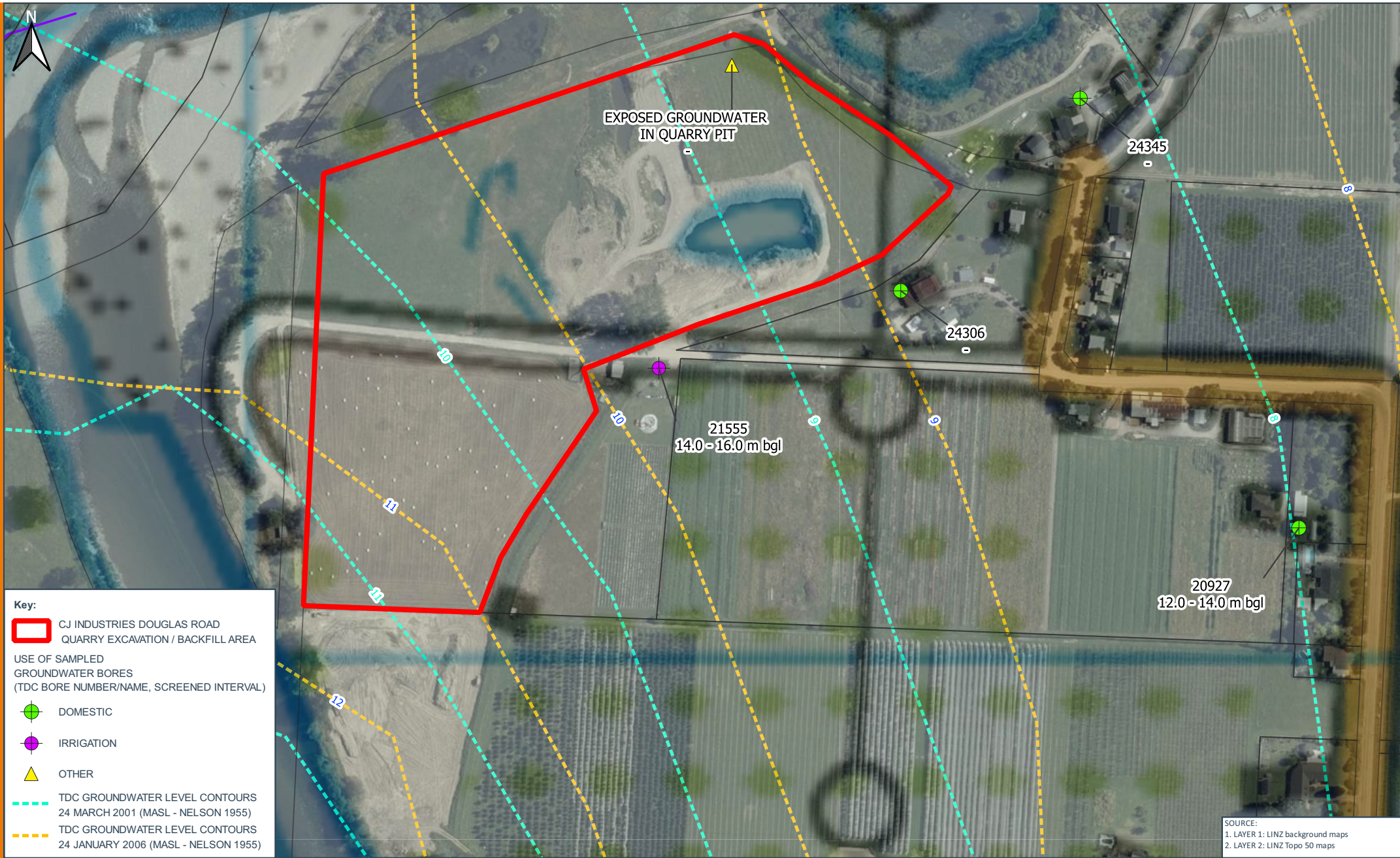
tasman Te Kaunihera o **te tai o Aorere**
 district council
 received by email
 Wed 9 Nov 2022 @ 10:41 am



NO.	REVISION	DATE	BY
A	FINAL	NOV 22	RN

FIGURE
FIGURE 1: LOCATION OF GROUNDWATER QUALITY MONITORING BORES SAMPLED IN SEPTEMBER 2022 AT THE PROPOSED PEACH ISLAND QUARRY

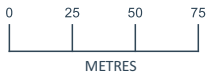
PROJECT
 PEACH ISLAND PROPOSED QUARRY - HYDROGEOLOGY



Key:

- CJ INDUSTRIES DOUGLAS ROAD QUARRY EXCAVATION / BACKFILL AREA
- USE OF SAMPLED GROUNDWATER BORES (TDC BORE NUMBER/NAME, SCREENED INTERVAL)
- DOMESTIC
- IRRIGATION
- ▲ OTHER
- TDC GROUNDWATER LEVEL CONTOURS 24 MARCH 2001 (MASL - NELSON 1955)
- TDC GROUNDWATER LEVEL CONTOURS 24 JANUARY 2006 (MASL - NELSON 1955)

SOURCE:
 1. LAYER 1: LINZ background maps
 2. LAYER 2: LINZ Topo 50 maps



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A	FINAL	NOV 22	RN
NO.	REVISION	DATE	BY

CLIENT
CJ INDUSTRIES LIMITED

FIGURE
FIGURE 2: LOCATIONS OF GROUNDWATER BORES SAMPLED IN OCTOBER 2022 AT DOUGLAS ROAD

PROJECT
 PEACH ISLAND PROPOSED QUARRY - HYDROGEOLOGY

Changes to Table 1: Summary of groundwater quality data at Peach Island from September 2022

Parameter/Bore	24546 (Piezo 4)	24544 (Piezo 2)	24545 (Piezo 3)	24543 (Piezo 1)	21033 (3003)	Proposed Peach Island Trigger Values	Unit
Date of collection	7/09/2022	6/09/2022	6/09/2022	7/09/2022	7/09/2022	-	-
Laboratory pH	6.6	7.6	7.6	6.5	6.6	<6.5 or >8.5	pH Units
Total Alkalinity	61	73	75	68	67	100	g/m ³ as CaCO ₃
Total Hardness	58	77	79	73	70	200	g/m ³ as CaCO ₃
Electrical Conductivity (EC)	14.1	17.3	17.4	16.3	16.1	-	mS/m
Dissolved Aluminium	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.1	g/m ³
Dissolved Arsenic	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	0.005	g/m ³
Dissolved Boron	0.008	0.009	0.009	0.01	0.011	0.7	g/m ³
Dissolved Cadmium	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.002	g/m ³
Dissolved Calcium	15.3	22	23	16.8	17.2	-	g/m ³
Dissolved Chromium	< 0.0005	0.0006	< 0.0005	< 0.0005	< 0.0005	0.025	g/m ³
Dissolved Copper	0.0009	0.0009	0.0005	0.001	0.02	1	g/m ³
Dissolved Iron	< 0.02	< 0.02	< 0.02	< 0.02	1.29	0.3	g/m ³
Dissolved Lead	< 0.00010	< 0.00010	< 0.00010	< 0.00010	< 0.00010	0.005	g/m ³
Dissolved Magnesium	4.8	5.6	5.4	7.6	6.5	-	g/m ³
Dissolved Manganese	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.061	0.04	g/m ³
Dissolved Nickel	0.0039	0.0041	0.0011	0.0067	0.0048	0.04	g/m ³
Dissolved Sodium	6.2	4.6	4.8	4.2	4.8	200	g/m ³
Chloride	3	3.3	3.1	3.4	4.6	125	g/m ³
Total Ammoniacal-N	< 0.010	< 0.010	< 0.010	< 0.010	0.017	1.2	g/m ³
Nitrite-N	< 0.002	< 0.002	< 0.002	< 0.002	0.005	-	g/m ³
Nitrate-N	0.51	1.3	1.43	1.32	1.36	5.65	g/m ³
Nitrate-N + Nitrite-N	0.51	1.3	1.43	1.32	1.37	-	g/m ³
Sulphate	2.6	5	5	5.2	5.4	250	g/m ³
Escherichia coli	< 1	< 1	< 1	< 1	< 1	1 MPN/100ml	MPN/100 ml

Changes to Table 1: Summary of groundwater quality data at Peach Island from September 2022

Parameter/Bore	24546 (Piezo 4)	24544 (Piezo 2)	24545 (Piezo 3)	24543 (Piezo 1)	21033 (3003)	Proposed Peach Island Trigger Values	Unit
Total Petroleum Hydrocarbons	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect	Any detection >0.1 g/m ³	g/m ³
VOC compounds	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect	Any detectable presence	g/m ³
Notes: Values highlighted in grey indicate exceedance of proposed trigger value							

Table 1: Summary of groundwater quality data at Douglas Road from October 2022

Parameter/Bore	20927 (51 Douglas Rd)	Exposed Groundwater in Excavation	21555	24306	24345	Proposed Peach Island Trigger Values	Unit
Location	Cross gradient (Drinking-water supply bore)	Upgradient (CJ Industries Quarry at 83 Douglas Road)	Downgradient (Applicants bore)	Downgradient (Drinking-water supply bore)	Downgradient (Drinking-water supply bore)	-	-
Date of Collection	25/10/2022	25/10/2022	25/10/2022	25/10/2022	25/10/2022	-	-
Laboratory pH	7.4	7.9	7.2	7.2	7.4	<6.5 or >8.5	pH Units
Total Alkalinity	54	210	71	76	98	100	g/m ³ as CaCO ₃
Total Hardness	57	220	81	82	96	200	g/m ³ as CaCO ₃
Electrical Conductivity (EC)	14.3	46.1	19.3	19.7	22.9	-	mS/m
Dissolved Aluminium	0.004	1.92	< 0.003	< 0.003	< 0.003	0.1	g/m ³
Dissolved Arsenic	< 0.0010	0.0045	< 0.0010	< 0.0010	< 0.0010	0.005	g/m ³
Dissolved Boron	0.009	0.032	0.014	0.015	0.016	0.7	g/m ³
Dissolved Cadmium	< 0.00005	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.002	g/m ³
Dissolved Calcium	16	68	22	22	27	-	g/m ³
Dissolved Chromium	< 0.0005	0.0038	< 0.0005	< 0.0005	< 0.0005	0.025	g/m ³
Dissolved Copper	0.003	0.0054	0.0043	0.0053	0.0066	1	g/m ³
Dissolved Iron	0.03	1.98	< 0.02	< 0.02	< 0.02	0.3	g/m ³
Dissolved Lead	< 0.00010	0.0025	0.00028	0.00037	0.00032	0.005	g/m ³
Dissolved Magnesium	4.1	12	6.3	6.2	7.1	-	g/m ³
Dissolved Manganese	< 0.0005	1.69	< 0.0005	< 0.0005	< 0.0005	0.04	g/m ³
Dissolved Nickel	< 0.0005	0.0142	< 0.0005	0.0009	0.0007	0.04	g/m ³
Dissolved Sodium	3.9	7.5	5.3	4.9	5.5	200	g/m ³
Chloride	3.9	10.3	5.1	4.6	5	125	g/m ³
Total Ammoniacal-N	< 0.010	0.99	< 0.010	< 0.010	< 0.010	1.2	g/m ³
Nitrite-N	< 0.002	0.007	< 0.002	< 0.002	< 0.002	-	g/m ³
Nitrate-N	0.6	0.015	1.42	1.13	0.65	5.65	g/m ³

Table 1: Summary of groundwater quality data at Douglas Road from October 2022

Parameter/Bore	20927 (51 Douglas Rd)	Exposed Groundwater in Excavation	21555	24306	24345	Proposed Peach Island Trigger Values	Unit
Nitrate-N + Nitrite-N	0.6	0.022	1.42	1.13	0.65	-	g/m ³
Sulphate	4.2	13.3	7.5	5.9	4.7	250	g/m ³
Escherichia coli	< 1	400	< 1	< 1	< 1	1 MPN/100ml	MPN/100mL
Total Petroleum Hydrocarbons	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect	Any detection >0.1 g/m ³	g/m ³
VOC Compounds	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect	Any detectable presence	g/m ³

Notes: Values highlighted in grey indicate exceedance of proposed trigger value



Before

Independent Commissioners appointed
by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by CJ Industries Ltd
for land use consent RM200488 for
gravel extraction and associated site
rehabilitation and amenity planting and
for land use consent RM200489 to
establish and use vehicle access on an
unformed legal road and erect
associated signage, and discharge permit
RM220578

**SUPPLEMENTARY EVIDENCE OF RHYS LEONARD HEGLEY
ON BEHALF OF CJ INDUSTRIES
(ACOUSTICS)**

1. INTRODUCTION

- 1.1 My full name is Rhys Leonard Hegley. I am a partner at Hegley Acoustic Consultants. My qualifications and experience are as set out in my Evidence in Chief (EIC).
- 1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:
 - (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting and
 - (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage
- 1.3 The applicant has also applied for a discharge permit authorising the discharge of contaminants to land, in circumstances where the contaminants may enter water (RM220578).

Purpose and Scope of Evidence

- 1.4 I provided evidence in chief dated 15 July 2022. The purpose of this supplementary evidence is to respond to some of the questions, comments and recommendations made in Council's Addendum s 42A report.

Code of Conduct

- 1.5 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014 and I agree to comply with it. My evidence is within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

2. CORRECTED/ UNCORRECTED NOISE LEVELS

- 2.1 Condition 45 as proposed in Mr Taylor's evidence was:

45. The consent holder shall ensure that all other activities on site, including quarrying activities) are designed and conducted, and all equipment used on site is maintained, so that noise generated by activities on site does not exceed an uncorrected noise level of 55 dBA Leq (day) and 40dBA Leq and 70 dBA Lmax (night) measured at the notional boundary of any dwelling. Noise shall be measured and assessed in accordance with the provisions of NZS 6802:2008 - Acoustics - Environmental Noise.

- 2.2 This is now condition 54 of the s 42A addendum version of conditions. The s 42A addendum notes the reference to the noise level being uncorrected.

- 2.3 In hindsight, I intended to recommend that a corrected noise level be specified.

- 2.4 When the noise from an activity is measured, it is normal to correct it in accordance with NZS 68021 before reporting it. The two corrections available can be summarised as:

- (a) A reduction of the measured day time level that is calculated based on the average time that the activity actually produces noise over the day time

¹ NZS 6802:2008 Acoustics – Environmental noise

(referred to as “averaging”). Averaging is limited to 5dB (discussed at paragraph 3.30 of my EIC); and

- (b) A +5dB addition to the measured level for any sound considered to have a special audible characteristic (discussed at paragraph 3.31 of my EIC).

2.5 Considering the pros and cons of each correction, I do not believe averaging provides a benefit either to the applicant or the surrounding environment. It is simply a technical method of describing how the effects of noise are a function of both its level and duration. Put another way, a noise that is only present for say half the day would have the same effect as a slightly quieter level that was present for the whole day. The correction for special audible characteristics would potentially make compliance more onerous for the applicant as it penalises noises with strong tones or which are impulsive to better assess their effects.

2.6 My view is that noise from the proposal should be corrected in accordance with NZS 6802. The reasons are:

- (a) The corrections for averaging and special audible characteristics have been in NZS 6802 since its inception in 1977. My view is that they represent best practice and I see no reason that a different approach to best practice should be taken for this particular project;
- (b) With respect to averaging, Council’s noise specialist, Mr Winter, notes in Section 5 of the review he prepared for the s 42A Addendum (Specialist Review) that “... *fixing the noise limits at 55dB L_{Aeq} unadjusted [uncorrected] means that the limit is actually 5dB less if the strict provisions of NZS6802:2008 were applied*”. This appears to be a concern that that averaging will allow noise from the proposal to be up to 5dB above the numerical limit of the consent. I note that for this to be true, the duration of those activities would be greatly reduced (to less than 30% of the day). Essentially, the effect of the increased level is offset by the reduced duration. The point I make in my EIC is that averaging is the technical response to Council’s concern that “*noises associated with the gravel extraction would be different in ... duration from ‘typical rural noises’*”.² For activities such as this proposal,

² First s 42A report, paragraph 6.8

where the activity will occur for the majority of the day, averaging plays very little part in the analysis. By way of example, in the noise assessment I prepared for the original consent, I noted that the effect of averaging was so small that was not adopted for the assessment. In summary, I see no reason to remove averaging from this project as it is a valid and well understood tool for assessing effects;

- (c) Throughout their discussion on the permitted baseline, Council note³ that the duration of the proposal differs from that what could be expected in the Rural zone. It therefore makes little sense to remove from the assessment process the one tool that is intended to account for duration;
- (d) In his discussion on special audible characteristics Mr Winter notes⁴ that such noises are unlikely to occur. With respect to the usual source (tonal reversing signals) he is correct as specific conditions are proposed that would preclude tonal reversing alarms on site. However, I believe that ability to assess potential future activities that may include a special audible characteristic should remain, to ensure a robust suite of conditions. For example, tracks from the likes of excavators can develop a squeal. Other activities, such as dewatering pumps (not currently anticipated or provided for) can have a tone. If adjusting is not provided for, the increased noise impact of such special audible characteristics would not be accounted for. Removing the ability to accurately assess all potential noise from site is, in my view, both unnecessary and potentially undesirable.

3. NUMERICAL NOISE LIMIT

- 3.1 Council's proposed condition 54 also suggests a noise limit of 51dB L_{Aeq} . Part of the justification provided by Council seems somewhat cyclic in that while Mr Winter supports the condition proposed by the planner⁵, the planning report⁶ (which presumably forms the basis of the condition) takes its support from Mr Winter.

³ Specialist Review, section 2

⁴ Specialist Review section 5

⁵ Specialist Review, bottom of page 75 of the agenda

⁶ Planner's report, paragraph 7.7

- 3.2 In his discussion on this topic, Mr Winter refers⁴ to the conclusion I offer in my EIC that the predicted levels of noise from the proposal are reasonable and appropriate (noting that the suggested 51dB L_{Aeq} equals the uppermost level of noise predicted to any of the neighbouring sites). My view is that adopting the predicted level of noise from an activity as the limit for that activity does not provide for an effects based assessment.
- 3.3 Near the top of page 74 of the agenda, Mr Winter provides the factors that should be considered when assessing noise from the proposal which, together, can be summarised as the permitted baseline, plus the existing noise environment. I set out my assessment of the proposal against the permitted baseline in paragraphs 3.28 to 3.32 of my EIC where I conclude that the permitted baseline can adequately be described using the rural zone noise rule of the Tasman Resource Management Plan. In the following paragraphs 3.33 to 3.46 I go on to address the existing sound environment, which supports these findings. In this manner I have first sought to develop appropriate criteria for the proposal and then assess against those. My view is that the logical result of this process should be conditions reflecting the developed criteria rather than the levels that were assessed against them. For this reason, I consider that the adopted noise limit for the proposal should be 55dB L_{Aeq} rather than 51dB L_{Aeq} .
- 3.4 For completeness, my suggested condition 54 is as follows. Other than the changes I describe above, I have also identified the current (2008) version of NZS 6801:

54. The consent hold shall ensure that all other activities on site, except construction work, are designed and constructed, and all equipment used on site is maintained, so that noise generated by activities on site does not exceed a noise level of 55dBA L_{eq} (day) when measured at the notional boundary of any dwelling.

All noise shall be measured and assessed in accordance with the provisions of NZS 6801:2008 Acoustics-Measurement of environmental sound and NZS6802:2008 Acoustics – Environmental noise.

4. CONCLUSIONS

- 4.1 My view is that proposed noise condition 54 should be consistent with NZS 6802 and allow for both averaging and special audible characteristics. Further, I believe the noise limit should be 55dB L_{Aeq} rather than 51dB L_{Aeq} .

BEFORE

Independent Commissioners appointed
by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by C J Industries Ltd
for land use consent RM200488 for
gravel extraction and associated site
rehabilitation and amenity planting and
for land use consent RM200489 to
establish and use vehicle access on an
unformed legal road and erect
associated signage



**EVIDENCE OF GARY PAUL CLARK ON BEHALF OF CJ INDUSTRIES LTD
(TRANSPORT)**

1. INTRODUCTION

- 1.1 My full name is Gary Paul Clark. I hold the position of Director of Traffic Concepts Limited. My qualifications, experience and involvement in the project are outlined in by evidence in chief dated 15 July 2022.
- 1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:
 - (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting and
 - (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage
- 1.3 The applicant has also subsequently applied for a discharge permit (RM 220578).

- 1.4 My evidence in chief addressed the effects of the activities for which consent is sought on transportation matters and responded to issues raised in submissions and in the Tasman District Council's (TDC) s 42A report.
- 1.5 Following on from the s 42A report, TDC released a s 42A Addendum Report (TDC report number REPC22-11-21A) on 28 October 2022. This included a supplementary technical report on traffic effects from Ari Fon in Attachment 5. This supplementary statement responds to matters relating to traffic raised in those two documents. It also comments on conditions of consent.

2. s 42A ADDENDEM REPORT

- 2.1 The traffic matters are discussed in Section 6 of the s 42A Addendum Report. In reviewing the analysis contained in Section 6 it shows there is general agreement with my traffic assessment by the Mr Fon (Council's Traffic Consultant). The traffic effects can be managed and are no more than minor, subject to some recommendations by Mr Fon and the reporting planner. These recommendations are noted below and have been included in the draft conditions of consent.
- 2.2 Section 6.27 of the s 42A Addendum Report sets out the matters that are in contention which are set out below:
 - (a) The need to widening [sic] the access from Motueka River West Bank Road up to the bridge to 6m to allow for two vehicles to pass.
 - (b) The recommended bridge width (3.5m)
 - (c) The need for passing bays along the haul road
 - (d) The proposed speed limit on the sealed haul road (as opposed to unsealed surfaces on site)
 - (e) Clarification whether public access is possible on the haul road or whether the public will be excluded. As noted by Mr Fon:

“if there is the likelihood of any public access on the paper road, then measures will be required to ensure safety of members of the public while trucks are using the section of the access road that is formed on the paper road”

- 2.3 It is recommended that the first 35 metres of the driveway is widened to six metres to allow two trucks to pass. The main purpose of this recommendation is to reduce the likelihood of a truck waiting on Motueka River West Bank Road and holding up traffic. While this is unlikely due to the number of vehicles using the access, the management of trucks and the low flows along the road, the applicant accepts the recommendation.
- 2.4 I believe there is no contention over the recommended bridge width. Mr Fon has agreed that 3.5 metres is wide enough, and I agree to this width as well. I note that the design of the bridge may require a slightly wider bridge deck. Accordingly, the condition should refer to a minimum width (3500mm) rather than an exact width.
- 2.5 The next matter relates to need for passing bays. Mr Fon has recommended passing bays be provided, where practical, to address a concern around inconvenience. As noted in the TIA trucks use a call through system which removes the need for passing bays to manage trucks needing to pass each other.
- 2.6 However, concerns over public access (raised in the S 42A) on the haul road is something that needs to be addressed. Firstly, I note that access from Motueka River West Bank Road is not available for the general public as it is private land. Accordingly, the only public access to the crown land and paper road is from the north. Most of the crown land and paper road will remain unformed and will resemble a paddock as shown below, and this will limit the use of the road by the public:



- 2.7 The other consideration is the need or reason why the public would use the crown land or paper road. As it doesn't provide access to anything particular, it is unlikely to generate a demand for its use.
- 2.8 In considering the matters above and the design of the haul road, I do not believe there is an effect that needs to be mitigated. The speeds on the haul road will be managed (15 km/h), the sight lines along the haul road will enable any user of the access to be easily seen and appropriate actions to be taken. However, if the Commissioners see there is an effect that needs to be mitigated then the applicant is prepared to install passing bays as set out in the draft conditions.
- 2.9 Section 6.18 discusses speed limits on the haul road. The speed limit for the haul road will be 15 km/h. This will apply to all of the haul road noting that it will be sealed for all of its length.
- 2.10 Section 6.21 and 6.22 provides commentary on the road capacity.
- 2.11 Section 21 provides an extract of my assessment of the road capacity and the ability of the road to accommodate the increase truck movements.
- 2.12 Section 6.22 provides Mr Fon's opinion on the truck movements and is not an assessment of capacity. It is his view that the truck movements will be noticeable. The reporting planner has agreed with a statement by Mr Fon.
- 2.13 Within my evidence in chief, I go into detail around travel times in Sections 7.6 to 7.8. Cars travelling at 80 km/h will take around 80 seconds to travel from Alexander Bridge to the entrance to the site. The application will increase the number of truck movements along this section for two inward and two outward movements per hour. This equates to one truck every fifteen minutes.
- 2.14 A motorist traveling along this section this road is unlikely to see a truck for the short 80 seconds of travel and at the most one truck should they come across one. I also note that only two truck an hour (one every 30 minutes) is travelling in the opposite direction. In my opinion the increase in truck movements would be indiscernible to a motorist based on the above calculations.

3. CONDITIONS OF CONSENT

3.1 The draft conditions of consent provided in Attachment 2 of the Section 42A Report have been reviewed. I have reviewed proposed conditions 26 through to 36 and agree that they are appropriate and provide the mechanism to mitigate the potential adverse effects.

3.2 The conditions of consent (Conditions 58 through to 61) relating to traffic movements are appropriate. There is one propose change to condition 59. The speed limit on all of the haul road (sealed and unsealed) is restricted to 15 km/h. Accordingly, the proposed reworded condition is as follows:

59. All vehicles shall observe a speed limit of 15 km/h when using the haul road or traveling within the site. It is the consent holder's responsibility to inform the drivers of this speed limit.

Gary Clark

4 November 2022



BEFORE

Independent Commissioners appointed by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by CJ Industries Ltd for land use consent RM200488 for gravel extraction and associated site rehabilitation and amenity planting and for land use consent RM200489 to establish and use vehicle access on an unformed legal road and erect associated signage, and for a discharge permit RM 220578

SUPPLEMENTARY EVIDENCE OF JEFFREY GEORGE BLUETT ON BEHALF OF CJ INDUSTRIES LIMITED (AIR QUALITY)

1. INTRODUCTION

1.1 My full name is Jeffrey George Bluett. I am a Technical Director: Air Quality at Pattle Delamore Partners Limited (PDP).

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

- (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting; and
- (b) RM200489 land use consent to establish and use a vehicle access on an unformed legal road and erect associated signage.

1.3 The applicant has also subsequently applied for a discharge permit (RM 220578).

- 1.4 My evidence in chief (dated 14 July 2022) detailed my qualifications and experience, provided a summary of my assessment of the effects of the dust discharged from the proposed quarry, commented on the consistency of the application with policy direction, addressed matters raised in submissions and considered matters raised in Tasman District Council's (TDC) s42A report.
- 1.5 Following on from the S42A report, TDC released an Addendum to Report Under Section 42A the Resource Management Act 1991 (TDC report number REPC22-11-21A) on 28 October 2022. This TDC report included Attachment 4: Supplementary Technical Review – Dust Assessment by Leif Pigott, (Team Leader – Natural Resource Consents, TDC).

2. EXECUTIVE SUMMARY

2.1 My supplementary evidence has:

- (a) Provided a brief summary of the findings from my site visit;
- (b) Clarified a discrepancy between my evidence in chief and the draft Dust Management and Monitoring Plan on the proposed seasonal restriction on quarrying activity near the apple orchard; and
- (c) Highlighted a correction needed in the Dust Management and Monitoring Plan;
- (d) Reviewed TDC's s42A Addendum Report and commented on TDC's reporting of:
 - (i) Key Issues – potential amenity effects of dust;
 - (ii) Proposed consent conditions which relate to the discharge of dust;
 - (iii) Supplementary Technical Review – Dust Assessment; and
 - (iv) Perceived conflict between the applicant's Dust Management and Monitoring and Soil Management Plans.

2.2 Having addressed each of these issues, I conclude that TDC's air quality and planning experts and I are in agreement that, subject to the proposed dust management strategies and recommended consent conditions being effectively implemented, that the proposed

quarry can be developed and operated without any adverse impact of dust occurring in the surrounding environment.

3. SCOPE OF SUPPLEMENTARY EVIDENCE

3.1 The scope of my supplementary evidence is to:

- (a) Provide a brief overview of the findings from my site visit;
- (b) Clarify a discrepancy between my evidence in chief and the draft Dust Management and Monitoring Plan on the proposed seasonal restriction on quarrying activity near the apple orchard; and
- (c) Highlight a correction to the Dust Management and Monitoring Plan;
- (d) Review TDC's s42a Addendum Report and comment on TDC's reporting of:
 - (i) Key Issues – potential amenity effects of dust;
 - (ii) Proposed consent conditions which relate to the discharge of dust;
 - (iii) Supplementary Technical Review – Dust Assessment; and
 - (iv) Perceived conflict between the applicant's Dust Management and Monitoring and Soil Management Plans.

3.2 In the preparation of this supplementary evidence, I have read TDC's s42A addendum report including Attachment 4.

4. SITE VISIT

4.1 I undertook a site visit on Monday 26 September 2022. The key purposes of the site visit were to:

- (a) Check the location and set up of the Riwaka Weather Station (EWS-12429) located at Plant and Food Research Motueka, Old Mill Road (3.5 km to the north-east of the proposed quarry).

- (b) Walkover the proposed quarry site to become familiar with the location and layout of each of the 3 Staged areas and the access roads to the quarry;
- (c) To identify and confirm the type, number and location of the potentially sensitive receptors which are adjacent or close to (<300 m) from the proposed quarry; and
- (d) To visit CJ Industries' Douglas Road Quarry site to observe the dust mitigation measures employed there.

4.2 In my dust assessment I was concerned that the low wind speeds recorded at the Riwaka Weather Station were an artifact of obstacle/s blocking and/or slowing wind at that site. My visit to the Riwaka Weather Station showed the site is well set up to collect wind data for the area. There is no indication that wind would be blocked from any direction. Following the site visit, my opinion is that the data collected at that Station is a good representation of the wind conditions experienced in the wider area. This finding reinforces my view that the use of the Nelson Airport data to assess the wind conditions at the proposed Peach Island Quarry (as was done in my dust assessment) provides a very conservative indicator of the frequency and duration of high-risk dust events at the proposed site.

4.3 The site walkover and drive-by of the adjacent area confirmed the assumptions I had made on the proposed operation and surrounding area based on aerial imagery and site plans.

4.4 At the time of my visit to the CJ Industries' Douglas Road Quarry the site was very damp because of the preceding rain events. There was no sign of any dust emissions. I observed dust suppression sprinklers being used as a digger was being cleaned. I noted the use of pea gravel to provide a barrier between vehicle wheels and unconsolidated surfaces in areas I assume are heavily trafficked. I understand that a water truck is sent to the site when vehicle tracks or other dust sources are discharging significant amounts of dust. I noted the proximity of houses to the east of the quarry and the flower farm to the south-east. The area to the east and south-east of the Douglas Road quarry is potentially very sensitive to the impacts of dust. The relatively low number of dust complaints, the highly sensitive receiving environment and my on-site observations

indicate to me that, for most of the time, the dust emissions from the Douglas Road quarry are likely well controlled.

- 4.5 In summary my site visit confirmed the assumptions, findings and conclusions I had made when undertaking the desktop assessment.

5. SEASONAL RESTRICTION ON QUARRYING NEAR ORCHARD

- 5.1 My evidence in chief highlighted that the dust discharges from the proposed quarry have the potential to impact the growth and/or quality of apples or kiwifruit produced by the orchards adjacent to the proposed quarry. This issue is particularly relevant for the apple orchard located on Motueka River West Bank Road, located approximately 60-95 m from the nearest active pit site.
- 5.2 As noted in my evidence in chief, apples are typically harvested at maturity in New Zealand between January and May. Kiwifruit are harvested from March until May. During these months dust has the largest potential to reduce fruit attractiveness due to dust settling on the fruit surface. To mitigate the potential impact of dust on fruit the applicant has proposed a seasonal restriction on quarry activities within 100 m of any orchard.
- 5.3 In my evidence in chief, the seasonal restriction on quarry activities within 100 m of any orchard is **correctly** defined as being 1 January through to 31 May (inclusive). In the draft Dust Management and Monitoring Plan the seasonal restriction is **incorrectly** defined as being 1 May through to 30 October (inclusive).
- 5.4 Combined with the other proposed dust mitigation measures, the seasonal restriction on quarry activities within 100 m of any orchard in the months January through to May provides protection for the fruit to avoid any adverse effects that may be more than minor. When it is finalised, the draft Dust Management and Monitoring Plan (DMMP) will be amended to reflect the correct seasonal restriction. I note that that TDC's recommended conditions of consent correctly define the seasonal restriction on quarry activities within 100 m of any orchard as being 1 January through to 31 May (inclusive).

6. CORRECTION TO THE DRAFT DMMP

6.1 Table 2 of the Draft DMMP details the sources of dust and the tiered dust controls to be employed. Tier 1 (Routine) controls for stockpiles include:

- (a) Maintain the height of gravel stockpiles to a practical **minimum** of 4 m;
and
- (b) Maintain the height of unvegetated topsoil stockpiles to a practical **minimum** of 3 m.

6.2 The purpose of these two controls is ensure that the stockpiles are not so tall that higher windspeeds are able to produce large dust clouds. Consequently the highlighted word “minimum” in these two Tier 1 controls should be replaced by the word “maximum”.

7. KEY ISSUE – POTENTIAL AMENITY EFFECTS OF DUST

7.1 Paragraphs 5.15 to 5.26 of TDC’s s42A addendum report detail TDC’s view on the key issue – potential amenity effects of dust.

7.2 Paragraphs 5.15 to 5.18 provide an accurate description of the dust concerns highlighted in the s42A report, PDP’s response to these concerns, the subsequent TDC dust review process and the mitigation measures and consent conditions volunteered by the applicant.

7.3 In the DMMP I recommended that the applicant commit to a seasonal restriction (January to May inclusive) on quarrying activities within 100 m of any orchard. The intent of this seasonal restriction is to ensure that no dust generating activities will occur in the area adjacent to the orchard when the fruit is maturing and being harvested. Paragraph 5.19 of TDC’s s42A addendum report records that the DMMP additionally provides for removal of stockpiles in the Stage 2 area within 100 m of the apple orchard boundary over the months of January to May (inclusive). Paragraph 5.19 is consistent with the information I have provided in the Draft DMMP. However, upon reflection this should say that soil stockpiles will not be placed in the Stage 2 area within 100 m of the orchard, and condition 67 should be amended to be consistent with this change.

7.4 Paragraph 5.22 correctly notes that the dust management and monitoring plan aligns with the recommendations made and best practice detailed in Ministry for the

Environment's Good Practice Guide to Assessing and Managing the Effects of Dust. Paragraph 5.23 suggests that the DMMP needs to be backed up with specific conditions of consent. I agree with this sentiment and the proposed consent conditions provide an effective pathway to achieve this.

- 7.5 Paragraph 5.25 indicates that, subject to the revised conditions of consent, TDC's air quality expert and myself concur that any adverse amenity or health effects generated from the dust discharged from the proposed quarry will be less than minor. Paragraph 5.26 confirms that the TDC planning expert adopts the advice provided by Mr Pigott and myself.

8. PROPOSED CONSENT CONDITIONS

- 8.1 Appendix B of Mr Hayden Taylor's (Planscapes) evidence in chief (15 July 2022) provides a volunteered set of consent conditions. Attachment 1 of TDC's s42A addendum report includes a copy of the applicant's volunteered consent condition with TDC's proposed amendments marked in bold and underlined text.
- 8.2 I have reviewed TDC's set of recommended consent conditions. I make the following comments on the recommended consent conditions which are relevant to the dust emissions and to which TDC have suggested amendments. I have not commented on any conditions which were included in Appendix B of Mr Taylor's evidence, but which have not been amended by TDC.
- 8.3 Recommended consent conditions 58 to 62 fall under the heading Traffic Movements. In recommended condition number 59, TDC has added a speed limit of 30 km/hr for vehicles travelling on any sealed surface on site. This proposed speed limit would potentially be effective in reducing vehicle induced dust emissions and would not adversely impact the proposed site activities, but I understand that the applicant is proposing a 15 km/h limit on site regardless of whether surfaces are sealed or not.
- 8.4 Condition 62 will prohibit crushing and screening of gravel on the site will be effective in reducing dust emissions and will not adversely impact the proposed site activities. But, in my opinion, this specific condition would better fit under the heading of Site Management rather than Traffic Movements.
- 8.5 Recommended consent conditions 63 to 75 fall under the heading Site Management.

- 8.6 TDC have amended volunteered consent condition number 64 to require dust control measures be undertaken in accordance with the best practicable option. It was always the intent of the applicant to apply the dust control measures detailed in the DMMP in accordance with the best practicable option, so I have no problem with this addition to condition 64.
- 8.7 TDC have amended volunteered consent condition number 65 to redefine “works being carried out” to “disturbing materials”. In my opinion this is a non-consequential change which I can accept.
- 8.8 Volunteered consent condition number 65 requires works (disturbing materials) to be stopped when windspeeds exceed 7.5 m/s and there is a sensitive receptor within 250 m downwind of the works. TDC have amended consent condition number 64 to require disturbing materials to be stopped when windspeeds exceed 7.5 m/s regardless of wind direction and regardless if there is a sensitive receptor within 250 m of the source or not. Given the low frequency of high windspeeds in the area this suggested change should have little impact on site operations. But in my opinion this amendment is not consistent with the objective of setting effects-based consent conditions. Potentially this change could be quite restrictive for the operator without having any benefit on the adverse dust impacts. For this reason, I do not support removing the wind direction and sensitive receptor criteria from condition 65.
- 8.9 Volunteered consent condition number 57 incorrectly defines the seasonal restriction on quarrying within 100 m of an orchard as October to May inclusive. TDC have amended volunteered consent condition number 66 to redefine the seasonal restriction on quarry activities within 100 m of any orchard to apply for the months January to May inclusive. This TDC amendment is consistent with the information I present in paragraphs 5.1 to 5.4 of my supplementary evidence, so I support this amendment.
- 8.10 TDC have added recommended consent condition number 67 which requires stockpiles in the Stage 2 area within 100 m of the apple orchard to be moved over the months of January to May (inclusive). I discuss this potential dust mitigation measure in paragraph 7.3 of my supplementary evidence and recommend condition 67 be amended.
- 8.11 TDC have added recommended consent condition number 68 which allows the use of polymers or other chemicals to stabilise surfaces to reduce dust emissions, but not waste or reprocessed oil. In my opinion allowing polymers or other chemicals to stabilise

surfaces to reduce dust emissions is a positive step as it provides the applicant with another dust suppression tool and therefore, I support this addition.

8.12 In my experience polymer and other chemical dust suppressants are expensive to purchase and take some effort to apply effectively. This combination of factors results in the use of polymer and other chemical dust suppressants being infrequent in New Zealand. In my experience their use is restricted to large dust sources, in sensitive receiving environments under challenging meteorological conditions and only when all other dust control measures are observed to not to be sufficient. My sense is that at this site the use approved polymers or other permitted chemicals to limit dust generation would be unlikely given the plentiful supply of water for dust suppression.

8.13 I have discussed their use with Mr Hill, and the use of polymers or other chemicals for dust suppression is also discussed in his supplementary evidence.

8.14 TDC have amended recommended consent condition number 69 to require that temperature and relative humidity be included in the on-site meteorological monitoring. In my experience while temperature and relative humidity are not the key meteorological factors in determining dust risk, these two variables can help refine the planning of dust mitigation measures. The two sensors required to measure temperature and relative humidity come as standard with the type of instrumentation that will be installed. For these reasons I support TDC proposed amendment to recommended consent condition number 69.

9. TDC SUPPLEMENTARY TECHNICAL REVIEW – DUST ASSESSMENT

9.1 I have reviewed Attachment 4: Supplementary Technical Review – Dust Assessment to the TDC's s42a Addendum Report by Mr Piggot.

9.2 Having reviewed Mr Piggot's analysis I highlight the following key points:

- (a) The description of on-site meteorological conditions and dust sources provided in my evidence in chief and the assessment of effects are consistent with his experience/expectations of the site;
- (b) He and I have differing opinions on the potential health impacts of total suspended particulate (TSP). I have attributed the health impacts to the

PM₁₀ fraction of TSP. Mr Piggot suggests that TSP can also cause adverse human health impacts;

- (c) Mr Piggot suggests that the dust impact on crops is more correctly considered an economic or an ecosystem effect rather than a nuisance effect;
- (d) Mr Piggot concurs with my recommendation that potential dust effects should be mitigated;
- (e) The draft DMMP has been drafted in line with the MfE good practice guide and best practical option but needs to be backed up with specific conditions of consent; and
- (f) Subject to the conditions of consent, Mr Piggot considers that dust generated will result in amenity and health impacts that are less than minor.

9.3 Given that TSP emissions from the site will be very well controlled, I do not consider the differences of opinions detailed above to be critical to the conclusions that Mr Piggot and I have independently arrived at on the potential amenity, health, economic or ecosystem impacts of the particulate discharged from the proposed quarry.

9.4 Mr Piggot reviewed TDC's recommended consent conditions and suggests amendments to conditions numbers 59, 64, 65, 66, 69, 71, and 72 and adding recommended consent condition numbers 67 and 68. I have discussed the amendments and addition in paragraphs 8.3 to 8.14 above

10. ALIGNING THE DUST MANAGEMENT AND MONITORING AND SOIL MANAGEMENT PLANS

10.1 I understand that TDC perceive that there is a conflict between the applicant's DMMP and the Soil Management Plans. The conflict is that the application of water to soil stockpiles for dust control measures may degrade the physical structure of the soil.

10.2 This issue is discussed and resolved in the supplementary evidence of Mr Reece Hill (Land Systems).

JEFF BLUETT

4 NOVEMBER 2022



BEFORE

Independent Commissioners appointed
by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by CJ Industries Ltd
for land use consent RM200488 for
gravel extraction and associated site
rehabilitation and amenity planting and
for land use consent RM200489 to
establish and use vehicle access on an
unformed legal road and erect
associated signage

**EVIDENCE OF REECE BLACKBURN HILL
ON BEHALF OF CJ INDUSTRIES LTD
(SOIL MANAGEMENT AND LAND PRODUCTIVITY)
SUPPLEMENTARY EVIDENCE**

4 November 2022

1. INTRODUCTION

1.1 My full name is Reece Blackburn Hill. I am a Soil Consultant at Landsystems.

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

- (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting, and
- (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage.

1.3 The applicant has also subsequently applied for a discharge permit (RM220578).

- 1.4 I produced evidence dated 15 July 2022 addressing the soil management and land productivity of the land use activities.
- 1.5 Since that time, the Government has produced the National Policy Statement on Highly Productive Land 2022 (“NPS-HPL”). This supplementary evidence addresses the NPS-HPL.
- 1.6 Council has also produced a supplementary s 42A report which includes commentary on the *Soil Management Plan and assessment of soil related effects 134 Peach Island Road, Motueka* that was attached as Appendix 1 to my evidence of 15 July, and a Memorandum from Mirka Langford – Senior Resource Scientist, Land. This evidence includes a response to those documents.

Qualifications and Experience

- 1.7 My qualifications and experience were set out in my evidence of 15 July 2022. Since that date, I have also undertaken soil and Land Use Capability (LUC) assessments for subdivision that have required assessment against the NPS-HPL.
- 1.8 I have not undertaken a site visit. My evidence is based on the property scale soil and LUC assessment provided by LandVision, and regional scale soil and LUC map information as well as evidence from Mr Nelson (crop production).

Code of Conduct

- 1.9 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014 and I agree to comply with it. My evidence is within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

2. EXECUTIVE SUMMARY

NPS-HPL

- 2.1 As set out in the diagram at p6 of the *Soil Management Plan and assessment of soil related effects 134 Peach Island Road, Motueka* (“**SMP**”), the site does not contain LUC 1 or 2 land. The

site contains areas of LUC 3 land within and outside the stop banks. These are the only areas that the NPS-HPL applies to.

- 2.2 The land area outside the stop bank is not suitable for agricultural land development due to limitations of an inherent seasonally high water table, flood risk, and variable or shallow soil depth. In my opinion, it has “permanent or long-term constraints ... that mean the use of the highly productive land for land-based primary production is not able to be economically viable for at least 30 years”, as per clause 3.10(1)(a) of the NPS-HPL, and the other clauses of clause 3.10(1) are also met (to the extent they relate to matters within my expertise).
- 2.3 As set out in my previous evidence, the LUC 3 land inside the stop bank has soil limitations that restrict production and the range of land uses that it is suitable for over the long term. Adherence to the Soil Management Plan will ensure that the removal, management and placement of soil avoids or minimises impacts on the soil properties prior and following placement, and that the re-established soil can over the long term, retain or exceed the soil versatility of the original soil on the site. Reduced site productivity and impacts on soil physical properties following reinstatement of the soil post gravel extraction are anticipated in the short term (0-3 years). However, careful soil management throughout the operation and following reinstatement of the soil will reduce impacts on soil properties such that any impacts are likely to only be short term (0-3 years) while the pasture establishes and restores soil structure and soil biology.
- 2.4 Key to the effective re-establishment of the soil on the gravel extraction site are careful pre-planning, adherence to the guidance provided in the Soil Management Plan, and the training of all staff involved. Staging the gravel extraction reduces the loss of productive land on the site during extraction of gravels and reduces the volume of soil requiring stockpiling and the time the soil is stockpiled. Provided the activity is managed in accordance with those recommendations, the re-established soil is likely to remain productive at a similar level as the original soil and will have similar, or potentially have greater soil versatility than the original soil pre-gravel extraction.
- 2.5 As a result, I consider that the activity can be considered a “temporary land use activity that has no [adverse] impact on the productive capacity of the land” in terms of clause 3.9(2)(g) of the NPS-HPL.

Section 42A addendum

- 2.6 In response to the opinion in the 42A report addendum about whether the site meets the TRMP definition of high productive value, I maintain that soil rooting depth (pre-gravel extraction) is a limiting factor across most of the site (LUC 3s1, 4s1, 5s1 and 6s1). The combination of features are not such that the land is capable of producing crops at a high rate or across a wide range.
- 2.7 My opinion is that the Peach Island Road site is predominantly LUC classes 4, 5 and 6 (as shown by the property scale soil and LUC assessment by LandVision), and as such, the site as a land unit is not LUC 3 as indicated by the regional scale NZLRI LUC map information.
- 2.8 If treated as a whole unit land for the purpose of assigning a LUC class the areas of LUC class 3 (LUC 3s1 and 3w1) are sub-dominant, and the site would be LUC class 4 (LUC unit 4s1) at best, based on property scale soil and LUC assessment provided by LandVision.
- 2.9 The examples of unsuccessful soil restoration in the region were primarily due to poor adherence to consent conditions and lack of a soil management plan, and do not mean that successful restoration cannot be achieved and the productivity capacity of the restored soil retained.
- 2.10 The provision of the Soil Management Plan and its correct implementation will prevent similar poor practices from occurring and ensure the productivity capacity of the restored soil on the site is at least retained.
- 2.11 In my opinion, the potential for degradation of soil aggregate degradation and compaction through irrigation of topsoil stockpiles and during transport of soil is likely to be minimal.
- 2.12 The restoration of the soil profile post gravel extraction with at least imperfect drainage meets TRMP requirements and is suitable for cropping and orchards. It does not equate to a degradation in productive capacity.

3. EVIDENCE

Applicability of the NPS-HPL to the application site

3.1 Aspects of the NPS-HPL that relate to LUC classification and effects on productive land are within my expertise. My evidence is limited to clause 3.5(7)(a)(ii) – the LUC classification of the site, clause 3.9(3)(a), clause 3.9(2)(g) and clause 3.10(1)(b)(i)

3.2 “Highly productive land” is defined in the NPS-HPL as:¹

means land that has been mapped in accordance with clause 3.4 and is included in an operative regional policy statement as required by clause 3.5 (but see clause 3.5(7) for what is treated as highly productive land before the maps are included in an operative regional policy statement and clause 3.5(6) for when land is rezoned and therefore ceases to be highly productive land)

3.3 I am advised that clause 3.5(7) applies because maps produced in accordance with clause 3.4 have not yet been included in an operative regional policy statement as required by clause 3.5. Clause 3.5(7) says:

(7) Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority and consent authority must apply this National Policy Statement as if references to highly productive land were references to land that, at the commencement date:

(a) is

- (i) zoned general rural or rural production; and
- (ii) LUC 1, 2, or 3 land; but

(b) is not:

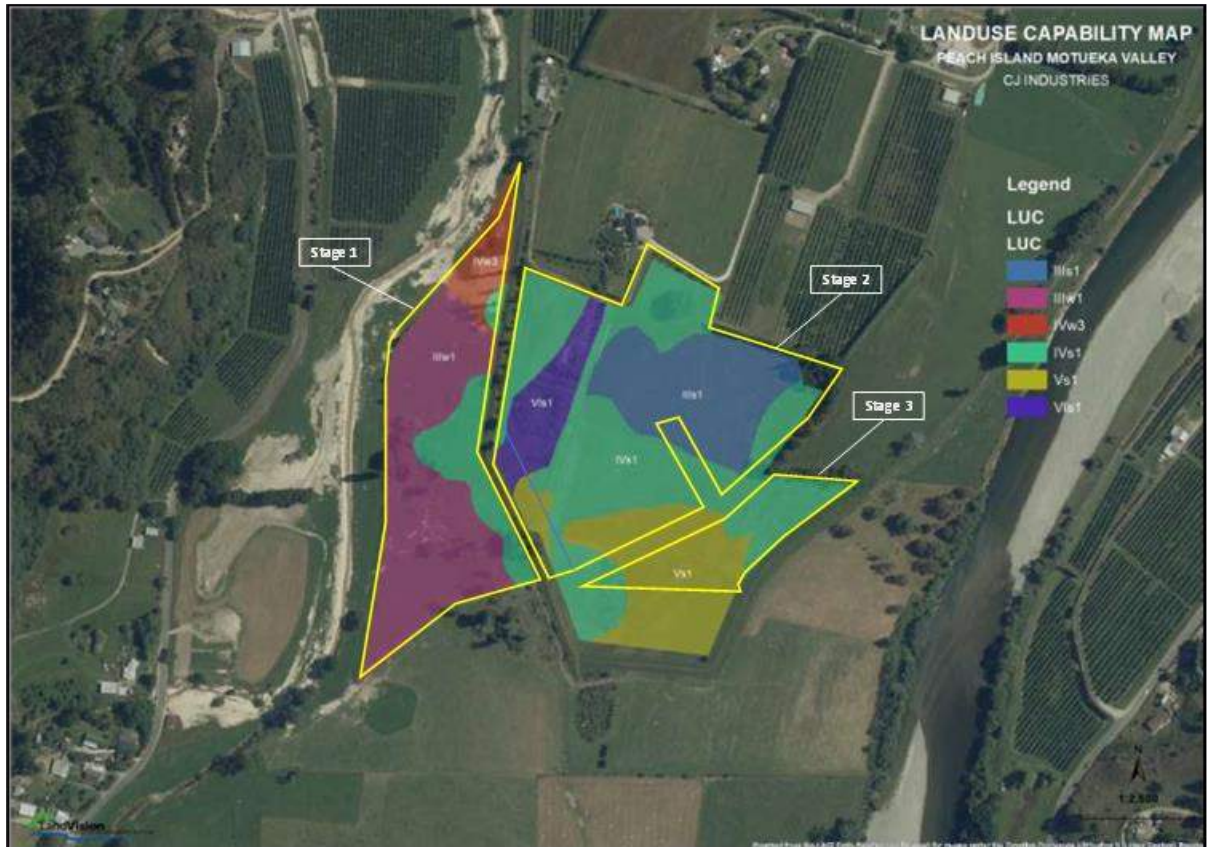
- (i) identified for future urban development; or
- (ii) subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle.

3.4 “LUC 1, 2 and 3” is defined as:

LUC 1, 2, or 3 land means land identified as Land Use Capability Class 1, 2, or 3, as mapped by the New Zealand Land Resource Inventory or by any more detailed mapping that uses the Land Use Capability classification

¹ Clause 1.3 Interpretation

3.5 The LUC units on the site were assessed in the field by Landvision at property scale using the national Land Use Capability Classification criteria² (used for the New Zealand Land Resource Inventory), and the mapped units were shown on page 6 of the SMP (reproduced below). The site does not contain LUC class 1 or 2 land. The site contains two discrete areas of LUC class 3 land (LUC 3s1 and 3w1). One area of LUC class 3 land (LUC 3s1) is on the landward side of the stopbanks (shaded blue) and the other area (LUC 3w1) is on the river side of the stopbanks (shaded pink):



3.6 I confirm that the LUC units shown in that figure are in accordance with the definition of LUC 1, 2 and 3 as provided in the NPS-HPL.

3.7 I have estimated the area of LUC class 3 within the Stage 1, 2 and 3 areas shown in the figure above (yellow lines and labelled). The combined area (Stage 1, 2 and 3 areas) is ~8.8 ha.

² Lynn IH, Manderson AK, Page MJ, Harmsworth GR, Eyles GO, Douglas GB, Mackay AD, Newsome PJF. 2009. Land Use Capability Survey Handbook – a New Zealand handbook for the classification of land 3rd ed. Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, GNS Science. 163p.

- 3.8 The area of LUC 3s1 is 1.3 ha and located entirely within the Stage 2 area. The area of 3w1 is 1.8 ha and located entirely within the Stage 1 boundary.
- 3.9 The combined area of LUC class 3 land in the combined stage 1, 2 and 3 areas is 3.1 ha (35% of the site) and the balance of the area is LUC 4s1 with lesser areas of LUC 6s1, 5s1 and 4w3 (collectively 5.7 ha or 65% of the site). Based on the property scale field LUC assessment and applying the NPS-HPL, the site is predominantly not highly productive land.
- 3.10 If mapped as a whole unit as suggested by Ms Langford (Memorandum, p103 of s 42A report), the whole land unit would be assigned a LUC class of LUC 4 (LUC unit 4s1), based on conventional mapping procedures, whereby the dominant LUC unit present is used, as opposed to the subdominant LUC units within the area. However, I consider the property scale LUC assessment should be used as it is the best available information on LUC class and is one of the acceptable forms of LUC assessment in the NPS-HPL definition of LUC 1, 2 and 3. Therefore, I disagree with the s 42A assessment that “the entire application site is defined as highly productive land under the NPS-HPL”.³

LUC class 3 land outside the stop bank

- 3.11 The LUC class 3 (LUC 3w1) land outside the stop bank is not suitable for agricultural land development due to limitations of an inherent seasonally high water table but more so flood risk. In my opinion, it has “permanent or long-term constraints ... that mean the use of the highly productive land for land-based primary production is not able to be economically viable for at least 30 years”, as per clause 3.10(1)(a) of the NPS-HPL.
- 3.12 Clause 3.10(1) has additional requirements that:
- (b) the subdivision, use, or development:
 - (i) avoids any significant loss (either individually or cumulatively) of productive capacity of highly productive land in the district; and
 - (ii) avoids the fragmentation of large and geographically cohesive areas of highly productive land; and

³ Paragraph 7.10

(iii) avoids if possible, or otherwise mitigates, any potential reverse sensitivity effects on surrounding land-based primary production from the subdivision, use, or development; and

- (c) the environmental, social, cultural and economic benefits of the subdivision, use, or development outweigh the long-term environmental, social, cultural and economic costs associated with the loss of highly productive land for land-based primary production, taking into account both tangible and intangible values.

3.13 In my opinion, development of the site will avoid loss of productive capacity of highly productive land in the district, because rehabilitation will ensure that the productive capacity is retained.

3.14 Also, the development avoids fragmentation of large and geographically cohesive areas of highly productive land (the areas that meet the highly productive land definition are not large or geographically cohesive).

3.15 It is beyond my expertise to comment on clause 3.10(1)(b)(iii) and clause 3.10(1)(c).

3.16 NPS-HPL clause 3.10(1)(a) requires the applicant to demonstrate that the permanent or long-term constraints on economic viability cannot be addressed through any reasonably practicable options that would retain the productive capacity of the highly productive land, by evaluating options such as (without limitation):

- (a) alternate forms of land-based primary production:
- (b) improved land-management strategies:
- (c) alternative production strategies:
- (d) water efficiency or storage methods:
- (e) reallocation or transfer of water and nutrient allocations:
- (f) boundary adjustments (including amalgamations):
- (g) lease arrangements.

3.17 The constraints on the use of the land (LUC units 3w1, 4w1 and 4s1) outside the stopbank arise from its inherent susceptibility to flooding, rather than from the form of land-based primary production or any allocation or legal constraints.

LUC class 3 land inside the stop bank

- 3.18 As set out in my previous evidence, the LUC class 3 land inside the stop bank (LUC 3s1) has soil limitations that restrict production and the range of land uses that it is suitable for over the long term. These soil limitations are related to the shallow and variable soil depth to gravels which reduce rooting depth for orchard trees, restrict cultivation for arable use and increase the within site management requirements for production.
- 3.19 Adherence to the Soil Management Plan will ensure that the removal, management and placement of soil avoids or minimises impacts on the soil properties prior and following placement, and that the re-established soil can over the long term retain or exceed the soil versatility (and range of land use options) of the original soil on the site.
- 3.20 Reduced site productivity and impacts on soil physical properties following reinstatement of the soil post gravel extraction are anticipated in the short term (0-3 years). However, careful soil management throughout the operation and following reinstatement of the soil will reduce impacts on soil properties such that any impacts are likely to only be short term (0-3 years) while the pasture establishes and restores soil structure and soil biology.
- 3.21 Key to the effective re-establishment of the soil on the gravel extraction site are careful pre-planning, adherence to the guidance provided in the Soil Management Plan, and the training of all staff involved. Staging the gravel extraction reduces the loss of productive land on the site during extraction of gravels and reduces the volume of soil requiring stockpiling, and the period the soil is stockpiled. Provided the activity is managed in accordance with those recommendations, the re-established soil is likely to remain productive at a similar level as the original soil and will have similar, or potentially have greater soil versatility than the original soil pre-gravel extraction.
- 3.22 As a result, I consider that the activity can be considered a “temporary land use activity that has no [adverse] impact on the productive capacity of the land” in terms of clause 3.9(2)(g) of the NPS-HPL.
- 3.23 Also, effects on the land within the stop back can be managed in a way that minimises or mitigates any actual loss or potential cumulative loss of the availability and productive capacity of highly productive land in the district in terms of clause 3.9(3)(a).

Section 42A Report addendum

3.24 The following part of my evidence addresses matters raised by Council in the s 42A report addendum (Section 7, and the memo provided by Ms Langford – p99-103).

TRMP – “high productive value”

3.25 Referring to the TRMP definition of “high productive value”, Ms Langford contends (p 99 - s 42A report addendum) that based on the combination of the TRMP criteria that this site meets, and the fact that rooting depth varies across the site but is not a limiting factor across the whole site, the land is capable of producing at a high rate and/or across a wide range.

3.26 I have provided a detailed assessment of the site (pre-gravel and post-gravel extraction) against the TRMP definition in the draft Soil Management Plan (p 23-25).

3.27 I maintain that soil rooting depth (pre-gravel extraction) is a limiting factor across most of the site (LUC 3s1, 4s1, 5s1 and 6s1) and restricts the productive capacity of the site and preventing the land from being considered land of high productive value based on TRMP criteria.

3.28 The TRMP states “where that combination is to such a degree that it makes the land capable of producing crops at a high rate or across a wide range”. My interpretation is the wording “where that combination” means that the criteria must be considered, at least two or more criteria met, and once considered and met, the combination of features must be to such a degree that it makes the land capable of producing crops at a high rate or across a wide range.

3.29 In considering the combination of the criteria (TRMP criteria (a) to (f)) five of the six criteria were met. However, for the areas mapped as LUC 3s1, 4s1, 5s1 and 6s1 (the majority of the site) TRMP criterion (d) was not met and the soil depth and variability across those area, in my opinion would exclude the site from being suitable for intensive cropping and deep rooted horticulture crops (orchards) – i.e. the land would not be capable of producing crops at a high rate or across a wide range. Mr Nelson’s evidence confirms that the land is not capable of producing crops at a high rate or across a wide range.

NPS-HPL definition of highly productive land

- 3.30 Ms Langford, in her memo, agrees with the detailed mapping of the soils at the property but disagrees that the detailed soil map should be used to dissect the land unit into parts of lesser or more productive areas, maintaining that the land unit as a whole needs to be assessed (p103).
- 3.31 If mapped as a whole unit as suggested by Ms Langford, the whole land unit would be assigned a LUC class of LUC 4 (LUC unit 4s1), based on conventional mapping procedures⁴, whereby the dominant LUC unit present is used, as opposed to the subdominant LUC units within the area. However, I consider the property scale LUC assessment should be used as it is the best available information on LUC class and is one of the acceptable forms of LUC assessment in the NPS-HPL definition of LUC 1, 2 and 3. Therefore, I disagree with the s 42A assessment that “the entire application site is defined as highly productive land under the NPS-HPL”.⁵
- 3.32 Ms Langford is of the opinion that the detailed mapping cannot be accepted due to the absence of a guidance document, and as such the regional scale map information provided by the 1:50,000 scale NZLRI should be used to determine whether the land on the site is considered highly productive land.
- 3.33 In my opinion, the detailed soil and LUC assessment undertaken by LandVision provides the best available map information at an appropriate scale for the site and should be used in preference to the regional scale NZLRI LUC map information.
- 3.34 I have previously noted the limitations of applying the regional map information at property scale in the draft SMP (p25). The LandVision report (p7) discusses these limitations, commenting that “the LUC survey is 1:50,000 scale then one square cm on the map represents 25 ha. Therefore, the property may or may not have an observation on it considering the land in question is about 11 ha. The paddock scale mapping, ie 1:7000 scale, there should be an observation approximately every 0.5 ha over the survey area. This is significantly greater than regional scale mapping and is more fit for purpose.”

⁴ http://www.nzsoils.org.nz/Topic-Basics_Of_Soils/Soil_Naming_and_Soil_Maps/

⁵ Paragraph 7.10

Implementation of Soil Management Plan

- 3.35 The s 42A addendum (5.25 - p19, p102) notes continued concern regarding the successful implementation of the Soil Management Plan, commenting that “this has not been shown as possible elsewhere in the district”.
- 3.36 I have discussed in detail the two examples being referred to in the Soil Management Plan (p20-21). For both examples, either there was no soil management plan, or if there was one the soil management plan was clearly not adhered to, and that is the reason for poor soil condition following restoration. CJ Industries has obtained and I have reviewed a copy of the resource consent for the Stapleton Farm quarry at 554 Waimea West Road. Photos provided in Campbell (2017) assessment report clearly indicate that resource consent conditions for that site were not adhered to.
- 3.37 In my opinion, these examples do not mean that successful restoration cannot be achieved and the productivity capacity of the restored soil retained. They do not demonstrate that soil restoration is inherently difficult in this region. They are simply examples of poor practice.
- 3.38 The provision of the Soil Management Plan and its correct implementation will prevent similar poor practices from occurring and ensure the productivity capacity of the restored soil on the site is at least retained. The inherent characteristics of the land in question lend themselves to positive restoration outcomes.

“Conflict” between management plans

- 3.39 The s 42A addendum (5.35 – p21, p100) notes concerns including a potential conflict with the Dust Mitigation Management Plan (DMMP) regarding handling soil in dry condition, irrigation of stockpiled soil, and potential for the degradation of soil aggregates during transport.
- 3.40 In retrospect my use of the phrase “dry soil condition” may in part lead to some confusion and interpretation of potential conflict with the Dust Mitigation Management Plan (DMMP) regarding handling soil in dry condition.
- 3.41 To clarify, the term dry soil condition means that the soil is not saturated and above the soil plastic limit. Plastic limit can be defined as the water moisture content at which a

thread of soil with 3.2mm diameter begins to crumble⁶. This means that the soil does not have to dry to be handled but can be handled in moist to dry condition to avoid soil degradation and soil compaction. To provide some context, soil handling should be carried out when soil moisture is similar to that when cultivating the soil for cropping.

- 3.42 The Soil Management Plan (p9) includes a practical method for determining when the soil moisture condition is suitable for handling (reproduced below).

A useful field method of deciding whether a soil is sufficiently dry to be moved safely is the spade test: plasticity is determined by hand-rolling a sample from the relevant horizon on the back of a spade to see if a thread of 3 mm diameter can be formed without crumbling. If a thread can be formed the soil is too wet for working (Ramsay, 1986).

- 3.43 Referring to the irrigation of stockpiled soil for dust suppression purposes, I have discussed the intention to irrigate the stockpiled soil with Mr Bluett. Based on our discussion my understanding is that irrigation (at a very low application rate) will only be undertaken only if there is a risk of dust and only for the period until a grass vegetation cover has been established.

- 3.44 The intended irrigation rate is only 1/mm per hour, sufficient to moisten the stockpiled soil surface to a depth of a few millimetres. This low rate of application is very unlikely to degrade soil aggregates and in my opinion is not a concern.

Handling and transporting topsoil

- 3.45 Referring to the potential for the degradation of soil aggregates during transport, I provide the following comments.

- 3.46 The greatest potential for soil degradation is associated with the removal and placement of soil. The degradation of soil aggregates during transport is minimal (Ramsay 1986 - p32)⁷.

⁶ <https://www.sciencedirect.com/topics/engineering/plastic-limit>

⁷ Ramsay WJH. 1986. Bulk soil handling for quarry restoration. Soil and land use management Volume 2, No. 1. Pp30-39.

- 3.47 Ms Langford's has raised the question regarding the transport of topsoil from offsite and the requirement to travel at 15 km/hour (s 42A addendum – p100) to avoid soil compaction.
- 3.48 In response, the limit of 15 km/hour relates to transport speed restrictions on site to minimise dust. However, the risk of topsoil aggregate degradation (albeit minimal) is likely to reduce as a consequence.
- 3.49 The need to import topsoil is likely to be minimal as topsoil from onsite will be reused, and for the transport of any topsoil from offsite, travelling at 15 km/hour will not be required.
- 3.50 In response to paragraph 7.37 of the s 42A addendum, I see no issue with the use of topsoil from one area being used in another area. Of most importance is that the replaced topsoil is distributed to ensure an even depth (as stipulated in the Soil Management Plan) and the variability of the topsoil is minimised to enable even productive capacity across the restored site. However, it seems unlikely that topsoil from Stage 1 would be used in the Stage 2 and 3 areas because Stage 1 is proposed to commence after Stages 2 and 3.
- 3.51 In response to the comment that the land being left “at least imperfectly drained” will lead to a degradation in productive capacity (Memorandum at p 101), and that condition 43(c) should be at least “well drained” I provide the following comments.
- 3.52 The Soil Management Plan (p12) states: “Be at least imperfectly drained, preferably moderately well or well drained where the inherent soil drainage characteristics of the land allow.”
- 3.53 The wording “where the inherent soil drainage characteristics of the land allow” acknowledges that localised inherent water table effects (predominantly in the areas of LUC 3w1 and 4w1) may result in the reinstated soil profile being less well drained (i.e. imperfectly drained).
- 3.54 I do not agree that the inclusion of imperfectly drained will result in a degradation in productive capacity when comparing the pre-gravel extraction soils on the site with the post-gravel extraction reinstated soil. An assessment against the TRMP criteria is provided in the Soil Management Plan (p26) supporting this.

- 3.55 Of note is that TRMP criteria include imperfectly-drained to well-drained soils which would mean that TRMP criterion (c) would be met for the reinstated soil. Additionally, the soil depth limitations existing for the pre-gravel extraction soils (in areas LUC 3s1, 4s1, 5s1 and 6s1) will be removed and TRMP criterion (d) will be met, given the improved soil depth and increased soil moisture holding capacity resulting from the reinstated finer soil matrix in the subsoil.
- 3.56 The reinstated soil profile, even with imperfect drainage will be suitable for cropping and orchards.⁸
- 3.57 Council has proposed a new condition (condition 40C in Mr Piggott's memorandum at page 84), which states that "The Consent Holder may use polymer or chemical stabilization to limit the dust generation".
- 3.58 I was not familiar with these products so I have discussed the use of polymer or chemical stabilization with Mr Bluett. My understanding from our discussion is that it is unlikely that these will be used in preference to dust mitigation by irrigation, but that the products are non-toxic, relatively environmentally benign, and have been accepted for use by other territorial authorities⁹. If used, I do not foresee any soil quality related issues and consider their use as posing minimal risk to the soil.

Reece Hill

4 November 2022

⁸ Well-established productive orchards exist on imperfectly drained soils in Lower Moutere and on the Waimea Plains.

⁹ Jeff Bluett, Maria de Aguiar and Neil Gimson (2017) Impacts of exposure to dust from unsealed roads. NZ Transport Agency research report 590. 104pp.



BEFORE

Independent Commissioners appointed
by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by CJ Industries Ltd
for land use consent RM200488 for
gravel extraction and associated site
rehabilitation and amenity planting and
for land use consent RM200489 to
establish and use vehicle access on an
unformed legal road and erect
associated signage

**EVIDENCE OF DR WILLIAM HENRY KAYE-BLAKE ON BEHALF OF CJ
INDUSTRIES LTD
SUPPLEMENTARY EVIDENCE ON NATIONAL POLICY STATEMENT FOR
HIGHLY PRODUCTIVE LAND**

4 November 2022

1. INTRODUCTION

1.1 My full name is Dr William Henry (Bill) Kaye-Blake. I am a Principal Economist at the New Zealand Institute of Economic Research (NZIER).

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

- (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting, and
- (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage.

- 1.3 The applicant has also subsequently applied for resource consent for discharges associated with the proposed activities (RM220578).
- 1.4 Since the applicant lodged its initial application, the Government has produced the National Policy Statement on Highly Productive Land 2022 (“NPSHPL”). My evidence provides an economic analysis of the proposal in relation to Clause 3.2(1)(c) and Clause 3.9(2)(j)(iv) of the NPSHPL.

Qualifications and Experience

- 1.5 My qualifications and experience were set out in my evidence of 15 July 2022.

Code of conduct for expert witnesses

- 1.6 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014 and I agree to comply with it. My evidence is within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

Evidence

- 1.7 Clause 3.2(1)(c) instructs territorial authorities to practice “Integrated management” of highly productive land, specifically that they should be “taking a long-term, strategic approach to protecting and managing highly productive land for future generations.”
- 1.8 Clause 3.9(1) tells territorial authorities to avoid the inappropriate use or development of highly productive land that is not land-based primary production. A use or development of highly productive land is inappropriate unless it meets one or more of the criteria in clause 3.9(2) and the measures in clause 3.9(3) are applied.
- 1.9 Clause 3.9(2)(j)(iv) makes specific provision for aggregate extraction that “provides significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand.”
- 1.10 My evidence of 15 July 2022 provides economic analysis relevant to these clauses.

- 1.11 Clause 3.2(1)(c) instructs territorial authorities to take a long-term view when managing highly productive land, rather than a short-term view. My earlier evidence considered the expected length of time that the use of the land in agriculture would be affected. It stated, “The long-term impact on agricultural production depends on the rehabilitation of the site. Expert evidence indicates that the site can be reinstated and long-term productivity will not decline (Hill, 2022).” Given that the site’s use in agricultural production can be restored over the long term, the loss to agricultural production appears to be temporary. Allowing gravel extraction on the site appears to be consistent with an integrated management approach to the economy that considers both production of aggregate and agricultural production.
- 1.12 Clause 3.9(2)(j)(iv) makes a provision for considering whether the benefit “could not otherwise be achieved.” Furthermore, an addendum (Bernsdorf Solly, 2022a) to the Section 42A report (Bernsdorf Solly, 2022b) stated, “The applicant has provided evidence from Mr [sic] Kaye-Blake (the economic evidence) which outlines the economic benefit of the proposal. However, this does not demonstrate that there is ‘significant national or regional benefit that could not otherwise be achieved using resources in the district’, let alone within New Zealand.”
- 1.13 This language provides an opportunity for me to clarify the meaning of the cost-benefit analysis in my evidence of 15 July 2022. The net benefit described in my economic evidence cannot be produced in the local area unless aggregate is extracted from the local area. The nature of hauling aggregate means that sourcing it from farther away increases costs and reduces the net benefit of the aggregate and the economic activity that relies on aggregate. In addition, the cost to the environment through the production of greenhouse gases is increased when aggregate is hauled from more-distant sources. This increase in emissions is a loss to the local, regional and national environment, and is given an economic value in my evidence.
- 1.14 To achieve a similar level of economic and environmental regional benefit as allowing gravel extraction at the Peach Island site, both the production of aggregate and the consumption of aggregate would need to shift to some other location. For example, concrete pads and foundations that would have been poured in the Motueka area would need to be poured somewhere else, closer to other sources of aggregate, and the related economic activities would need to occur there rather than in the Motueka area. I also understand from the evidence of Wayne Scott on the availability of aggregate in the

region (Scott, 2022) that suitable places for extraction of aggregate are limited. This lack of availability would further restrict the locations where economic activity could relocate without economic loss to the region. Restricting the spatial distribution of economic activity in this way could be considered a “significant” change to the economy.

- 1.15 Thus, in relation to the NPSHPL and the addendum to the Section 42A report (Bernsdorf Solly, 2022a), I am of the opinion that aggregate extraction at the Peach Island is consistent with long-term integrated management of highly productive land for the economy (NPSHPL Clause 3.2(1)(c)) and provides a significant benefit whose spatial distribution could otherwise not be achieved (Clause 3.9(2)(j)(iv)).

Bill Kaye-Blake

4 November 2022

BEFORE Independent Commissioner appointed by Tasman District Council



IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by CJ Industries Ltd for discharge application RM220578 for discharge of contaminants to land (backfill material) and for land use consent RM200488 for gravel extraction and associated site rehabilitation and amenity planting and for land use consent RM200489 to establish and use vehicle access on an unformed legal road and erect associated signage

EVIDENCE OF HAYDEN TAYLOR ON BEHALF OF CJ INDUSTRIES LIMITED PLANNING

1. INTRODUCTION

- 1.1 My full name is Hayden Craig Taylor. I am a Resource Management Consultant at Planscapes (NZ) Ltd, a resource management and surveying consultancy based in Nelson.
- 1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:
 - (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting; and
 - (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage.
- 1.3 The Applicant has subsequently sought a discharge permit for discharge of contaminants to land, which is required to carry out the backfill activity using cleanfill. A separate application has been lodged for this activity. This application has been

publicly notified and submissions have been received. Council has recently released their s42A report on the discharge application, in addition to an addendum to their original s42A report which addresses the National Policy Statement on Highly Productive Land 2022 (NPS HPL) and comments on evidence already filed by the Applicant.

- 1.4 I have previously prepared evidence addressing planning matters in relation to land use consents RM200488 and RM200489. The following evidence is supplementary to this, and specifically addresses the discharge activity and submissions and s 42A report received on the application for this, as well and commenting on Council's s42A addendum which relates to the land use consents.
- 1.5 This evidence does not repeat the evidence already filed, and so this statement should be read together with my statement dated 15 July 2022.

Qualifications and Experience

- 1.6 I hold a Bachelor of Science with Honours (Geography) degree from University of Otago, and I am an associate member of the New Zealand Planning Institute.
- 1.7 I have 14 years' experience in resource management and planning practice. I have been employed by Planscapes as a Resource Management Consultant since May 2018, and became a Director of Planscapes this year. Prior to this I worked in Auckland as a Resource Management Consultant for two years, and before for Auckland Council for five years in Intermediate Planner, Senior Planner and Resource Consents Team Leader roles. Prior to that I worked as a Planner for a London Borough Council for a period of three years.
- 1.8 I have prepared evidence and appeared both for private clients and local authorities as an expert witness at Council and Environment Court hearings, and have also participated in Environment Court mediation proceedings.
- 1.9 For the past four years much of my work has been in the Nelson/ Tasman Region and this has involved preparation of numerous applications for resource consent under the Tasman Resource Management Plan (the TRMP). These include a variety of land use applications in rural zones. I have a sound working knowledge of the TRMP, and its implementation in respect of environs within which the subject site is located.

- 1.10 Although this is not an Environment Court process, in the preparation of my evidence I have complied with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.
- 1.11 I have visited the site on numerous occasions between June 2020 and the present including in the company of various other specialists engaged by the Applicant and with Council representatives. I am familiar with the site.
- 1.12 I was involved in the preparation and lodgement of the Application and AEE supporting the original application to Council for land use activities, and I prepared the application for discharge permit.

Purpose and scope of evidence

- 1.13 The purpose of my evidence is to assess the proposed discharge activity against the relevant provisions of the Resource Management Act 1991, in particular sections 104, 105 and 107, and associated statutory documents. I address the following in my evidence on the discharge activity:
- (a) A description of the site and proposed discharge activity.
 - (b) A summary of the resource consents required and the activity status of the application.
 - (c) An assessment of the actual and potential effects of the proposed discharge activity on the environment.
 - (d) Comments on matters raised in submissions.
 - (e) Comments on the Council Officers' s42A report.
 - (f) An assessment of the proposal against the following statutory documents:
 - (i) Tasman Resource Management Plan (TRMP);
 - (ii) Tasman Regional Policy Statement (TRPS);

- (iii) National Policy Statement for Freshwater Management (NPS:FW).
 - (iv) Water Conservation (Motueka River) Order 2004 (WCO).
 - (g) An assessment of relevant other matters.
 - (h) My conclusions with regard to ss104, 105, 107 and Part 2 of the RMA.
- 1.14 In addition to the above, Council have prepared an addendum s42A report addressing NPSHPL, which Government has released since my previous evidence was prepared. The addendum also addresses the primary evidence of the Applicant prepared in respect of the land use application. I will address this addendum in my evidence.
- 1.15 To avoid duplication, I have referred to my previous evidence in respect of the land use consent applications where relevant.
- 1.16 I have produced my evidence having considered:
- (a) Submissions received on the application.
 - (b) Council Officers' s42A report Addendum and s 42A report on the discharge permit.
 - (c) Evidence previously filed by the Applicant on 15 July 2022.
 - (d) Supplementary evidence of the following expert witnesses appearing on behalf of the Applicant (either in respect of the discharge activity, the land use s42A Addendum, or both):
 - (i) Mr Tim Corrie-Johnston (Corporate and Operations);
 - (ii) Mr Ryan Nicol (Groundwater);
 - (iii) Dr Reece Hill (Soil management and land productivity);
 - (iv) Mr Wayne Scott (NPS HPL);
 - (v) Mr Gary Clark (Traffic);
 - (vi) Mr Jeff Bluett (Air Quality);

(vii) Mr Rhys Hegley (Noise);

(viii) Dr Bill Kaye-Blake (Economics).

2. EXECUTIVE SUMMARY

- 2.1 CJ Industries Ltd seek resource consent to discharge a contaminant (cleanfill) to land, in circumstances where it may enter water (groundwater) at 134 Peach Island Road. This follows an earlier application for land use consents to undertake quarrying (extraction of alluvial aggregates) activities, backfilling of excavation areas with imported cleanfill, and land rehabilitation activities at the subject site along with associated activities being the planting of vegetation and temporary stockpiling of soil in berm land, formation of access within legal road and display of signage. The activity is proposed to be undertaken in three stages. The land use and discharge activities are to be bundled and considered together. Overall, the proposal is a discretionary activity.
- 2.2 The recommendation of Council's reporting planner, as detailed in the s42A report, is consistent with the recommendation made for the land use consent applications. This is that consent be granted in part, subject to conditions, with the Stage 1 works allowed, but not the Stage 2 or 3 works.
- 2.3 A range of matters were raised in submissions on the application. Not all of these matters are relevant specifically to the discharge application, however those relating to relevant matters such as groundwater quality have been addressed in detail. I am satisfied that the matters raised in submissions have now been adequately addressed. My only qualification of this conclusion is in relation to the cultural effects in the absence of a Cultural Impact Assessment (CIA). The Applicant has been informed that a CIA will be submitted in support of Submitter evidence, and I intend to comment further on this in reply evidence.
- 2.4 Overall, taking into account the s42A report, submissions, volunteered conditions of consent and expert evidence, I am satisfied that (with the above qualification in relation to cultural effects) adverse effects on the environment associated with the proposed activities will be no more than minor.
- 2.5 I am also satisfied that the proposal is consistent with all relevant statutory documents. This includes the NPS HPL, which has come into effect since my previous evidence was prepared.

- 2.6 Taking into account expert advice in respect of groundwater quality matters, I am satisfied that sufficient regard has been had to the matters detailed at Section 105(1) of the RMA, and that none of the effects detailed at Section 107(1) (c)-(d) of the RMA occurring. As such, Section 107 should not prevent granting of consent for the proposed discharge.
- 2.7 I am satisfied that the proposal is consistent with Part 2 of the RMA in that it promotes the sustainable management of natural and physical resources. My conclusion in this regard stands on its own, in that effects on the environment and on persons will be adequately managed so as to be no more than minor. However, where adverse effects do occur, these are also justified when considered in the context of the demonstrable need for the mineral resources sought by this application and the functional need for these to be sourced from environments such as the application site.
- 2.8 In my opinion, the proposed discharge activity, subject to imposition of appropriate conditions of consent as detailed in the volunteered condition set, has sufficient merit from a resource management perspective to warrant granting of consent.

3. EVIDENCE ON DISCHARGE APPLICATION

Existing environment

- 3.1 The application site is largely located at 134 Peach Island Road, Motueka. The approximately 13.5 hectare property is owned by Timothy George Corrie-Johnston and is legally described as Lot 2 DP 2357 comprised in RT NL77/73 and Lot 2 DP 432236 comprised in RT 524970. The site contains a house and a shed, accessed via right of way from Peach Island Road. The remainder of the site is in pasture which is grazed. For the purposes of access, adjacent unformed legal road, an area of marginal strip (both in pasture and grazed) and part of 493 Motueka River West Bank Road (RTNL11A/1111) are proposed to be utilised.
- 3.2 Of specific relevance to consideration of the discharge of contaminants to land is the hydrogeological setting of the application site, particularly in relation to ground water. This has been detailed in the Hydrogeology Report prepared by Pattle Delamore Partners ('PDP') attached to the previous evidence of Mr Nicol and in additional information provided in response to Council's Request for Information.

- 3.3 The existing environment surrounding the application site is rural in nature. Land located immediately surrounding the site on the river flats is predominantly in productive use, including pasture, horticulture and a plant nursery, with associated dwellings. Land located further from the application site, particularly on surrounding hillsides, includes rural-residential activities and some plantation forestry. The existing environment surrounding the application site includes current and former aggregate quarrying sites on Peach Island and at Douglas Road, as will be addressed in more detail to follow. The Motueka River is located close to the site, to the east.

The discharge proposal

- 3.4 The proposal as a whole has been described in detail in the application documents lodged with Council on 15 June 2020 and as amended by the further information response documents provided to Council on the 8th and 10th of June 2021. Changes and clarifications to the proposal subsequent to the notification of the application and preparation of the s42A report were detailed in my previous evidence and are not repeated here. The discharge permit seeks consent to discharge a contaminant to land in circumstances where it may enter water. The discharge of clean fill meets the RMA definition of contaminant:

contaminant includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat—

(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or

(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged

- 3.5 As detailed in the evidence of Mr Nicol, the removal of the natural strata at the proposed quarry site and backfill with clean fill material in areas of the quarry that will be inundated by groundwater will cause a change in the physical structure of the land (i.e. a change in the hydraulic conductivity of the aquifer where fill is placed) and a change in the chemistry and biological condition of the groundwater could also occur as the natural strata in the quarry excavations will be replaced with material that may

have a different structure, porosity, geology, and/or chemistry. Based on this, the placement of the clean fill material may result in a change in chemistry and biological conditions of the groundwater caused by inundation of clean fill at the quarry.

3.6 Key elements of the proposed discharge activity are as follows:

- (a) The backfill material proposed to be used by the Applicant at the application site is, as identified above, to be restricted to cleanfill material as defined under the WasteMINZ document Technical Guidelines for Disposal to Land (2018). The acceptable materials are detailed in Table 3 of the Groundwater and Clean Fill Management Plan ("GMP").
- (b) The fill material will only comprise natural material sourced from both on site and off site and includes uncontaminated soil, clay, rock and gravel.
- (c) Fill material sourced off site must not be from a HAIL site and will only be accepted if total soil contaminant concentrations in the imported fill are not above soil background concentrations specific to the Tasman region as provided in the Landcare Research report "Background concentrations of trace elements and options for the managing of soil quality in the Tasman and Nelson Districts" (Cavanagh, 2015).
- (d) The fill material sourced both on site and off site may include some incidental biodegradable organic matter, but this will not exceed 2% by volume per load of fill and excludes soils with high organic content (i.e. peat, loam, topsoil etc.).
- (e) On the basis of these constraints, and as will be addressed in further detail below, the backfill material will not contain materials likely to adversely affect land or groundwater quality.
- (f) Key to ensuring the quality of the cleanfill used on site will be control over the receipt, inspection, and testing of material prior to it being discharged on site. Also of importance is the manner in which it is deposited on the application site, in particular through avoiding working in exposed groundwater, and management of any risks of accidental spills associated with machinery. These matters are proposed to be managed through the

preparation of and adherence to the GMP. A draft of this has been prepared by PDP and the current version is dated September 2022. This version was submitted with minor changes as part of a further information response to Council, and supersedes the versions attached to Mr Nicol's previous evidence and that submitted with the application. A condition is volunteered requiring a final GMP to be submitted to Council for certification prior to the commencement of cleanfill discharge activities.

The key elements of the GMP are:

- (i) Clean fill materials authorised
 - (ii) Proposed clean fill management system
 - (iii) Receipt
 - (iv) Inspection and testing of imported clean fill
 - (v) Placement of imported clean fill
 - (vi) Groundwater level monitoring and excavation controls
 - (vii) Response and mitigation to a spill
 - (viii) Groundwater quality monitoring
 - (ix) Response to issues arising from groundwater quality monitoring
- (g) The purpose of the GMP is to ensure that the application site will be managed to comply with consent conditions related to the quarrying activities and discharge of contaminants to land, specifically in respect achieving groundwater quality outcomes. The relevant performance indicators that the quarrying activities must achieve are:
- (i) Ensuring that excavations do not expose groundwater.
 - (ii) Ensuring that all backfill material is strictly managed to ensure it meets the definition of 'clean fill' under WasteMINZ guidelines.
 - (iii) Minimise any change to the physical and chemical properties of groundwater as result of the land use and discharge activities

associated with quarry activities (as defined by the trigger levels in Table 3 of the GMP).

- (iv) Ensuring that under no circumstances the land use and discharge activities associated with quarry activities result in groundwater quality exceeding the acceptable values in the Drinking Water Standards for New Zealand.
- (h) Control over the quality of this fill will enable the proposed activity to meet the requirements of a Class 5 Landfill under the WasteMINZ Guidelines, being the only class of landfill that the guidelines allow to be sited over aquifers used for drinking-water purposes, as is the case for this site.

3.7 A consent term of 17 years is sought. This term is sought to allow for discharge to land to occur over 15 years (being the same term sought for the land use consents for quarrying), plus two years of continued groundwater quality monitoring following the cessation of backfill activities.

Resource consents required and status of the application

3.8 In addition to the land use consents sought for the proposed quarrying activities, consent is required for the proposed discharge of cleanfill to land, as a **discretionary** activity under Rule 36.1.5.2 of the TRMP. This is confirmed in the second s42A report prepared by Council's reporting Planner.

3.9 Overall, when bundled with the associated land use consents, the proposal is for a **discretionary** activity.

Submissions

3.10 A total of 59 submissions were received on the discharge application, with 4 in support and 55 opposing. I have reviewed all submissions received on the discharge application. Few submissions raise issues specifically related to planning matters. Where such matters are raised, I will address these specifically. Most submissions raise matters relating to specialist topic areas addressed in the evidence of other experts appearing on behalf of the Applicant. I will generally refer to this expert evidence in respect of how these matters have been addressed, rather than duplicate this myself. I consider that the summary of

the issues raised in submissions given at section 5.8 of the s42A report generally encompasses the relevant issues raised in submissions.

Effects on groundwater quality

3.11 The majority of submissions in opposition to the proposal raised concerns regarding the effect on the proposed backfill material on groundwater quality. This extends also to concerns on drinking water quality and water quality in the Motueka River through interaction with groundwater. Specific matters raised in submissions are addressed below.

- (a) Some submitters including Submitters 1 (Walker), 19 (Clark and Rombouts) and 31 (Valley RAGE) consider that the proposed backfill procedures are not practical to follow, or won't be followed. In particular, procedures relating to excavation depth and fill quality controls. The procedures in question are those detailed in the GMP. This has been developed by Mr Nicol, in close consultation with Mr Corrie-Johnston of CJ Industries, who will be the quarry manager for the Peach Island site. This collaboration has been undertaken to ensure the procedures and controls put in place are practicable, measurable and enforceable. The evidence of Mr Nicol and Mr Corrie-Johnston on the discharge application address these matters specifically. Submitters including Submitter 11 (Dixon – Didier) query how backfill operations will take place if machinery breaks down or staff are unavailable. This has been addressed in the evidence of Mr Corrie-Johnston, who confirms that:
 - (i) Excavation will not take place if back fill or operators are unavailable.
 - (ii) CJ Industries has the ability to move machinery and people around from other sites if required.
 - (iii) CJ Industries has its own workshop and so can prioritise repairs as needed by operational requirements.
- (b) Many of the submissions that raise the above concerns regarding the practicality of the proposed procedures, and others including – Submitter 34 (Mae), question whether consent conditions would be complied with.

In particular, some submitters referenced the compliance history of the Applicant at their existing quarry sites. As a general planning principle, it must be assumed that a consent holder will comply with conditions of consent. Council has adequate mechanisms at its disposal to deal with enforcement issues in the event compliance issues should arise in relation to the stringent compliance requirements volunteered by and placed upon the Applicant.

- (c) A number of submitters, including Submitters 1 (Walker); 3 (Le Frantz); 31 (Valley RAGE) raise concerns regarding impacts on drinking water quality. Submissions including Submitter 44 (Webber) raised that the volunteered conditions would allow for degradation of drinking water standard before action is required of the consent holder. These matters are addressed in the evidence of Mr Nicol, and were also addressed in the Applicant's further information response to Council. In his further information response Mr Nicol noted that the proposed trigger levels are half of the Drinking Water Standards (DWS) Maximum Acceptable Values (MAV)'s, they are not set at MAV. Mr Nicol does not consider that reaching these trigger levels would represent deterioration of groundwater quality before a response was required, and notes that the 20% differential required between upgradient and down-gradient bore samples is necessary to enable causation of any changes to be attributed to activities on the site. Such variance is small and within the range of natural variation. Additionally, in Mr Nicol's evidence on the discharge activity, he notes that the Peach Island Aquifer is an unconfined aquifer in an area of rural land-use activities and on-site discharges of wastewater and stormwater, and areas of the aquifer are at times subjected to inundation from flood events in the Motueka River, it is possible that concentrations of some groundwater quality parameters may occasionally exceed the relevant MAV and GV from time to time, irrespective of any effects from the proposed quarry and its associated clean filling.
- (d) Some submitters including Submitters 31 (Valley RAGE) and 47 (Wakatū Inc) raise issue with the GMP being in draft form only, and that the final version would be approved without public input. This is a standard

approach for management plan conditions attached to a resource consent decision, allowing for refinement of the management plan prior to exercising the consent. It is important that such conditions clearly set out the required content of the management plan and the outcomes that are to be achieved by through its implementation. I consider that the volunteered conditions achieve these objectives. The proposed conditions will provide for certainty of outcome without further public input.

- (e) Submitters including Submitter 10 (Hodder) requested that there be no storage of backfill on site prior to testing/ screening. The application confirmed that the only circumstance when material would be screened on-site rather than off-site was in the event of a civil emergency, in which case material would be screened on site prior to being used as backfill. The Applicant now volunteers that this material, too, will be screened off-site before being delivered and this is reflected in the volunteered conditions of consent.
- (f) Submitters including Submitter 12 (Harris – Virgin) were concerned with contamination of groundwater from accidental spills of fuels etc. The application contains detailed procedures for minimising risk of spills and managing the effects of spills in the event that these do occur. These procedures have been addressed in the evidence of Mr Corrie-Johnson, are reflected in volunteered conditions and in the GMP, and associated effects on groundwater quality are addressed in the evidence of Mr Nicol. Adherence to the volunteered requirements will ensure that risks of mobilisation of contaminants including fuel, oil and hydraulic fluid into water bodies including groundwater are minimised. It must be acknowledged that heavy vehicle use is an anticipated part of many activities typical in rural environments such as this and such risks cannot be entirely eliminated, however the proposed measures are expected to be effective in minimising such risks.
- (g) Submitters including Submitter 7 (Howie) consider that there would be a reduction in natural filtration of groundwater following extraction and backfilling activities. This has been addressed in the evidence of Mr Nicol, who considers that, although the proposed backfill may result in physical

changes in the aquifer structure which could cause increased variations in hydraulic conductivity and therefore variations in the rate of groundwater flow and groundwater quality across the site, natural variations in hydraulic conductivity are expected within the heterogeneous existing strata, and therefore further changes to hydraulic conductivity and groundwater levels as a result of the proposed activity are expected to be generally within the existing range of hydraulic conductivities and groundwater levels. Mr Nicol has further supported this assessment by testing groundwater bores at the applicant's Douglas Road quarry. This testing demonstrates that the downgradient bores at Douglas Road do not display any changes in groundwater chemistry of concern and therefore are not adversely affecting downgradient groundwater users. (compared to a cross-gradient bore at Douglas Rd representative of "background" levels in this area).

- (h) Submitter 34 (Mae) submitted that the proposed depth of extraction was greater than has previously been granted. This is incorrect. Council have granted consent to a number of quarrying activities in the surrounding area to a variety of depths. These include Consent RM070949 at 15 Peach Island Road which allowed for excavations to a depth of 6 m below ground level and permanent interception of groundwater to create an artificial wetland with an area of approximately 1 ha. Further to this, an additional consent (RM200392) granted by Tasman District Council in January 2021 at site near the Motueka River at Douglas Road provided for excavation to be to 2 metres NZVD 2016 or the base of the shallow aquifer, whichever is shallower. This was expected to be approximately 8m below existing ground level, and 5.5m below groundwater level, with no constraints imposed in relation to working within groundwater.

Compliance and monitoring

3.12 Various submissions relate to proposed compliance and monitoring aspects of the proposed activities. Specific matters raised are addressed below.

- (a) Several submitters including Submitter 43 (Shuttleworth and Shay) consider that the proposed duration of post-quarrying monitoring is inadequate. This matter has been addressed in the evidence of Mr Nicol. He considers

that, given that the pattern of any groundwater chemistry changes is likely to have been well established during the period of quarry operations, this period of monitoring after the cessation of quarrying activities is sufficient to capture any longer-term patterns of groundwater quality changes that may have occurred as a result of the proposed quarry activities. Additional monitoring beyond two years following the cessation of quarrying and back filling would be unlikely to capture any additional changes that would not have been observed from groundwater quality monitoring undertaken up to that point.

- (b) Some submitters including Submitter 12 (Harris-Virgin) raise the issue that no independent/ third party monitoring is proposed. As detailed in the GMP, groundwater sampling will be undertaken by suitably and qualified persons using prescribed methodologies. Samples will be analysed by an accredited laboratory and results presented to Council. Additionally, the Applicant volunteers the use of telemetry equipment on excavators that removes the need for manual monitoring or recording of excavation depths. Monitoring bores will also have telemetry that will allow Council to obtain this data directly. Council is an independent party and it is their role to enforce compliance with conditions. Submitter 56 (Taia) considers that Council is under-resourced to monitor compliance with conditions. The presentation of data to Council as detailed above will minimise Council time requirements in assessing compliance with conditions of consent. In terms of monitoring of backfill material, third party monitoring (by Council or others) is impractical, however the processes detailed by Mr Corrie-Johnston are considered to provide a robust system for ensuring that compliance is achieved.
- (c) Some submitters including Submitter 11 (Dixon – Didier) consider that an insufficient extent of bore monitoring is proposed. This has been addressed in the evidence of Mr Nicol, who considers that, whilst the dedicated monitoring bores on site are most critical in terms of monitoring as they are immediately downgradient of the site and so are most likely to identify any changes in groundwater characteristics, additional monitoring up to 1km downgradient would be beneficial. The Applicant is open to

doing so, provided agreement is obtained from private landowners to do so, or Council (as landowner) agrees to a monitoring bore being established on road reserve or other publicly owned land. Amended volunteered consent conditions address this.

- (d) Several submitters including Submitter 56 (Taia) requested that high value bonds are required to ensure compliance. The proposed conditions of consent include a provision of a \$40,000 performance bond to enable Council to conduct remedial, repair, or rehabilitation works to the site, stopbank and/or access road, in the event that the consent holder fails to comply with conditions of this consent to the satisfaction of the Council's Team Leader - Monitoring & Enforcement.

Cultural effects

3.13 Several submitters, including Submitter 49 (Te Ātiawa), Submitter 47 (Wakatū Inc) and Submitter 58 (Ngāti Rārua) raised issues in relation to cultural effects of the proposed discharge. Specific matters raised are discussed below.

- (a) Submitters raised that cultural and spiritual effects were not adequately addressed in the application, and that it is inappropriate to comment that expert evidence relating to physical, biological and chemical properties can be compared to cultural values when only a CIA can appropriately inform this. The Application acknowledged this fact, but attempted to draw what limited conclusions were possible on the basis of the information available at that time, given that a CIA was being sought but at that time had not been made available. Submitters also noted that volunteering of Matakite condition was inappropriate without a recommendation for such by mana whenua iwi and whānau. The inclusion of this condition was in response to the earlier submission by Ngāti Rārua that requested inclusion of similar conditions to those imposed on the Fulton Hogan Douglas Road consent, which included such a condition. This condition was volunteered as a placeholder until the CIA was available or until iwi confirmed their desire for such a condition. This will be addressed further in reply evidence, once the CIA has been provided, however in the interim the condition has been removed from the volunteered condition set.

- (b) Relevant provisions of Poipoi Te Ao Tūroa were identified in the submission from Ngāti Rārua. These provisions have been addressed in my previous evidence. I will comment further on this matter in reply evidence, once the CIA has been provided.
- (c) Te Ātiawa raised concerns with regard to the impact of the proposal on their mana and role as kaitiaki. I will comment further on this matter in reply evidence, once the CIA has been provided.
- (d) Impacts on the mauri of land and water were raised. I will comment further on this matter in reply evidence, once the CIA has been provided.

Information inconsistencies

- 3.14 Submitter 1 (Walker) considers that there are inconsistencies in the application regarding backfill material. Specifically, that it states road cuttings and slip material may be used, but that all backfill material would be screened offsite before being brought to the site. There is no inconsistency here. Slip or road cutting material may be used, but only if it meets cleanfill criteria. For example, if the fill contains more than 2 % organic material, or roading materials such as bitumen or seal, it will not be used. Off-site screening of such materials would be undertaken to confirm this.
- 3.15 Submitter 31 (Valley RAGE) submitted that there were inconsistencies between the GMP and Dust Management Plan (DMP). These were not specified, there has been no response to the applicant's request for clarification of what these inconsistencies are, and the experts that prepared these reports are not aware of any. However, any specific matters raised in submitter evidence or at the hearing can be addressed in reply or at the hearing.

Impact on Motueka River

- 3.16 Water quality within the Motueka River was raised by a number of submitters including Submitters 31 (Valley RAGE) and 5 (Huff and Losch). Cumulative effects with other activities within the wider Motueka River catchment was also raised, including by Submitter 43 (Shuttleworth and Shay). These matters have been addressed in some detail in my previous evidence, and the evidence of Mr Nicol and Dr MacNeil which informed my evidence. These experts are satisfied that effects of the proposal on water

quality within the Motueka River as a result of surface water runoff and interaction of groundwater with the river, will be less than minor. With regard to water quality in the Motueka River, Dr MacNeil considers that any cumulative effects on the proposal on sediment loads in the river would be less than minor. Mr Nicol and Council's water quality experts are also in agreement that any change in groundwater characteristics will not result in degraded water quality in the Motueka River.

Other effects

- 3.17 Submitter 25 (Williams) expressed a preference to take more gravel from rivers instead of from the subject site. There is a limited amount of aggregate that is consented to be removed from the Motueka River bed annually, for the purposes of flood management. This is done under a global consent held by Council, who issue permits to various contractors to undertake the aggregate extraction. As identified in the evidence of Mr Corrie-Johnston there is insufficient supply from this source to meet the needs of the community for products derived from river aggregate, and there is uncertainty as to who will be allocated permits in any given year. As such, this is not a feasible alternative to the proposed activities.
- 3.18 Submitters 39 (Williamson), 36 (Claringbold) and 21 (Hewetson) submitted in support of the application, due to the need for aggregate supply for local products. This need has been addressed in some detail in the evidence/supplementary evidence of Mr Corrie-Johnston, Mr Scott and Dr Kaye-Blake. Whilst this matter is not specifically related to the proposed discharge, the discharge is required to enable the operation to take place through ensuring the productive potential of the site is maintained.
- 3.19 Some submitters, including Submitter 31 (Valley RAGE) queried the availability of sufficient cleanfill to match extraction rate. The supplementary evidence of Mr Corrie-Johnstone has addressed this matter. The Applicant has access to sufficient overburden material from their nearby hard-rock quarries to meet demand, should supply from other sources be limited at any time. Furthermore, only as much material will be excavated on any given day as can be replaced with backfill material available on the site if the need arises.

- 3.20 Submitter 31 (Valley RAGE) considers that the proposed discharge is not consistent with the TRMP and NPS HPL. I disagree with this, for the reasons detailed in my assessment of the proposal against these statutory documents, below.
- 3.21 Some submitters, including Submitter 2 (Forsey) consider that the proposal will create precedent, creating the opportunity for similar activities on other sites nearby that are also owned by the Applicants to obtain consent. My views on precedent were expressed in my previous evidence, and these apply equally to the land use and discharge activities.
- 3.22 Submitter 18 (Tucker) and others consider that the duration of consent sought is excessive. This matter was addressed in my previous evidence, and is also addressed in the evidence of Mr Corrie-Johnston. The duration sought on the land use consents is to enable flexibility in order to efficiently utilise finite gravel resources, including where these may become available from such sources as from river beds under Council's global consent. Additionally, there are various environmental factors that will influence when, where and to what depth aggregate extraction can take place, and under what conditions rehabilitation is undertaken, whilst maintaining compliance with volunteered conditions. This requires a longer duration to ensure flexibility is available in terms of timing of works. The additional 2-year duration sought for the discharge permit will not enable a longer duration of extraction or backfilling/ remediation activities; it is to enable ongoing monitoring for a duration of two years following completion of these activities whilst there is still a live resource consent to comply with.
- 3.23 Submitters including Submitter 7 (Howie) raised the issue of mobilisation of contaminants during floods. This matter was addressed in my previous evidence and in that of Mr Aiken. Whilst the risk of mobilisation of deposited material in general is low, the most important consideration is that the material, whilst technically a contaminant under RMA definitions, will be cleanfill and will not have any toxic properties that might result in adverse effects, if it were to be mobilised.
- 3.24 Submitter 31 (Valley RAGE) was concerned with the spread of pest plants in cleanfill. This would appear to be a low risk given that the cleanfill is required to have a very low organic content, such that from a practical perspective no obviously organic material will be used (the 2% limit essentially provides a margin of error). The evidence of Mr Corrie-Johnston confirms that topsoil will not be imported to the site. Additionally, the

cleanfill will be deposited below subsoil and topsoil that originates on the site itself.

The Applicant also volunteers to undertake pest plant management on the site for the duration of the consent.

- 3.25 Submitter 34 (Mae) raised concern with the ability of the consent holder to vary conditions without public input, should consent be granted. I note that any application to change consent conditions under Section 127 of the RMA is subject to notification tests, which include a requirement to specifically consider whether any persons who submitted on the original application are affected persons.

Submissions not considered relevant to discharge activity

- 3.26 A number of submissions raise issues that are not relevant to the discharge activity and have been addressed in evidence filed previously in respect of the land use activities.

These include:

- (a) Hours of operation
- (b) Carbon emissions
- (c) Visual effects
- (d) Traffic effects
- (e) Noise effects
- (f) Dust effects
- (g) Soil structure/ productive land
- (h) Ecosystem effects – flora and fauna
- (i) Stop banks not sufficient or are failing

- 3.27 I refer to my previous evidence on these matters and have nothing further to add in respect of these matters in the context of the discharge activity. Additionally, some submissions raised issues that are not considered to be relevant considerations at all, including:

- (a) Request a proportion of profits donated to native replanting and also to offset carbon. This does not relate to mitigation of the resource management effects of the proposal.
- (b) Property values. These are not considered to be a relevant resource management consideration. Such effects could, however, be related to amenity effects, which have been addressed in detail in previous evidence and supplementary evidence.

Council Officers' s42A report.

- 3.28 Council's reporting Planner has prepared a s42A report addressing the discharge permit application specifically. I provide comments on this below. I note that the reporting planner has also provided supplementary evidence in relation to evidence filed by the Applicants and their experts, and also on the NPS HPL. I will address the NPS HPL and Council's supplementary evidence last.
- 3.29 The key matters that the reporting planner considers to be in contention, having reviewed the application, further information response and previous evidence filed by the Applicant, are:
- (a) It is not clear how the applicant will manage the site to prevent inundation of the quarry floor during more prolonged periods of groundwater level rise.
 - (b) There are still concerns about the water quality trigger levels proposed as they could result in significant deterioration of water quality before a trigger is reached.
 - (c) 50% of MAV is not adequate as a trigger.
 - (d) The proposed trigger levels are based on drinking water standards but are not necessarily consistent with the NPS-FM and Te Mana o te Wai.

- (e) There is insufficient information on the current state of groundwater quality/ background levels, and it is therefore unclear if the proposed trigger levels would maintain or degrade the current state.
- (f) If contamination is observed through sampling, then the response to this needs to be more robust.

3.30 These matters have been addressed in the evidence of Mr Nicol. Taking Mr Nicol's evidence into account:

- (a) Mr Nicol is satisfied, based on the maximum area of any excavation, the measured rates and overall change of groundwater levels on site and the operational evidence of Mr Corrie-Johnston regarding the availability and on-site stockpiling of backfill material, that management of excavations and fill to achieve volunteered requirements for avoiding inundation of the quarry floor are achievable.
- (b) Mr Nicol acknowledges that change in the physical and chemical properties of the backfill material relative to the existing substrate of the site may result in changes to the groundwater chemistry of the ground water. However, this change is not expected by Mr Nicol to be adverse, nor to result in a deterioration of groundwater quality. From a planning perspective this is an important point as all activities including discharges and land use activities result in change, but this change is not always an adverse effect. The trigger levels are not intended as a target level to manage contaminant levels to. The primary control over effects of the proposed filling activities on groundwater quality is ensuring that groundwater is not exposed, and effective management of the quality of the fill that is used on site, in accordance with the GMP. Adverse effects on groundwater quality are not anticipated to occur as a result of quarrying and backfilling activities on site (or other activities associated with these). However, it is important to include clear, certain and enforceable standards that will ensure that any unforeseen outcomes are identified and managed (while also ensuring that natural variation does not result in a standard being breached and attributed to a quarry effect). The proposed trigger levels achieve this.

- (c) Bearing in mind the comments above, Mr Nicol is satisfied that the proposed trigger levels are appropriate.
- (d) As discussed above, Mr Nicol is satisfied that adherence to the GMP is sufficient to avoid adverse effects on groundwater quality. Whilst there may be changes in the characteristics of the groundwater in a limited area within and downgradient of the site, this is not expected to constitute a deterioration of water quality. The proposed activities are therefore not in tension with the NPS-FM and the fundamental concept of Te Mana o te Wai.
- (e) Although relatively limited background water quality data is available for the subject site, Mr Nicol considers that there is adequate information to assess the effects of the proposal, and I agree. Mr Nicol confirms that the sampling that has been undertaken indicates that existing groundwater quality is generally good, and complies with the proposed trigger values in all cases other than one bore sample that had an exceedance of iron levels. As discussed above, deterioration of water quality is not anticipated and it is not the intention to 'manage' any water quality effects to the proposed trigger levels (ie, they are not a target). As such, whether existing water quality sits above or below these trigger levels is of limited relevance. The proposed conditions provide a mechanism for identifying causation and response, should any adverse change to groundwater quality unexpectedly occur. This will enable attribution of cause where natural fluctuations or effects of activities other than the quarry result in levels being exceeded.
- (f) Mr Nicol considers the proposed responses to a potential contamination issue, as detailed in the GMP, to be robust. I agree with Mr Nicol that the alternative approach proposed by Council (as reflected in condition 104 of the Council's condition set) is inappropriate as it fails to adequately address the potential for exceedances of trigger levels to be caused by natural fluctuation of contaminants in groundwater, or by activities outside of the site such as bore head contamination. The conditions proposed by Council would unfairly impact the consent holder in such circumstances and are not sufficiently related to an effect of the activity.

3.31 On the basis of the above matters of contention remaining unresolved at the time of writing the s42A report, the reporting planner is unable to conclude that the proposal gives effect to the NPS-FM (specifically Policy 1 Te Mana o te Wai) and Objective 1 (ensuring people's drinking water supplies are not adversely affected). The reporting planner notes that these concerns relate to all stages of the proposed activity, but that the potential exists for consent to be granted to the Stage 1 works given the greater separation distance to downgradient bores. I disagree with this conclusion and will address the reasons why in more detail below. I note that the requirement under s 104 is to have regard to the NPSFM rather than give effect to it.

Relevant statutory considerations

3.32 I concur with the list of statutory documents relevant to the consideration of the discharge application given at Section 6 of the s42A report, these being:

- (a) National Policy Statement for Freshwater Management 2020 (NPS:FW);
- (b) Tasman Resource Management Plan (TRMP);
- (c) Tasman Regional Policy Statement (TRPS);
- (d) Motueka River Water Conservation Order (WCO)

3.33 These statutory documents are addressed in turn below.

3.34 I agree with the reporting planner that the National Environmental Standards for Sources of Human Drinking Water 2007 are not relevant to this application. The Water Services (Drinking Water Standards for New Zealand) Regulations 2022 are not directly applicable but the Maximum Acceptable Values (MAV) and Guidance Values (GV) within these Regulations have informed the consent conditions.

National Policy Statement for Freshwater Management 2020

3.35 The proposed discharge to land will occur near freshwater bodies, so the NPSFM is relevant to this proposal. The fundamental concept underlying the NPS:FM is Te Mana o te Wai. This is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about

restoring and preserving the balance between the water, the wider environment, and the community.

3.36 The overarching objective of the NPSFM is to ensure that natural and physical resources are managed in a way that prioritises:

- (a) first, the health and well-being of water bodies and freshwater ecosystems
- (b) second, the health needs of people (such as drinking water)
- (c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

3.37 Key policies of relevance to this proposal are:

Policy 1: Freshwater is managed in a way that gives effect to Te Mana o te Wai.

Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.

Policy 3: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.

Policy 8: The significant values of outstanding water bodies are protected.

Policy 15: Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement

3.38 On the basis of the specific methodologies proposed in the GMP to avoid effects on groundwater resources, and advice from Mr Nicol with regard to the likely effects of the proposed discharge of clean fill on groundwater quality, I consider the proposed activities to be consistent with the NPS-FM, including preservation of Te Mana o te Wai and the protection of drinking water resources. Specifically, this is because the proposed backfill material will be cleanfill which may affect the characteristics of the groundwater in the aquifer but, on the advice of Mr Nicol, not in such a way that will result in deterioration of the health or wellbeing of the groundwater body or associated surface water resources. This is achieved principally through avoiding exposure of

groundwater in excavations and strict controls over fill quality, as detailed in the GMP. For the same reason the health needs of people, in particular in respect of drinking water resources, will not be compromised. Monitoring to demonstrate compliance with the proposed trigger levels is intended to confirm that this is achieved.

- 3.39 Whilst it is not possible to comment regarding Māori freshwater values without the assistance of tangata whenua, given that adverse physical effects on water quality will be avoided, if there is alignment between Māori freshwater values and the physical, chemical and biological characteristics of water then adequate information appears to be available for a conclusion to be drawn that these values will also be maintained. This position may be reviewed should further information become available from tangata whenua.
- 3.40 Finally, the proposal will enable the community to provide for their social and economic wellbeing. The demonstrable need for the aggregate resources sought to provide for the needs of the community (including housing, roading and infrastructure), the economic imperative for these to be sourced locally and the functional and operational need to obtain these from river environments such as this have been addressed in detail in the supplementary evidence of Mr Scott and Dr Kaye-Blake as well as Mr Corrie-Johnston's July evidence.
- 3.41 Council's s42A report discusses concerns over whether the application will achieve environmental bottom lines included in the NPS:FM, in particular those relating to Nitrate-Nitrogen. As detailed by Mr Nicol in his evidence, the national water quality bottom line concentrations are listed in the NPS-FM for rivers and lakes, not groundwater, and as a result of the accepted significant dilution effects, any elevated concentrations within groundwater would have a negligible effect on concentrations in surface water ways with the relevant NPS-FM national bottom line concentrations.

Tasman Resource Management Plan (TRMP)

- 3.42 TRMP provisions relevant to the proposed discharge of cleanfill are those relating to groundwater quality and contaminants, at Chapters 5 and 33.

- 3.43 The Chapter 5 provisions are primarily focused on preserving amenity values and the qualities of natural and physical resources (Objective 5.1.2¹). Specific policies of relevance to water quality issues seek protection of ground and surface water quality and avoidance of discharge of contaminants beyond site boundaries (policies 5.1.3.2² and 5.1.3.11³), and appropriate management of contamination risks (policy 5.1.3.9⁴). Implementation of the proposed site management measures detailed in the GMP will enable consistency with these provisions to be achieved. In particular, I note that the proposed discharge of contaminants will occur only on the site, and not across boundaries. As confirmed by Mr Nicol, this material may result in changes to groundwater chemistry that may result in changes in a limited downgradient part of the aquifer, but these changes will not be adverse in terms of effects on the environment or users of groundwater for drinking water. The proposed discharge is also, therefore, considered to be consistent with objective 33.1.2.1⁵, noting that the existing groundwater resource is not considered to be degraded.
- 3.44 Objective 5.5.2⁶ is also relevant in relation to hazardous substances. Policies 5.5.3.4⁷, 5.5.3.5⁸ and 5.5.3.6⁹ deal with avoidance of discharge of hazardous substances to ground or surface water, and adopting land management practices that avoid potential to create future contaminated sites. These provisions are effectively replicated by

¹ 5.1.2 - Avoidance, remedying or mitigation of adverse effects from the use of land on the use and enjoyment of other land and on the qualities of natural and physical resources

² 5.1.3.2 To protect the quality of groundwater and surface water from the adverse effects of urban development and rural activities

³ 5.1.3.11 To avoid, remedy, or mitigate the likelihood and adverse effects of the discharge of any contaminant beyond the property on which it is generated, stored, or used

⁴ 5.1.3.9 To avoid, remedy, or mitigate effects of...(c) contaminant discharges; ...beyond the boundaries of the site generating the effect

⁵ 33.1.2.1 The discharge of contaminants in such a way that avoids, remedies or mitigates adverse effects while:

(a) maintaining existing water quality; and

(b) enhancing water quality where existing quality is degraded for natural and human uses or values.

⁶ 5.5.2 Reduction of risks to public health and safety, property and the environment, arising from fire and hazardous substances.

⁷ 5.5.3.4 To avoid any escape or discharge to surface water or groundwater, or drift to other property, of any hazardous substance, from within the site where it is used.

⁸ 5.5.3.5 To require adoption of land management practices that avoid the potential for creating future contaminated sites

⁹ 5.5.3.6 To require the preparation of a contingency plan to avoid, remedy or mitigate any adverse effects of an emergency discharge or accidental spill of hazardous substances

Objective 33.2.3¹⁰ and supporting policy 33.2.3.2¹¹ in relation to discharges. Whilst technically a contaminant, the proposed backfill material will not have toxic properties provided the GMP is adhered to, and discharges on site will not be of hazardous substances. There are risks associated with accidental spills of fuel, oil or hydraulic fluids, however these risks exist for many rural uses, and are proposed to be actively managed through refuelling and spill response procedures to ensure they are minimised.

3.45 Policy 33.1.3.5¹² is relevant in that it acknowledges that discharges invariably result in some level of localised change in conditions, including that of water environments. This is true of a wide range of discharges in a rural environment including stormwater, wastewater, fertilisers and sprays. The policy acknowledges that a level of localised attenuation is acceptable, provided that beyond the attenuation area there is no adverse effect on water quality. This is true of the proposed discharge activity as there will be an attenuation zone on and downgradient of the site that may experience changes to groundwater characteristics. However, as advised by Mr Nicol, in the case of the proposed discharge, even within the attenuation area there are not expected to be adverse changes to water quality for the environment or for other water users.

3.46 Additionally, based on the above measures the assessment criteria for discharges given at Schedule 36D of the TRMP (both general criteria and those specific to discharges to land) are considered to be met by the proposal. These provisions are included at Annexure E for reference. On the basis of advice provided by Mr Nicol, there are considered to be no adverse effects of the discharge to land of clean fill that cannot be avoided, remedied or mitigated, there is no reason to impose financial contributions to manage or compensate for adverse effects associated with the discharge.

Tasman Regional Policy Statement

3.47 The TRMP and its objectives and policies have been developed so as to be consistent with the objectives and policies in the Tasman Regional Policy Statement (TRPS). The

¹⁰ 33.2.3 The avoidance, remediation or mitigation of the adverse effects resulting from emergency discharges or accidental spills

¹¹ 33.2.3.2 To ensure that land use and discharge activities are carried out, having regard to contingency planning measures appropriate to the nature and scale of any discharge and risk to the environment for any accidental discharge of any contaminant that may result in connection with the activity.

¹² 33.1.3.5 To ensure that existing water quality is not degraded after reasonable mixing as a result of any discharge of contaminants into water and to take into account the following criteria when determining what constitutes reasonable mixing...

proposal will not undermine the policy direction of the TRPS and is considered to be consistent with it.

Water Conservation (Motueka River) Order 2004

3.48 Section 217(2) of the RMA states that

Where a water conservation order is operative, the relevant consent authority—

(a) shall not grant a water permit, coastal permit, or discharge permit if the grant of that permit would be contrary to any restriction or prohibition or any other provision of the order:

(b) shall not grant a water permit, a coastal permit, or a discharge permit to discharge water or contaminants into water, unless the grant of any such permit or the combined effect of the grant of any such permit and of existing water permits and discharge permits and existing lawful discharges into the water or taking, use, damming, or diversion of the water is such that the provisions of the water conservation order can remain without change or variation:

(c) shall, in granting any water permit, coastal permit, or discharge permit to discharge water or contaminants into water, impose such conditions as are necessary to ensure that the provisions of the water conservation order are maintained.’

3.49 The Motueka River WCO is applicable to this proposal. The part of the river that is adjacent to the application site is listed in Schedule 2 of the WCO. Relevant to discharges is Clause 11 of the WCO¹³ This includes a direction that no resource

¹³ Restrictions on alteration of water quality

(1) No resource consent may be granted or rule included in a regional plan permitting a discharge into any of the waters identified in Schedule 2 at any time, or into any of the waters identified in Schedule 3 during the months of May to October inclusive, if, after allowing for reasonable mixing of the discharge with the receiving waters, the discharge would—

(a) alter the concentration of suspended solids or turbidity in the receiving waters by more than 1 mg/l or 1 NTU where the ambient concentration of suspended solids or turbidity is less than or equal to 10 mg/l or 10 NTU respectively; or

(b) alter the ambient concentration of suspended solids or turbidity in the receiving waters by more than 10 mg/l or 10 NTU where the concentration of suspended solids or turbidity is more than 10 mg/l or 10 NTU respectively; or

(c) alter the visual clarity of the waters by more than 20%; or

(d) alter the natural temperature of the receiving waters—

(i) by more than 3°C; or

(ii) by increasing the water temperature to more than 20°C.

(2) No resource consent may be granted or rule included in a regional plan permitting the discharge into any of the waters identified in Schedule 2 at any time, or into any of the waters identified in Schedule 3 during the months of May to October inclusive, unless, after allowing for reasonable mixing of the discharge with the receiving waters,—

consent shall be granted that permitting a discharge into any of the waters identified in Schedule 2 at any time would result in a specified set of physical, biological and chemical changes to the waters. Given that the proposal does not include any discharge into the Schedule 2 waters (only to land located some distance from these waters) the WCO does not create any impediment to granting of consent for the proposed discharge. Notwithstanding this, the advice of Mr Nicol is that the proposed discharge will not create any adverse effects on groundwater quality. This being the case, it can be safely concluded that the proposal will also not indirectly impact on the physical, biological and chemical properties of the Motueka River as detailed in Clause 11 of the WCO.

3.50 For completeness, I also note that the granting of consent for the proposed discharge is not constrained by any other sections of the WCO. Specifically, Clauses 8 and 10 aren't applicable as these relate to damming of waters (river extent) and maintenance of fish passage. Clause 9 relates to alterations of river flows and form. The proposed discharge will not affect the river extent or other physical characteristics (9(a)), deposition of sediment in the river (9(b)), or the flow of the river including in a flood sense (9(c)). Effects on surface water were addressed by Dr MacNeil and also confirm that the activity is consistent with the WCO.

(a) any change in the acidity or alkalinity in the receiving waters, as measured by the pH and attributable to that discharge, either—

(i) maintains the pH within the range of 6 to 9 units; or

(ii) allows the pH to change by no more than 0.5 units when the natural pH lies outside the range of 6 to 9 units; and

(b) there would be no undesirable biological growths attributable to the discharge including (but not limited to)—

(i) bacterial or fungal slime growths that are visible to the naked eye; or

(ii) seasonal maximum covers of streams or river beds by—

(A) periphyton as filamentous growth or mats (longer than 20 mm) exceeding 30%; or

(B) biomass exceeding 120 mg of chlorophylla per square metre; or

(C) 35 g ash-free dry weight per square metre of exposed surface area; and

(c) aquatic organisms are not rendered unsuitable for human consumption through the accumulation of excessive concentrations of contaminants; and

(d) the water is not made unsuitable for recreation by the presence of contaminants, or the median bacterial level of 5 samples or more taken over a period of 30 days does not exceed 126 E coli per 100 ml.

(3) No resource consent may be granted or rule included in a regional plan permitting a discharge into any of the waters identified in Schedule 2 or Schedule 3 if, after allowing for reasonable mixing of the discharge with the receiving waters, the discharge would reduce the concentration of dissolved oxygen below 80% of saturation.

(4) For the purposes of subclause (3), if the natural concentration is less than 80% of saturation, the natural level must be maintained or increased.

Other matters

3.51 Pursuant to Section 104(1)(c) of the RMA, I consider the following other matters to be of relevance to the proposed discharge application:

- (a) Statutory acknowledgements of Ngāti Rārua, Ngāti Toa Rangitira, Ngāti Tama ki Te Tau Ihu, Ngāti Kuia and Te Ātiawa o Te Waka-a-Māui in relation to the Motueka River and its tributaries.
- (b) The Ngāti Rārua, Ngāti Tama, Pakohe and Te Ātiawa o Te Waka-a-Māui Iwi Management Plans. I do not consider the Ngāti Kōata Trust Iwi Management Plans identified in the s42A Report to be relevant as the site is outside of the rohe of this iwi.
- (c) Matters of precedent.

3.52 These matters have been addressed in my previous evidence and this assessment is considered equally relevant to the proposed land use and discharge activities. I note that the Applicant has, since the preparation of my previous evidence, engaged further with representatives of Ngāti Rārua and e Ātiawa o Te Waka-a-Māui, who are preparing a Cultural Impact Assessment in consultation with other Te Tau Ihu iwi. It is understood that the CIA will be presented as part of submitter evidence to be filed by Ngāti Rārua and e Ātiawa o Te Waka-a-Māui. It is anticipated that the CIA will include some further commentary in respect of Statutory Acknowledgements and Iwi Management Plans. As the CIA is not currently available, I have no further comment on these matters at this time, but will address this further in reply evidence.

Actual or Potential Effects on the Environment

3.53 My previous evidence addressed effects associated with the land use consents. Many of these effects are not relevant to the proposed discharge activity and will not be addressed further in this application. These include amenity effects (including visual and landscape effects, noise and dust), effects on land productivity, traffic effects, surface water quality, ecological effects, land stability effects and effects on flood risk. The potential effects that could result from cleanfill discharge activities are associated with water quality and any associated effects on cultural values. These are addressed below.

Groundwater Effects

3.54 The effects of the proposed discharge of clean fill material on groundwater are addressed in the Hydrogeology report prepared by Mr Nicol, the response to the request for information, and in Mr Nicol's evidence.

3.55 The potential risks to groundwater quality are those associated with exposure of groundwater in open excavations which might create a contamination pathway, and through groundwater inundation of backfill material that might result in the mobilization of contaminants into the groundwater. The latter is most relevant to this application. Any adverse effects could impact on down-gradient groundwater users, and down-gradient waterways. Mr Nicol explains:

"The existing strata at the site has been deposited via natural geological processes. Removal of natural material during excavation and backfilling of excavations with fill material will change the physical structure of the strata that the groundwater occurs in. Some of the clean fill material will be sourced from off site and therefore would be expected to contain material that has a different geology and chemistry compared to the existing strata. This has the potential to result in some level of change in groundwater chemistry, particularly if the fill material becomes inundated by groundwater."

"Provided that the Applicant follows the requirements for acceptance of clean fill material at the Quarry site described above, any changes in groundwater chemistry from inundation of fill material would most likely be subtle differences in the concentrations of common cations and anions that would not be noticeable to people who use the aquifer for drinking-water supply purposes. Therefore, the effects of the backfilling of excavation pits with clean fill material that may be become inundated at times of high groundwater levels is expected to be less than minor."

3.56 Mr Nicol is satisfied that adverse effects will be avoided or mitigated through the implementation of the GMP. Preparation of a final GMP and adherence to this is volunteered as a condition of consent. The GMP addresses the methodology for extraction of aggregates whilst avoiding excavation below groundwater levels (including real-time groundwater monitoring, alerts, and use of telemetry in excavating machinery), controls over the nature of fill materials that may be used (including quality control, monitoring and reporting requirements), emergency spill and vehicle refuelling controls and, out of an abundance of caution, ongoing groundwater quality monitoring, reporting and response requirements to demonstrate that these measures have been effective.

Volunteered conditions of consent detail the environmental outcomes that preparation of and adherence to the GMP must achieve in respect of these matters.

3.57 Mr Nicol concludes that adherence to the GMP will ensure that the overall effect of the quarrying activities on the groundwater quality at Peach Island is less than minor. Relying on Mr Nicol's expertise in relation to the technical aspects of his assessment of effects, I am satisfied that the GMP provides a robust framework for management of the proposed activities to ensure that the environmental outcomes specified in the GMP are achieved. These outcomes are:

- (a) Ensuring that excavations do not expose groundwater in excavations.
- (b) Ensuring that all backfill material is strictly managed to ensure it meets the definition of 'clean fill' under WasteMINZ guidelines.
- (c) Minimise any change to the physical and chemical properties of groundwater as result of the land use and discharge activities associated with quarry activities (as defined by the trigger levels in Table 3).
- (d) Ensuring that under no circumstances the land use and discharge activities associated with quarry activities result in groundwater quality exceeding the acceptable values in the Drinking Water Standards for New Zealand.

3.58 In achieving these outcomes, the proposal will result in adverse effects on the environment that are less than minor.

Cultural Effects

3.59 As detailed above, a CIA is being prepared and will be provided in support of Submitter evidence. I will address cultural effects associated with the proposed discharge to land in my reply evidence, once I have had the opportunity to consider the CIA.

Conclusions regarding Section 104 of the RMA

3.60 With regard to section 104(1)(a), having considered the expert evidence detailed above, and taking into account the mitigation measures detailed in the application and the volunteered conditions of consent, I am satisfied that the proposed discharge will

adequately avoid, remedy or mitigate adverse effects to the extent that they will be no more than minor overall. With regard to cultural effects, my assessment is made on the basis of the information I have available to me and may need to be revised in the event of information contained in a CIA being provided to the contrary. There will also be positive effects associated with the proposal, principally those associated with meeting the social and economic needs of the community through provision of scarce building materials in an economic manner. Whilst these are associated with the proposal as a whole, rather than with the discharge, the discharge of backfill is a necessity to enable the proposal to proceed. These positive effects are not an offset or compensation for any specific adverse effects for the purposes of section 104(1)(ab). Overall, actual and potential effects associated with the proposed activities will be acceptable from a resource management perspective.

- 3.61 With regard to section 104(1)(b), the proposed discharge is considered to be consistent with the relevant statutory instruments including the TRPS, TRMP, and the NPS-FM.
- 3.62 In relation to section 104(1)(c), relevant other matters have been considered. These include the Motueka WCO, Iwi Management Plans, Statutory Acknowledgements and matters of precedent. Having considered these matters I do not consider that they create any impediment to the granting of consent for the proposed activities. I will reconsider this conclusion if/when information is made available through a CIA.

Sections 105 and 107 of the Resource Management Act

- 3.63 Sections 105 and 107 of the RMA are relevant in relation to the proposed discharge of a contaminant (cleanfill) to land. Section 105 contains additional matters that the consent authority must have regard to if the application is for a discharge permit:
- the nature of the discharge and the sensitivity of the receiving environment;
 - the Applicant's reasons for the proposed choice; and
 - any possible alternative methods of discharge.
- 3.64 Section 107 refers to specific circumstances in which a consent authority shall not grant a discharge permit, where for example after reasonable mixing the contaminants are

likely to give rise to conspicuous change in the colour or visual clarity of water, objectionable odour or significant adverse effects on aquatic life.

- 3.65 The advice of Mr Nicol confirms that the clean fill proposed to be used on site, although technically considered a contaminant under the definition provided in the RMA, will not result in degradation of groundwater quality. His conclusions take into account the level of sensitivity of the receiving environment to receiving such contaminants.
- 3.66 There is no suggestion in the advice of Mr Nicol that the effects identified in Section 107 may occur. Any performance requirements and controls over the quality of the clean fill to be used, the recording and reporting of this and, out of an abundance of caution, groundwater quality monitoring to demonstrate that no adverse effects on groundwater quality result from the discharge are addressed through volunteered conditions of consent. There is no practicable alternative to discharging clean fill to the site, whilst also restoring the ground levels on the site to existing levels to achieve land productivity, visual amenity and ecological objectives, and to avoid creating pathways for other contaminants to enter groundwater.
- 3.67 Overall, I am satisfied that sufficient regard has been had to the matters detailed at Section 105(1) of the RMA, and that none of the effects detailed at Section 107(1) (c)-(d) of the RMA occurring. As such, Section 107 should not prevent granting of consent for the proposed discharge.

Part 2 of the Resource Management Act

- 3.68 Taking into account the expert advice of Mr Nicol with regard to the management of activities on the application site to maintain the quality of groundwater resources, I consider that the proposal will achieve the overall purpose of the Act, being to promote the sustainable management of natural and physical resources. In particular, by carrying out the proposed activities in accordance with the GMP and proposed conditions of consent, the life-supporting capacity of air, water, soil and ecosystems will be sustained, and adverse effects of the activities on the environment will be avoided, remedied or mitigated.

- 3.69 The proposal raises a matter of national importance, being; the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tāpu and other taonga, and the preservation of the natural character of rivers and their margins.
- 3.70 The proposal also raises relevant other matters for consideration. These include kaitiakitanga and the ethic of stewardship; intrinsic values of ecosystems; and maintenance and enhancement of the quality of the environment. Consideration of the principles of the Treaty of Waitangi is also relevant.
- 3.71 Based on the nature of fill materials proposed, and with adherence to the GMP there is assurance that adverse effects on groundwater quality will be avoided. Taking into account the expert advice of Mr Nicol in respect of this matter, it is evident that the proposal will maintain the quality of the environment. It is noted that Council's reporting planner considers that uncertainty regarding water quality bottom-lines raises the question of consistency with Section 7(f) 'maintenance and enhancement of the quality of the environment'. These bottom lines do not apply to groundwater resources, however in any case the evidence of Mr Nicol confirms that degradation of groundwater quality will not result from the proposed discharge. In relation to these matters, I note that the NPS:FM does not include any environmental bottom lines for groundwater, and it is agreed by Council's and the Applicant's experts that there will be no adverse effects on water quality within surface water bodies nearby including the Motueka River.
- 3.72 Māori freshwater values and Te Māna o te Wai have been considered and, to the extent possible I am satisfied that the application as it now stands (including volunteered conditions of consent and the implementation of the GMP) sufficiently addresses these matters to enable the conclusion to be reached that these values will be maintained. Continued efforts toward further consultation with tangata whenua have been made. The role of mana whenua iwi as kaitiaki of the Motueka River and its environs is recognized, and is reflected in volunteered conditions of consent.
- 3.73 Additional 'Other Matters are relevant, including the efficient use and development of natural and physical resources, the maintenance and enhancement of amenity values, and any finite characteristics of natural and physical resources. The proposed resources sought through this application are finite and locationally constrained. The proposal seeks to efficiently recover these resources, and will do so whilst maintaining the

amenity values of the site and surrounds both in the short and long term. The efficient use of resources is particularly relevant to the term of consent, and also to the excavation depth. There is a suggestion in Dr Rutter's report that it might be better to have a base level to quarry to, presumably 1 m above groundwater is intended. If this is not necessary in order to protect groundwater (if groundwater can be protected by application of the GMP while allowing excavation in stable conditions to 0.3 m above groundwater), Mr Corrie Johnston's supplementary evidence explains that this enables an additional 120,000 tonnes (or well over one year's supply) of aggregate to be extracted.

- 3.74 As detailed above, I consider that the proposed activities have been appropriately designed and will be appropriately managed to achieve consistency with Part 2 of the RMA.

4. EVIDENCE ON COUNCIL'S LAND USE APPLICATION S42A ADDENDUM

The National Policy Statement on Highly Productive Land 2022 ("NPS HPL")

- 4.1 The NPS HPL came into effect on 17 October 2022. The overall focus of the NPS HPL is to ensure that sufficient highly productive land (HPL) is available for primary production use, both now and for future generations. The core resource management issue the NPS-HPL seeks to address is the ongoing, incremental loss of HPL, primarily from urban rezoning and land fragmentation arising from rural lifestyle development. It also seeks to avoid 'inappropriate' use of HPL.
- 4.2 The NPS HPL has been addressed in the evidence of Dr Hill. As detailed in the evidence of Dr Hill, the application site does not contain any LUC 1 or 2 land. The NPS HPL applies only to the approximately 1.3ha of land on the landward side of the stop bank (within the Stage 2 area) that is classified as LUC 3 land, and approximately 1.8ha of land on the river side of the stop bank (within the Stage 1 area) that is also classed at LUC 3 land. This is out of a total of approximately 8.8ha of land within stages 1-3.
- 4.3 Council Officers are reluctant to rely on the more detailed mapping of the site that has been undertaken by the Applicant, which identifies that most of the site is LUC 4 and lower. The Council's land productivity specialist, Ms Langford, has not raised any concerns with the methodology undertaken or the conclusions reached in this mapping,

but prefer to rely on the broader, high-level LUC 3 classification applied to the Peach Island area as a whole, in the absence of a guidance document to support more detailed mapping. Ms Langford acknowledges at Section 2(a) of her memo that she agrees that:

‘The property scale soil and LUC assessment undertaken by LandVision (2021) provides the best soil and LUC map information for the Peach Island site’

- 4.4 Given the agreement with this statement, it is difficult to understand why Council would prefer to rely on less detailed and accurate information in applying the NPS HPL. I note that the s32 report for the NPS HPL identifies the scale of the existing mapping that exists (largely from the 1970’s and 1980’s at a scale of 1:50,000) as a key limitation of using the LUC system instead of other systems considered. Additionally, the LUC mapping undertaken meets the definition of LUC 1, 2, or 3 land under the NPS HPL:

‘LUC 1, 2, or 3 land means land identified as Land Use Capability Class 1, 2, or 3, as mapped by the New Zealand Land Resource Inventory or by any more detailed mapping that uses the Land Use Capability classification’ (my emphasis).

- 4.5 I consider it appropriate to apply the NPS HPL to that land within the subject site that meets the NPS’s own definitions. Dr Hill has addressed this matter in his evidence also, and considers that the more detailed mapping available should be used over broader scale historical mapping which may not have even involved sampling on the site. Dr Hill adds that, if a broader, site-wide classification were to be used, this classification would be LUC 4, as this is the dominant classification of the site, not LUC 3.

- 4.6 The s32 report for the NPS HPL makes it clear that a decision was made to enable permanent constraints on productive use of land to be assessed on a case-by-case basis through a consenting process, as opposed to requiring Council’s to assess such factors as part of their mapping process. Clause 3.10(1) of the NPS HPL addresses this, setting out specific conditions that must be met in order for territorial authorities to allow highly productive land to be used for activities not otherwise enabled under the NPS HPL. Mr Hill concludes that, on account of an inherent seasonally high water table, flood risk, and variable or shallow soil depth the land on the river side of the stopbank has *“permanent or long-term constraints ... that mean the use of the highly productive land for land-based primary production is not able to be economically viable for at least 30 years”*, as per clause 3.10(1)(a) of the

NPS HPL, and the other clauses of clause 3.10(1) are also met. Council Officers agree with this conclusion.

4.7 The s32 report for the NPS HPL makes clear several matters relevant to the intent of the NPS HPL, including:

- (a) The NPS-HPL does not seek to provide absolute protection of HPL, nor does it specify that there should be no loss of HPL within a region or district. The NPS-HPL recognises the need for certain (non-productive) uses and developments to occur on HPL and provides for these in specified circumstances, either through rezoning or resource consents.
- (b) The NPS-HPL enables a number of appropriate (non-productive) uses on HPL where these provide wider environmental, economic, social and cultural benefits (eg, indigenous biodiversity restoration, renewable electricity generation, new specified infrastructure and mineral or aggregate extraction).

4.8 Clause 3.9(1) of the NPS HPL requires that territorial authorities avoid ‘inappropriate’ use or development of highly productive land that is not land-based primary production. The reason for this and the intent of how it is applied is addressed in the s32 report for the NPS HPL in relation to the overarching objective of the NPS HPL:

‘This objective aims to protect HPL for use in land-based primary production for current and future generations. This does not imply absolute protection of HPL from being used for non-productive purposes. Rather, in recognition of the values and benefits of HPL, the intent of the NPS-HPL objective is to ensure that land uses that are not land-based primary production only occur on HPL:

- *in circumstances where it is appropriate and necessary*
- *when alternative options have been appropriately considered*
- *where those alternative uses provide wider environmental, economic, social and cultural benefits.*

This means urban rezoning and other uses (eg, specified infrastructure, defence facilities and mineral and aggregate extraction) may be appropriate on HPL provided the overall HPL resource within each region is protected for land-based primary production for current and future generations.’ (my emphasis).¹⁴

4.9 Clause 3.9(2)¹⁵ sets out the activities that are considered to be appropriate. Mr Hill concludes that the proposed gravel extraction activities on the LUC 3 land on the landward side of the stopbank, to which Clause 3.9 applies, can be considered a “temporary land use activity that has no [adverse] impact on the productive capacity of the land” in terms of clause 3.9(2)(g) of the NPS HPL. Council’s reporting planner, Ms Bernsdorf Solly, considers that the proposed activities are neither ‘small-scale’ or ‘temporary’ and that therefore they are by definition inappropriate, irrespective of the level of effects that result. Whilst it is debatable whether the proposed activities are small-scale¹⁶, they are certainly temporary (and are only required to be one or the other), and Ms Bernsdorf Solly gives no reasons why an alternative conclusion should be drawn. Such activities must also have “no impact on the productive capacity of the land”. The productive capacity of the land means its ability to support primary production over the long term, which suggests there is “no impact” even if there is a temporary loss of productive capacity. Dr Hill’s evidence confirms there will be no impact in the long term.

4.10 Central to the NPS-HPL objective is the avoidance of ‘inappropriate’ subdivision, use and development of HPL and prioritising the use of HPL for land-based primary production. However, the provisions recognise that there are other activities and uses that are necessarily or appropriately located on HPL in certain circumstances. As detailed in the s32 report for the NPS:

It was also intended the proposed NPS-HPL did not inappropriately restrict other (non-productive) uses of HPL, particularly where these uses deliver wider environmental, economic, social or cultural

¹⁴ Pg 44 National Policy Statement for Highly Productive Land: Evaluation report under section 32 of the Resource Management Act

¹⁵ A use or development of highly productive land is inappropriate except where at least one of the following applies to the use or development, and the measures in subclause (3) are applied:

... (g) it is a small-scale or temporary land-use activity that has no impact on the productive capacity of the land:

¹⁶ Although the overall works area is approximately 8.8ha, the works are staged and will progress in a manner that the scale of operations is reasonably confined, and could therefore be considered small-scale.

*benefits, and there is clarity on how such uses should be considered and provided for under the NPS-HPL.*¹⁷

4.11 As such, clause 3.9(2)(j) makes allowance for such activities provided they can demonstrate that (in the case of aggregate extraction) they provide a significant national or regional public benefit and (in all cases) have a functional or operational need to be located on HPL. Bearing this in mind, the proposal is considered to be an appropriate use pursuant to clause 3.9(2)(j)(iii), given that the proposal is *'aggregate extraction that provides significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand'*, and has a *'functional or operational need'* (my emphasis) to be located on highly productive land. The supplementary evidence of Mr Scott and of Dr Kaye-Blake and the previous evidence of Mr Corrie-Johnston confirms that there is both significant regional benefit that could not be achieved using other resources in New Zealand, and that there is a functional and operation need to source the materials from the subject site in particular, and from production land in general. I concur that there is a functional and operational need for the activity to locate on this site and in an alluvial river plain environment in general, as detailed in my previous evidence and as discussed further below. I note that the reporting planner accepts that there is an operational need for the activity in this location, thereby meeting the requirement of clause 3.9(2)(j), but disagrees that there is a functional need.

4.12 As the activities meet the relevant tests of 3.9(2)(g) and (j) they are not considered to be 'inappropriate' in relation to the NPS HPL and consent may be granted to them provided the requirements at 3.9(3) are also met. These require that the proposed activity:

- (a) minimises or mitigates any actual loss or potential cumulative loss of the availability and productive capacity of highly productive land in their district; and
- (b) avoids if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on land-based primary production activities from the use or development

¹⁷ Pg 96 National Policy Statement for Highly Productive Land: Evaluation report under section 32 of the Resource Management Act

- 4.13 In relation to these matters, the evidence of Mr Hill confirms that the proposal minimises and mitigates any loss of the availability and productive capacity of highly productive land. The proposal is not for any activities that would be sensitive to the effects of surrounding soil-based production activities, therefore no reverse sensitivity effects will occur in relation to these neighbouring activities.
- 4.14 Relying on Dr Hill's expertise in respect of the above conclusions, I consider that the proposed activities are consistent with the objectives and policies of the NPS HPL. Specifically:
- (a) The small area of 'highly productive land' within the site that is not subject to long term constraints on production will be protected for use in land-based primary production, both now and for future generations (Objective 2.1).
 - (b) The proposal recognises, and will not diminish, the finite characteristics and long- term values for land-based primary production within the site and region as a whole (Section 2.2, Policy 1).
 - (c) The proposed activities, when carried out in accordance with the SMP, will not be an 'inappropriate use' for the reasons detailed above and given that productive values will not be diminished (Section 2.2, Policy 8).
 - (d) The proposal does not involve subdivision, urban rezoning, residential/ rural lifestyle development, or any other activities that would impact on the long-term productive potential of the land (Section 2.2 Policies 5, 6, and 7). This will enable the long-term use of the land for land-based primary production to be prioritised (Section 2.2, Policy 4).
 - (e) The proposed activities will not result in any adverse reverse sensitivity effects in relation to surrounding primary production activities (Section 2.2, Policy 9).

Comments on other matters raised in Council's addendum report

- 4.15 Council's addendum report identified that the amendments made to the application, volunteered conditions of consent and specialist evidence prepared by the Applicant's team has resolved some of the matters of concern detailed in Council's initial s42A

report. The reporting planner, Ms Bernsdorf Solly, has helpfully outlined matters of contention that still remain. These will be addressed in turn below.

Planning matters

4.16 Outstanding matters of contention in relation to planning matters are as follows:

- (a) There is disagreement that there is a ‘functional need’ for the activity to be located within this particular river environment.
- (b) The reporting planner maintains that the permitted baseline is not applicable to the assessment of effects.
- (c) The reporting planner disagrees that quarrying is an ‘anticipated’ activity in the Rural 1 zone.
- (d) The reporting planner retains an emphasis on ‘avoiding’ adverse effects in consideration of the Supreme Courts decision on ‘*King Salmon*’.

4.17 As detailed above, the NPS HPL refers to a ‘functional or operational’ need for an activity to be located on productive land, and Ms Bernsdorf-Solly and I are in agreement that there is an operational need for the activity to locate on the proposed site and in the proposed environment. Although I also consider there is also a functional need for the reasons detailed in my assessment against the NPS HPL, this is not critical for the NPS HPL given that we agree there is an operational need. As such, I see this matter as resolved in respect of its implications for use of highly productive land.

4.18 Ms Bernsdorf-Solly also notes that the NPS:FM refers to ‘functional need’ and that she is not satisfied that such a need exists. The NPS:FM refers to ‘functional need’ only twice – once in relation to circumstances where the loss of extent and values of natural inland wetlands is justified; and once in relation to circumstances where the loss of river extent and values is justified. Neither of these are relevant to the proposal, therefore I do not see why it would be considered necessary to demonstrate a functional need for the proposed activities in relation to the NPS:FM. Nevertheless, it is my opinion that there is a functional need to locate aggregate extraction activities in alluvial river valley environments, given that this is where these resources are located. This is also addressed in the evidence of Mr Scott.

- 4.19 With regard to the application of a permitted baseline, I agree with Ms Bernsdorf Solly that there are no permitted activities that would provide a useful comparison to the full suite of effects generated by the proposed activities. I do not consider this a reason to entirely avoid applying a permitted baseline lens to the assessment of effects. Generally speaking, if this approach to application of the permitted baseline were to be taken, it would apply in an extremely limited range of circumstances, and this does not align with my understanding of how the permitted baseline is intended to be applied.
- 4.20 Ms Bernsdorf Solly takes a similarly narrow view on what activities can be considered to be 'anticipated' in a zone. Ms Bernsdorf Solly considers that discretionary activities can be considered to be 'anticipated' provided they align with policy direction. This requires an interrogation of the specifics of a discretionary quarrying activity to determine whether it is 'anticipated' by the plan. In this sense, I suspect that Ms Bernsdorf Solly's views on this and my own are not that far apart, and any differences may just be a matter of semantics. I do not mean to imply through the word 'anticipate' that the TRMP includes a presumption toward such applications being granted consent. The TRMP clearly contemplates quarrying activities (ie they are specifically provided for) and invites the appropriateness of such activities to be determined through a resource consent application. As detailed in my previous evidence, there have been a number of quarrying activities of varying scales that have been assessed against the TRMP and found to be acceptable within the Rural 1 zone, including in the immediately surrounding environment. I do not consider it relevant whether or not all granted consents have been given effect to, as suggested by Ms Bernsdorf Solly. Based on the provisions of the TRMP and the history of quarrying consents being granted, I consider that the community can reasonably expect that, under the right circumstances, such activities could be consented and established in this environment. In this sense, I consider quarrying activities to be 'anticipated'. By way of comparison, quarrying of aggregates is certainly not "anticipated" in most other zones in the region (the Rural 2 zone being the only other zone that has similar provisions to the Rural 1 zone in this respect) which by virtue of their dominant character (ie urban or lifestyle zones), special values (ie Conservation zone) or particular resource (ie Quarry Areas) are unsuited to gravel extraction. Alluvial gravels are by location most likely to be in the Rural 1 zone and the TRMP anticipates and provides for that in its discretionary activity rules

4.21 With regard to Ms Bernsdorf-Solly's comments regarding *King Salmon*, I accept that "avoid" means "prevent the occurrence of", but the meaning will depend on what must be avoided. Where the requirement to avoid relates to productive capacity, this infers a longer-term assessment (given the definition in the NPS HPL¹⁸) rather than a focus on temporary effects. Additionally, I understand that the Court in *King Salmon* said at [145]:

... It is improbable that it would be necessary to prohibit an activity that has a minor or transitory adverse effect in order to preserve the natural character of the coastal environment, even where that natural character is outstanding. Moreover, some uses or developments may enhance the natural character of an area.

4.22 Based on Mr Hill's evidence, the proposal will maintain or enhance the productive capacity of the site. As such, there is no conflict with a requirement to avoid effects as detailed in *King Salmon*, in my opinion.

Traffic

4.23 Outstanding matters relating to traffic are:

- (a) The need for widening of access between Motueka River West Bank Road and the bridge
- (b) Bridge width
- (c) Passing bays within the site
- (d) Speed limits on the sealed haul road within the site
- (e) Public access on the haul road

4.24 Ms Bernsdorf Solly has provided an amended set of conditions that address her concerns and those of Council's consultant traffic engineer, Mr Fon. Subject to adoption of these, both Ms Bernsdorf Solly and Mr Fon are satisfied that traffic-related effects would be no more than minor. The supplementary evidence of Mr Clark confirms that he agrees for the most part with the additional recommendations of the

¹⁸NPS HPL interpretation Section 1.3: '**productive capacity**, in relation to land, means the ability of the land to support land-based primary production over the long term, based on an assessment of...' (my emphasis)

Council Officers, and the Applicant accepts most of the proposed condition changes relating to these. Mr Clark maintains that passing bays are not required within the site, and notes the extremely low likelihood of any public accessing the part of the legal road that will be used for a haul road. I concur with this.

Land productivity effects

4.25 Outstanding matters relating to land productivity are:

- (a) The interpretation of the definition of highly productive land under the TRMP, PLC 1994, PLC 2021 and NPS HPL. This relates also to the matter of accepting more detailed LUC mapping as detailed above in relation to the NPS HPL.
- (b) Whether the practical implementation of the SMP can successfully achieve the outcomes sought and prevent a loss of productive value due to compaction and drainage issues.
- (c) Whether the conditions (as volunteered) will lead to a degradation in productive capacity.

4.26 Dr Hill confirms in his supplementary evidence that soil rooting depth (pre-gravel extraction) is a limiting factor across most of the site (LUC 3s1, 4s1, 5s1 and 6s1). Dr Hill considers that the combination of features is not therefore such that the land is capable of producing crops at a high rate or across a wide range, this being the key qualifier for meeting the definition of 'highly productive land' under the TRMP. This is consistent with Mr Nelson's evidence. Dr Hill also addresses the matter of the LUC classification of the subject land and how this relates to the application of the NPS HPL to the site. Mr Hill considers it appropriate to use the detailed LUC mapping of the site prepared by LandVision rather than the broader land unit LUC mapping of the wider area as favoured by Council Officers. Dr Hill points out that, if a mapped as a whole unit, the site would be considered LUC 4 land as this is the dominant land class present.

4.27 Dr Hill reconfirms in his supplementary evidence that he is satisfied that the implementation of the SMP will maintain or enhance productive capacity on the site. Council Officers' reservations regarding efficacy of the SMP rely on the lack of local

examples of successful remediation examples. Dr Hill has discussed the unsuccessful examples mentioned by Council in the SMP. In Dr Hill's opinion, these examples do not demonstrate that soil restoration is inherently difficult in this region, rather they are simply examples of poor practice. Dr Hill states that:

'The provision of the Soil Management Plan and its correct implementation will prevent similar poor practices from occurring and ensure the productivity capacity of the restored soil on the site is at least retained. The inherent characteristics of the land in question lend themselves to positive restoration outcomes.'

4.28 Dr Hill addresses the matter of whether conditions of consent will enable soil degradation in respect of enable post-remediation soils to be imperfectly drained. His inclusion of this parameter recognises that there may be inherent water table effects (predominantly in the areas of LUC 3w1 and 4w1) that may result in the reinstated soil profile being less well drained (i.e. imperfectly drained). Dr Hill does not agree that the inclusion of imperfectly drained will result in a degradation in productive capacity when comparing the pre-gravel extraction soils on the site with the post-gravel extraction reinstated soil. Dr Hill confirms that the reinstated soil profile, even with imperfect drainage will be suitable for cropping and orchards.

Noise effects

4.29 Outstanding matters relating to noise are:

- (a) Use of site layout as an alternative to broadband reversing alarms.
- (b) Sealing of haul road through marginal strip.
- (c) Application of uncorrected daytime noise limit of 51dBLAeq.

4.30 Mr Corrie-Johnston has addressed the first matter in his supplementary evidence. Whilst it is possible to accommodate vehicle movements on site through layout to generally avoid reversing, the Applicant volunteers that all vehicles will be enabled with technology that avoids the need for tonal alarms.

4.31 I am able to confirm that the haul road will be sealed through the section that traverses the marginal strip. Approval from Department of Conservation has been obtained for a concession to construct and use a sealed road through the marginal strip.

4.32 Mr Hegley, in his supplementary evidence, addresses the third matter. This relates both to the noise limit specified in consent conditions, and the use of averaging. Mr Hegley considers it appropriate to condition noise limits to 55dB rather than the 51dB maximum established through his modelling. Mr Hegley expresses a number of technical reasons for this, but also from a planning perspective I see no reason why a limit lower than the permitted noise level for the zone should be applied. I explained reasons for this in my previous evidence. Under Section 16 of the RMA there is a general duty to avoid unreasonable noise, and if the consent holder is able to operate at a lower noise level on site then they should, but there is no justification for this being reflected as a lower noise limit in consent conditions, in my opinion. With regard to averaging, Mr Hegley explains that averaging is a well-established principle in the management and measurement of noise, and there is no reason to deviate from this practice in this instance. Mr Hegley also points out that, due to the nature of proposed noise sources on site, the use of averaging would not be expected to result in discernibly different noise levels than if it were not used. The previous reference to uncorrected noise limits was included in error.

Visual effects

4.33 Outstanding matters relating to visual effects is the matter of whether public access is to be provided for along the paper road. I can confirm that public access will remain technically possible from the north (the end of Peach Island Road), as is currently the case. This legal road 'dead ends' at the Motueka River to the south of the site, and is therefore would be very unlikely to be (and could not legally be) used as a through-route. Additionally, from the end of the Peach Island Road formation the site reads as paddocks, with no visual cues to suggest that a legal road exists, or that it leads anywhere. No public access is available from Motueka River West Bank Road to the paper road.

Conditions

4.34 The reporting planner has prepared a draft set of consent conditions for the land use consents. This condition set is based on the volunteered set attached to my previous evidence, and the reporting planner has tracked her proposed changes to these. Having considered advice from the Applicant and the remainder of their specialist team, I can confirm that the majority of the proposed changes are acceptable. Those draft

conditions that remain in contention are (note condition number references are to the condition set attached to the s42A addendum report:

- (a) Trigger levels (Conditions 104-108). The reasons why the changes proposed by Council are not accepted are detailed above. In particular, the conditions are unworkable, not sufficiently linked to the effects of the activity (in that they would require actions in response to effects unrelated to the activity) and the mechanisms incorporated into the GMP to identify and address any unexpected deterioration of water quality achieve the broad intent of these conditions and are considered by Mr Nicol to be sufficiently robust, without unnecessarily burdening the consent holder.
- (b) Batter gradients (Condition 86) I do not believe the mechanism for agreeing an alternative batter angle with a neighbouring property owner is ultra vires, as if such approval is not forthcoming then the condition still applies. In other words third party approval is not relied upon.
- (c) Stockpiles within 100m of orchards during January to May period (Condition 67). This condition can be amended to specify that stockpiles will not be placed in this area.
- (d) Working in high winds (Condition 66). Mr Bluett considers that the restriction on ceasing works in all high winds, rather than only when there is a downwind sensitive receiver, is unnecessary. I consider that the condition is not sufficiently linked to an environmental effect of the activity.
- (e) Passing bays (Condition 32). The evidence of Mr Clark confirms that this requirement is unnecessary. I agree with Mr Clark that the potential of other private vehicles on the unformed legal road is extremely low, and any inconvenience effects can be adequately managed by the Applicant. However, the applicant is willing to accept passing bays if the Commissioner considers these necessary.
- (f) Soil stockpiles (Conditions 72 and 81). Condition 72 as originally volunteered was intended to address the height and location of stockpiles of extracted aggregate and backfill material, for the purposes of managing

visual effects. The changes to this condition in the s42A report incorporate controls over soil stockpiles as well. Soil will not be stockpiled in this area, rather it will be temporarily stockpiled near to excavation pits. Condition 81 addresses soil stockpiles specifically, including a 3m height limit. This height is proposed for the purposes of managing soil structure in accordance with the SMP, and excavating the area beneath these stockpiles is not necessary or proposed. I do not agree to Council's proposed changes to condition 72 and consider that it should remain as volunteered.

- (g) Noise (Condition 54). For the reasons expressed above, Council's proposed changes to Condition 54 relating to the noise level reduction (51dB) are not accepted, and the condition should provide for the use of averaging in accordance with NZS6802
- (h) Monitoring bores (Condition 47). Mr Nicol agrees with Council Officers that it would be appropriate to monitor groundwater up to 1km downgradient of the site, as a conservative outer limit of the zone of any potential changes to groundwater chemistry associated with activities on the site. This would rely on either agreement from private landowners within this area, or the establishment of a dedicated monitoring bore on public land such as the Peach Island road reserve. The Applicant is open to both of these options. Given that third party approval would be required for these, inclusion of this as a requirement of a condition is problematic, although I note that bores within road reserve are not uncommon and the risk of Council (as landowner) not agreeing to such a proposal is low. Condition 47 currently requires the establishment of two dedicated down-gradient monitoring bores, which have already been established within the site. I proposed that Condition 47 be amended to retain this requirement, but to also to require the consent holder to endeavour to obtain permission from Council or private bore owners to sample from existing bores or establish a dedicated bore a third (or more) should this be possible. The key monitoring bores (being those closest to the activity and therefore most likely to indicate any changes) are ensured by the condition, with additional bore or bores being required if possible.

- (i) Excavation batters (Condition 86). Ms Bernsdorf Solly considers that the part of the condition that allows a different batter angle to that specified in the condition to be agreed with a neighbouring property owner to be ultra vires. I assume that this relates to the inclusion of provision for third party approval. Given that if such approval is not obtained, the condition is clear on what batter angle applies (ie the condition does not rely on a third party approval) I do not consider this to be ultra vires, and recommend that this clause remain in the condition.
- (j) Machinery when heavy rain forecast (Condition 74). This condition proposed by Council requires that heavy machinery be moved inside the stopbank when heavy rain is forecast. This is acceptable, however this should not restrict backfilling of excavations should this be required under circumstances of rising ground levels, and will apply principally to overnight storage of vehicles.
- (k) Condition 64 (No processing, washing, crushing or screening of gravel shall be carried out on the site) is more appropriately located under ‘Site Management’ conditions rather than ‘Traffic Movement’ conditions.
- (l) Drainage properties of remediated soil (Condition 43(c)). As detailed above, Dr Hill does not consider that rehabilitated soils will necessarily need to achieve ‘well-drained’ characteristics in order to meet the objectives of the SMP and maintain or enhance the productive capacity of the land. Such a change would also fail to acknowledge that there may be inherent drainage limitations on parts of the site that are not caused or exacerbated by the proposed quarrying and rehabilitation.

I attach a revised version of these land use conditions that addresses the above issues from the Applicant’s perspective. I also attached a revised set of discharge consent conditions which align with the land changes to the land use conditions. Both sets are volunteered by the Applicant.

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Resource consents sought for:

- RM200488 Land use consent to disturb land and rehabilitate for the purpose of gravel extraction within the Rural 1 Zone.
- RM200489 Land use consent to erect signage and establish access via an unformed legal road.

Recommended conditions

General

1. The consent holder shall ensure that all works are carried out in general accordance with:
 - (a) the application documents received by the Council on 15 June 2020;
 - (b) the further information received on 8 and 10 June 2021 [and 2 September 2022](#);
 - (c) **the evidence received on 15 July 2022 and 4 November 2022**;
 - (d) Plan **XX**;

Where there is any apparent conflict between the application and consent conditions, the consent conditions shall prevail.

2. The consent holder shall ensure all persons undertaking activities authorised by this resource consent are made aware of the conditions of the consent and ensure compliance with those conditions. A copy of the consent documents shall be kept available on site and shall be produced without unreasonable delay upon request from a servant or agent of the Council.
3. Quarrying in the Stage 1 area shall not commence until the Landscape Mitigation Planting required by [condition 4244](#) below has been established for a period of at least 6 years. Quarrying activities in the Stage 2 and 3 areas may take place in any order provided that all other conditions of this consent are met.

Review

4. For the purposes of, and pursuant to section 128 of the Resource Management Act 1991 ('the Act'), the Council reserves the right to review this consent annually commencing 12 months from the date this consent is granted, for the purposes of:
 - (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent that were not foreseen at the time of granting of the



Commented [HT1]: Condition cross-references are to original condition numbers.

Item 2.1 Attachment 2 – RM200488, RM200489, RM220578 – Draft conditions

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consent, and which it is therefore more appropriate to deal with at a later stage;
and/or

- (b) requiring the consent holder to adopt the best practical option to remove or reduce any adverse effects on the environment resulting from the exercise of this consent; and/or
- (c) requiring compliance with operative rules in the Tasman Resource Management Plan or its successor; or
- (d) requiring consistency with any relevant regional plan, district plan, national environmental standard or Act of Parliament.

Lapse and expiry

- 5. Pursuant to section 125 of the Act, this consent shall lapse 5 years after the date of issue of the consent unless either the consent is given effect to, or the Council has granted extensions pursuant to section 125(1A)(b) of the Act.
- 6. This consent shall expire 15 years after the date it commences.

Bond

- 7. Prior to starting work the consent holder shall enter into a performance bond with the Council. The performance bond shall be for \$40,000.

The sum secured by the bond shall be increased by the annual increase in the consumer price index for each year that the bond required by this condition remains in force, commencing with the first anniversary of the date of issue of the consent and confirmed on each subsequent anniversary. The movements in the consumer price index shall be taken from the published increases available on 31 December following the issue of the consent and on 31 December in each subsequent year.
- 8. The performance bond is to be prepared by the consent holder's Bank or Solicitor and submitted to the Council's Team Leader - Monitoring & Enforcement for approval.
- 9. The purpose of the performance bond required by condition 7 shall be to conduct remedial, repair, or rehabilitation works to the site, stopbank and/or access road, in the event that the consent holder fails to comply with conditions of this consent to the satisfaction of the Council's Team Leader - Monitoring & Enforcement.

Advice notes

The Council will make reasonable attempts (if practicable in the circumstances) to contact the person identified in condition [11\(b\)+2\(b\)](#) (i) who is the Council's principal contact person in regard to

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this consent, to give the consent holder the opportunity to remedy the matter prior to the Council taking any action.

The consent holder remains liable under the Act for any breach of the conditions of this consent and for any adverse effect on the environment which becomes apparent during or after the expiry of this consent.

Prior to the work

10. At least five working days prior to earthworks commencing, the consent holder shall contact Ngāti Toa Rangatira, Ngāti Rārua, Te Ātiawa o Te Waka-a-Māui, Ngāti Kuia and Ngāti Tama ki Te Tau Ihu and advise them of the commencement date of the earthworks to provide an opportunity for an iwi monitor to be present when earthworks are started in each area.

Advice note

The discovery of any pre-1900 archaeological site (Māori or non-Māori) which is subject to the provisions of the Heritage New Zealand Pouhere Taonga Act 2014 needs an application to the Heritage New Zealand for an authority to damage, destroy or modify the site.

- ~~11. The Consent Holder shall engage a Matakite (someone who can visualise and feel the mauri of early occupants of the site and locate kōiwi). No excavation shall be undertaken until the Matakite has walked the site, and the Consent Holder shall follow all recommendations made by the Matakite as a result of what is found on site, provided that such recommendations are able to be implemented and do not frustrate this resource consent.~~

Advice note

~~*This condition has been volunteered by the applicant in response to iwi consultation.*~~

- ~~12.11.~~ The Council's Team Leader - Monitoring & Enforcement shall be notified in writing:

- (a) A minimum of 10 working days prior to commencement of work for each Stage; and
- (b) Prior to the recommencement of work where works have been discontinued for more than one month.

Notification shall include:

- (a) The proposed start date for the period of work; and
- (b) The name and contact details of the following persons:

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- (i) A representative nominated by the consent holder who shall be the Council's principal contact person in regard to matters relating to this resource consent; and
- (ii) The Site Manager (if not the consent holder's representative).

Should either of the above persons change during the term of this resource consent, the consent holder shall provide the new name and contact details, in writing, to the Council's Team Leader - Monitoring & Compliance within five working days.

Submission of plans

~~13.12.~~ The consent holder shall, at least 10 working days prior to the commencement of works, prepare and submit the following plans and management plans to the Council's Team Leader - Monitoring & Enforcement for certification. No works shall be undertaken until these plans/ management plans have been certified by the Council's Team Leader - Monitoring & Enforcement, unless condition 14 is invoked.

- (a) existing and proposed Contour Plans prepared in accordance with **condition 1415**;
- (b) a Noise Management Plan (NMP) prepared in accordance with **condition 1516**;
- (c) a Soil Management Plan (SMP) prepared in accordance with **condition 1617**;
- (d) a Dust Management and Monitoring Plan (DMMP) prepared in accordance with **condition 18**;
- (e) a Groundwater and Clean Fill Management Plan (GMP) prepared in accordance with **condition 1819**.
- (f) a Landscape Mitigation Plan, a Stage 1 River Terrace Restoration Plan and a Maintenance and Establishment Plan prepared in accordance with **Condition 2021**.

Advice note

Certification of the management plans above is in the nature of certifying that adoption of the management plans will result in compliance with the conditions of this consent.

~~14.13.~~ The following shall apply in respect of **condition 1213**:

- (a) the consent holder may commence the activities in accordance with the submitted plans 15 working days after their submission, unless the Council advises the consent holder in writing that it refuses to certify them on the grounds that it fails to meet the requirements of the condition and gives reasons for its decision; and

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- (b) should the Council refuse to certify the plan, the consent holder shall submit a revised plan to the Council for certification. Clause (a) shall apply to any resubmitted plan.
- (c) **Any consequential amendments to the plans required by condition 1213 must be certified by the Council's Team Leader - Monitoring & Enforcement, prior to being implemented.**

~~15.14.~~ The Contour Plans required by **condition 12(a)13(a)** are required to ensure that finished ground levels across the site are generally consistent with existing ground contours. The plans shall include as a minimum:

- (a) A topographic survey to New Zealand Vertical Datum 2016 (NZVD 2016) of the existing site, with contour intervals at 0.2 metres;
- (b) A plan, referenced to NZVD 2016, of the proposed finished levels on site after excavation and recontouring has occurred, with intervals at 0.2 metres.
- (c) **A site plan showing the location of property boundaries, surface water bodies, stopbanks, legal roads, survey benchmarks, and other details as appropriate.**

Advice note: LIDAR survey may be used to prepare this plan.

~~16.15.~~ The Noise Management Plan (NMP) required by **condition 12(b)13(b)** shall detail the best practicable option for ensuring the noise standards specified at conditions ~~5153~~ and ~~5254~~ of this consent are complied with. The NMP shall be in general accordance with the draft NMP prepared by Hegley Acoustic Consultants dated May 2021, and shall address, as a minimum:

- (a) Mitigation measures proposed. These shall include:
 - (i) All trucks exporting material from the site shall be fitted with a sound deadening, plastic deck liner.
 - (ii) Tonal warning/ reversing alarms on plant on site shall be replaced with broad band alarms.
 - (iii) ~~An earth bund of at least 3m height as shown in the Canopy Landscape Mitigation Plan. This shall be constructed prior to the commencement of quarrying activities on site.~~
- (b) Training of staff
- (c) Equipment Maintenance
- (d) Neighbour Liaison

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- (e) Complaints
- (f) Contingency Plan
- (g) Key Personnel and their Responsibilities

~~17.16.~~ The SMP required by **condition 12(c)13(e)** shall demonstrate the best practicable option to ensure that the restored soils achieve the standards specified in **condition 5052** and that **condition 4850** is complied with in respect of the control of erosion and sediment. The SMP shall be in general accordance with the draft SMP prepared by LandSystems Ltd dated 15 May 2022 and shall address, as a minimum:

- (a) Procedures to mitigate the potential effects on soil properties including for:
 - (i) soil removal;
 - (ii) soil storage;
 - (iii) soil placement (including the sequence of soil placement);
 - (iv) transport;
 - (v) the preparation of the receiving surface;
 - (vi) fill (overburden), subsoil and topsoil properties; and
 - (vii) post soil placement management.
- (b) Procedures to minimise the risk of soil loss from overland flow including:
 - (i) during soil removal;
 - (ii) for soil storage; and
 - (iii) during vegetation establishment.
- (c) Soil monitoring required including
 - (i) Sampling and analysis of the original soil prior to extraction to provide a base line;
 - (ii) Soil properties (soil indicator) to be monitored following vegetation establishment;
 - (iii) Monitoring frequency; and
 - (iv) Recommended measures should monitoring show a decline in soil quality.
- (d) **requirements for soil management training for staff and for supervision.**

~~18.17.~~ The DMMP required by **condition 12(d)13(d)** shall demonstrate the best practicable option to ensure that dust is managed on site to minimise the adverse impacts of potential dust discharges on the receiving environment and to achieve the standard specified in **condition 4749**. The DMMP shall be in general accordance with the draft DMMP prepared by Pattle Delamore Partners dated **14 July** 2022 and shall address, as a minimum:

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- (a) Consent Compliance and Key Performance Indicator
- (b) Sources of Dust
- (c) Management and Mitigation Measures
- (d) Roles and Responsibilities
- (e) Implementation and Operation of DMMP
- (f) Environmental Monitoring Programme
- (g) DMMP Review
- (h) Complaints
- (i) Emergency Contacts
- (j) Annual Reporting

~~19.18.~~ The GMP required by **condition 12(e)**~~13(e)~~ shall demonstrate the best practicable option to ensure that discharge of cleanfill to land is managed to avoid adverse effects on groundwater, to:

- Ensure that excavations do not expose groundwater in excavations (condition ~~8689~~), **with the exception of small scale temporary test pits that are back filled within 30 minutes**
- Ensure that all backfill material is strictly managed to ensure it meets the definition of 'clean fill' under WasteMINZ guidelines (**conditions 9294 - 9496**).
- Ensure that under no circumstances that the land use and discharge activities associated with quarry activities result in groundwater quality exceeding ~~50% of the acceptable values~~**trigger levels** in ~~the Drinking Water Standards for New Zealand~~**Table 3 of the GMP**.

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~~20.19.~~ The GMP shall be in general accordance with the draft GMP prepared by Pattle Delamore Partners dated July ~~July~~ **September** 2022 and shall address, as a minimum:

- (a) Acceptable clean fill materials
- (b) Proposed clean fill management system
- (c) Groundwater level monitoring and excavation controls
- (d) Response and mitigation to a spill
- (e) Groundwater quality monitoring
- (f) Results of background water quality monitoring required by **condition 4648**
- (g) Response to issues arising from groundwater quality monitoring

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- (h) Complaints
- (i) Reporting requirements

21.20. The Landscape Mitigation Plan, Stage 1 River Terrace Restoration Plan, and Maintenance and Establishment Plan required by **condition 12(f)13(f)** shall be prepared in general accordance with the ~~draft~~ plans prepared by Canopy, dated ~~March~~ **July** 2022. The ~~landscape Management~~ **Maintenance and Establishment Plan** shall be prepared to ensure that the proposed landscape mitigation and restoration plantings successfully establish and shall include, as a minimum:

- Timing of plantings
- Preparation
- Setout and spacings
- Mulching
- Pest management
- Staking
- Maintenance
- Replacement plantings

22.21. **The consent holder shall, prior to work on the vehicle entrance commencing, prepare and submit engineering drawings for the vehicle entrance upgrade to the Council's Team Leader - Monitoring & Enforcement for approval.**

Earth bund (acoustic barrier and dust screen)

23.22. An earth bund of at least 3m height, as shown in the Canopy Landscape Mitigation Plan, shall be constructed prior to the commencement of quarrying activities on site **to provide an acoustic barrier to 131 Peach Island Road. The earth bund must be maintained to be acoustically effective for as long as the consent is given effect to.**

24.23. **The existing row of mature trees along the northern boundary of Stage 2 with 131 Peach Island Road shall be retained for as long as the consent is given effect to**

Site meeting

25.24. The consent holder shall arrange for a site meeting between the consent holder's representative and the Council's assigned monitoring officer, which shall be held on site prior to any works commencing. No works shall commence until the Council's assigned monitoring officer has completed the site meeting.

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Signage

26-25. Signage shall be installed on Motueka River West Bank Road to provide warning to oncoming vehicles of the potential presence of trucks. As a minimum, permanent warning signs (PW-50) "Trucks Crossing" signs shall be installed on West Bank Road either side of the site entrance, at a position to be confirmed with the Council's assigned monitoring officer.

Upgrade of vehicle entrance and site access

27-26. The consent holder shall remove the willow trees north and south of the entrance to the site and undertake trimming on the bank on the eastern side of Motueka River West Bank Road, as identified in the Traffic Concepts report submitted with the application, to improve site access visibility.

28-27. The consent holder shall undertake ongoing trimming of vegetation to ensure that visibility is not impaired and shall ensure that the sight distances at the intersection with Motueka River West Bank Road meet the minimum requirements set out in Table 4-14 of the Nelson Tasman Land Development Manual 2020 (NTLDM).

29-28. The existing vehicle crossing at 493 Motueka River West Bank Road shall be upgraded/formed generally to the standard shown in Diagram 2 of Drawing SD409 in the of NTLDM, except where modifications **as approved by Council** are necessary to ensure vehicle tracking and its connection to the new bridge are fit for purpose.

30-29. **The vehicle access shall be formed to a minimum sealed carriageway width of 6m from the existing seal edge of Motueka Valley Westbank Road up to the western end of the bridge (approximately 35m from the edge of the existing seal) to allow for two trucks to pass by each other.**

31-30. The proposed access, **beyond the bridge and except for the crown land section subject to the provisions of Marginal strips**, shall be formed to a sealed carriage width of generally no less than 3.5 with 0.5m gravel shoulders and side drains to drain to existing drain paths and/or soakpits. Localised widening on corners shall be provided to accommodate vehicle tracking. The access shall be maintained for the duration of this consent by the Consent Holder.

Advice note

This consent does not grant access to the excavation area. Site access and management of the tracks should be arranged with the landowner.

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~~The consent holder shall make provision for the formation of at least two localised widened areas along the access, formed to NTLDM passing bay standard, to allow for two vehicles to pass by each other.~~

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~~31.~~ The proposed access shall not connect to the southern end of Peach Island Road, unless requested to by the Council.

~~33.~~

Bridge

~~34.32.~~ **Prior to it being used under this consent**, the appropriateness of the existing bridge across the overflow channel (located on Section 1 SO 15112) shall be assessed by a suitably qualified engineer to demonstrate compliance with **condition 3335**.

~~35.33.~~ The bridge shall be able to carry Class 1 loads (or higher loads if the applicant proposes to use HPMV trucks for the operation), and any necessary upgrade or replacement to achieve this shall be carried out by the consent holder prior to the bridge being used under this consent.

~~36.34.~~ **The bridge shall be widened to at least 3.5m to match the proposed 3.5m access width.**

Survey

~~37.35.~~ The consent holder shall survey the boundaries of the unformed legal road and shall clearly identify the boundaries of the legal road on site.

~~38.36.~~ **The consent holder shall survey the stopbank crossing point prior to works commencing and upon completion of the works. The consent holder shall repair / reinstate any damage caused to the stopbank crossing at the consent holder's cost.**

Stopbank

~~39.37.~~ The location of the toe of the stopbank adjacent to the proposed excavation sites shall be clearly identified and marked on site by a suitably qualified and experienced geotechnical professional or river engineer.

~~40.38.~~ The 20m setback from the toe of the stopbank on both sides of the stopbank shall be clearly marked **and maintained (e.g., by a fence)** to ensure that **earthworks** do not encroach into the setback, except for the stopbank crossing (required by **condition 4042**)

~~41.39.~~ The construction of any fence within bermland (i.e., on the outer side of the stopbank), shall be of a post and wire construction only and, if required by the Council, shall be removed on completion of the works.

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42.40. The consent holder shall form and maintain a ramp over the stopbank to provide vehicle access. This shall include a 200mm sacrificial gravel layer on top of the stopbank crest, which shall be removed upon completion of the quarrying activity. The crest of the ramp shall be maintained so as to be no lower than the adjacent stopbank crest immediately up- and downstream of the ramp, to the satisfaction of the Council's Asset Engineer - Rivers.

43.41. The consent holder shall not block the stopbank, and shall ensure that it is available to the Council's Rivers Engineers at all times for flood monitoring.

Landscape mitigation and restoration planting

44.42. Within the first planting season following the granting of consent, landscape mitigation planting shall be carried out in accordance with the certified Landscape Mitigation Plan and Maintenance and Establishment Plan required by **Condition 2021**.

45.43. **All plantings shall be set back at least 5 m from the toe of the stopbank to minimise tree roots affecting the stopbank.**

46.44. Within the first planting season following the completion of the Stage 1 quarrying activities (including soil rehabilitation), restoration planting of the Stage 1 area shall be undertaken in accordance with the certified Stage 1 River Terrace Restoration Plan and Maintenance and Establishment Plan required by **Condition 2021**.

Groundwater monitoring to establish background levels

47.45. The consent holder shall establish one dedicated bore upstream and two downstream of the works for groundwater quality monitoring purposes. These shall be installed in accordance with the recommendation contained in the GMP. The Consent Holder shall also endeavour to obtain agreement of Council or any private bore owners to undertake additional testing within an area up to 1km downgradient of the site.

Advice note

The appropriate bore locations shall be confirmed by the Council's Senior Resource Scientist – Water to account for groundwater flow direction in the area.

48.46. A minimum of ~~two~~ **three** groundwater samples, at least ~~3~~ **2** months apart, shall be taken prior to commencement of any works to establish background levels. The samples shall be analysed by a suitably qualified and experienced person for:

- | |
|--|
| <ul style="list-style-type: none">• Measurements of depth to water (where possible) prior to purging.• pH (field and laboratory measurement).• Electrical Conductivity (field and laboratory measurement). |
|--|

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• Water temperature (field measurement).	• Calcium.	• Magnesium.
• Hardness.	• Alkalinity.	• <i>E. coli</i> .
• Ammoniacal-N	• Nitrate-N	• Dissolved Boron
• Dissolved Aluminium.	• Dissolved Arsenic.	• Dissolved Cadmium.
• Dissolved Chromium.	• Dissolved Copper.	• Dissolved Lead.
• Dissolved Nickel.	• Dissolved Manganese.	• Dissolved Iron.
• Sodium.	• Sulphate.	• Chloride.
• BTEX compounds.	• Total Petroleum Hydrocarbons.	

All testing equipment must be calibrated and verified as accurate prior to testing by a suitably qualified and experienced person. All testing shall be at the full expense of the consent holder. Sampling results shall be submitted to Council's Team Leader - Monitoring & Enforcement prior to the commencement of any works.

Environmental standards

Dust

49.47. There shall be no noxious, dangerous, objectionable or offensive dust beyond the boundary of the site.

Water quality

50.48. Land disturbance shall not result in runoff of sedimentation that results, after reasonable mixing, in any of the following effects in the receiving waters:

- (a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
- (b) any conspicuous change in the colour or visual clarity;
- (c) any emission of objectionable odour;
- (d) the rendering of fresh water unsuitable for consumption by farm animals;
- (e) any significant adverse effects on aquatic life.

51.49. Quarrying activities, including the discharge of cleanfill to land and any accidental spills on the site shall not result in any existing water supply bore or dedicated monitoring bore within a 1 km buffer zone downgradient of the quarry to breach the 50% of the maximum acceptable values or guideline values trigger levels in the Drinking Water Standards for New Zealand 2005 (revised 2018) Table 3 of the GMP.

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Soil

~~52-50.~~ Following completion of soil restoration and rehabilitation activities, restored soils shall achieve the following:

- (a) A minimum of 800 mm of plant growth medium with little or no limitations to root penetration. As a guide, soil penetration resistance should not exceed approximately 2300 kPa.
- (b) Soil strength to be such that there is no serious limitation to cultivation and movement of machinery, i.e. no visually obvious contrasting compacted layers within the restored soil profile, especially between the subsoil and the topsoil, and no visually obvious compaction within the upper 300–400 mm of topsoil.
- (c) Be at least ~~imperfectly~~ drained, preferably moderately well or well drained where the inherent soil drainage characteristics of the land allow.

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Noise

~~53-51.~~ Noise associated with construction activities on site (such as construction of the noise bund and haul roads) shall not exceed 70dB LAeq and 85dB LAFmax when measured 1m from the most exposed façade of any dwelling located beyond the subject site.

~~54-52.~~ The consent holder shall ensure that all other activities on site, ~~including quarrying activities~~ **except (other than construction work)**, are designed and conducted, and all equipment used on site is maintained, so that noise generated by activities on site does not exceed ~~a an uncorrected~~ noise level of 55 ~~51-55~~ dBA Leq (day) and 40dBA Leq and 70 dBA Lmax (night) **when** measured at the notional boundary of any dwelling.

All noise shall be measured and assessed in accordance with the provisions of **NZS6801:2008 – Acoustics – Measurement of environmental sound and NZS 6802:2008 - Acoustics - Environmental Noise**, ~~except that no adjustments shall be made to the measured noise level.~~

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Advice note

Construction work relates to activities defined as construction under NZS6803:1999. This includes the construction of the earth bund and the haul road, but not the gravel extraction operation or truck movements on site.

During work

~~55-53.~~ There shall be no extraction of gravel from the unformed legal road **shown on the plans required by condition 3537 above.**

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Hours of work

~~56.54.~~ Work shall only be carried out between 7:00 am and 5:00 pm Monday to Friday. No heavy machinery shall be operated on site earlier than 7.30am. No operations shall occur on Saturdays, Sundays, public holidays, or between 20 December and 10 January the following year (Christmas holiday period).

Access and vehicle entrance

~~57.55.~~ Access to the site by vehicles associated with quarrying activities shall only be via the upgraded vehicle crossing at 493 Motueka River West Bank Road.

Advice note

This consent does not grant access to the excavation area. Site access and management of the tracks should be arranged with the landowner.

Traffic movements

~~58.56.~~ There shall be no more than 30 truck movements per day to and from the site (a return trip being two truck movements). A truck may include a trailer.

~~59.57.~~ All vehicles shall observe a speed limit of 15 kilometres per hour when travelling on any unsealed surfaces on site **and a speed limit of 30 kilometres per hour when travelling on any sealed surfaces on site** within the site (including on haul roads). It is the consent holder's responsibility to inform drivers of this speed limit.

~~60.58.~~ All trucks shall observe a speed limit of 60 kilometres per hour when travelling along Motueka River West Bank Road.

~~64.59.~~ All trucks shall be fitted with GPS based speed logging and records shall be supplied to the Council's Team Leader - Monitoring & Enforcement on request. The GPS system shall be set up to provide alerts to the quarry manager if the speed limits specified in the conditions above are exceeded.

~~62. — No processing, washing, crushing or screening of gravel shall be carried out on the site.~~

Site management

~~60.~~ Works shall be undertaken in accordance with the certified NMP, DMMP, GMP and SMP.

~~61.~~ No processing, washing, crushing or screening of gravel shall be carried out on the site.

~~63. —~~

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~~64-62.~~ Specific dust control measure described in the application and DMMP shall be implemented. These dust control measures shall be undertaken in accordance with the best practical option.

~~65-63.~~ No works shall be carried out **material shall be disturbed** during periods of high wind (>7.5m/s) and where there are sensitive receptors within 250m in a downwind direction. No excavations shall be undertaken if heavy rain or high wind is forecast in the period before measures can be implemented to secure the excavated area and any stockpiles from the effects of overland flows and dust generation.

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~~66-64.~~ No quarrying activities shall take place within 100m of horticultural activities on neighbouring properties between the months of **January** and May (inclusive).

~~67.~~ **Stockpiles in the Stage 2 area within 100m of the apple orchard boundary shall be removed over the drier months of January to May (inclusive). No soil stockpiles may be placed within 100 m of horticultural activities on neighbouring properties.**

~~68-65.~~ **The Consent Holder may use polymer or chemical stabilization to limit the dust generation. Waste Oil or Reprocessed Oil shall not be used to control dust.**

~~69-66.~~ The consent holder shall undertake meteorological monitoring (i.e., wind direction, wind speed, **temperature and relative humidity**) on site and store this data electronically and it shall be made available to the Council's Team Leader - Monitoring & Enforcement on request.

~~70-67.~~ Machinery movement over stockpiled soil is prohibited, other than in the construction of the proposed noise bund on the northern boundary.

~~71-68.~~ No backfill or any other material shall be stored or stockpiled on the river side (outside) of the stopbank, unless **except for topsoil** awaiting reinstatement placement on that day. In the event that there is temporarily stockpiled material on the river side of the stopbanks and heavy rain is forecast, the stockpiled material shall be relocated to the landward side of the stopbank.

~~72-69.~~ Stockpiled materials (excluding soil covered by condition 78), other than those materials to be used for backfilling on the same day, shall be located in the area identified on the Landscape Mitigation Plan as 'Stockpile and Service Area'. This area shall be excavated to a level 1m below existing ground level. ~~Gravel s~~Stockpiles in this area shall be managed so as to be no greater than 4m in height above the lowered ground level (3m above surrounding ground level). ~~Soil stockpiles shall be no greater than 3m in height (2m above surrounding ground level).~~

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~~73-70.~~ The consent holder shall maintain the site in a clean and tidy manner. Redundant machinery and equipment not required for the operation of the quarry shall be removed from site.

~~74-71.~~ **If heavy rain is forecast, heavy machinery shall be moved inside the stopbank for overnight storage. This condition is not intended to prevent machinery from backfilling excavations to meet other conditions of this consent under conditions of rising groundwater levels.**

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~~75-72.~~ All practicable measures shall be undertaken to prevent:

- (a) erosion of the Motueka River berm; and
- (b) the discharge of sediment to the Motueka River;

as a result of the works.

Advice note

This consent does not authorise the discharge of any sediment to water. Relevant TRMP and / or national environmental standards permitted rules must be met or consent applied for accordingly.

Refuelling and spill management

~~76-73.~~ All machinery shall be maintained and operated in such a manner minimising, so far as practicable, any spillage of fuel, oil and similar contaminants to water or land, particularly during machinery refuelling.

~~77-74.~~ No refuelling or machinery maintenance shall be undertaken within 20 metres of surface water **(including exposed groundwater).**

~~78-75.~~ **No heavy vehicle maintenance apart from servicing (e.g., an oil change by trained personnel) shall occur on site.**

Advice note

An example of heavy vehicle maintenance is engineering maintenance, such as work on a digger bucket.

~~79-76.~~ All spills shall be immediately contained and controlled by an approved product and shall be removed from the site for appropriate disposal. Any spills greater than 20 litres shall be immediately reported to the Council's Team Leader - Monitoring & Enforcement.

~~80-77.~~ Fuel shall be stored securely or removed from site overnight.

Excavation

~~81-78.~~ Topsoil and subsoil shall be stripped and stockpiled separately for the purpose of reuse on site. All soil stockpiles shall be:

- (a) no more than 3 metres in height;
- (a) stored on site for no more than 6 months before use.

~~82-79.~~ Topsoil and subsoil shall only be excavated in dry soil conditions, as defined in the SMP.

~~83-80.~~ Any excavation in berm land shall occur in strips aligned parallel to the general direction of flood flow across the berm land. No individual strip shall be wider than 20 m.

~~84-81.~~ The excavation shall be progressively backfilled so that the maximum size of excavation open at any one time shall not exceed 1600m² (generally 20 m in width and 80 m in length).

~~85-82.~~ The number of excavations open at any one time shall not exceed one, except when the excavation of one strip has been completed and the excavation of a new strip is commencing, in which case two open excavations are permitted.

~~86-83.~~ Excavations adjacent to property boundaries or adjacent to the 20m setback from the toe of stopbanks shall not exceed (be steeper than) the following batter angles:

- (a) Lower Gravels to be battered at 1H:1.3V max;
- (b) Upper mantle to be battered at 1H:1.7V max.

These batter angles may only be exceeded adjacent to property boundaries where the adjacent landowner agrees to a proposal such that CJ's the applicant is to repair/reinstate any damaged land caused by shallow surficial landslips during the gravel extraction pit works.

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~~87-84.~~ At the commencement of each stage of excavation, the initial excavation shall be inspected by a Geo-professional so that they can verify that the above batter angles are appropriate given actual exposed ground conditions. The Geo-professional shall at the same time undertake test-pitting across the remainder of the stage area and advise on the depths of upper mantle/lower gravel materials. If, during excavations over the remainder of the stage the Consent Holder identifies any unforeseen ground conditions during the gravel pit extraction works (i.e. deep layer of topsoil than anticipated test-pitting) then a Geo-professional shall inspect and advise what further steps (if any) are required to ensure ongoing land stability for the remaining duration of the stage.

~~88-85.~~ Appropriate stormwater controls shall be put in place to avoid concentrated stormwater flows discharging onto temporary cut slopes.

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- 89-86. All excavation shall be undertaken in accordance with the GMP to ensure that excavations do not occur below a level 0.3m above actual ground water level at the time of excavation with the exception of small scale temporary test pits that are back filled within 30 minutes. Where excavations are undertaken below a level 1.0m above groundwater level, they shall only be undertaken in **dry stable** weather conditions (**as defined in the GMP**), and shall be backfilled to a level not less than 1.0m above groundwater level by the end of the same working day.
87. There shall be no excavation, removal of gravel or other disturbance of land within 20m of the toe of the stopbank. For the avoidance of doubt, this applies on both sides of the stopbank.
- 90-88. For any given stage, excavation works shall commence at the most upgradient (with respect to groundwater flow) end of the stage, this being generally the southern end of the stage.

Backfilling

- 91-89. During the course of excavations, backfilling shall be undertaken as soon as practicable. Any excavated area in a particular location shall not remain open for longer than 6 months.
- 92-90. Backfilling shall be undertaken in accordance with the certified SMP and GMP. This includes a requirement to monitor the level of the excavation pit floor relative to changing ground levels to ensure that the freeboard requirements at **condition 8689** are complied with at all times.
- 93-91. Backfilling shall be to the finished levels on site as specified in the Contour Plan required by **condition 1415**.
- 94-92. Only material that meets the definition of cleanfill under the WasteMINZ document 'Technical Guidelines for Disposal to Land (2018)' shall be imported to the site for backfill. There shall be no disposal of **concrete**, sawdust, large trees, stumps, refuse, cans, bottles, plastics, timber, household rubbish, or liquid waste. Fill material shall only be imported to the site if total soil contaminant concentrations are below regional soil background concentration limits, as specified in "Background concentrations of trace elements and options for the managing of soil quality in the Tasman and Nelson Districts" - Landcare Research (2015).
- 95-93. Organic material imported to the site shall not exceed 2% by volume per load and is limited to incidental organic matter associated with the excavation of inert natural materials. For the avoidance of doubt this does not apply to topsoil retained on site for reinstatement.

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~~96-94.~~ Any backfill material sourced from offsite shall only be brought to the site by the Consent Holder and/or its contractors, and shall be pre-screened for compliance with these cleanfill requirements before being brought to site. A record shall be kept of all cleanfill used as backfill. The record shall be in accordance with the requirements specified in the GMP. This record shall be kept available on site, and shall be produced without unreasonable delay upon request from a servant or agent of the Council.

Reinstatement and rehabilitation

~~97-95.~~ Subsoil and topsoil shall be reinstated, and ongoing management shall be undertaken, in accordance with the methodology specified in the certified SMP.

~~98-96.~~ Topsoil and subsoil shall only be reinstated in dry soil conditions, as defined in the SMP.

~~99-97.~~ **Following the placement of the new soil profile, the consent holder shall engage a suitably qualified agronomist to advise on fertiliser application and other soil treatments to encourage effective revegetation.**

~~100-98.~~ **Fertiliser shall be applied following the recommendations of the agronomist to facilitate pasture establishment, increase fertility and promote and maintain even revegetation.**

~~101-99.~~ Revegetation of reinstated areas shall occur within a month of reinstatement of the soil and be actively management following revegetation (as detailed in the SMP) to ensure full vegetative cover is achieved and maintained.

~~102-100.~~ **The consent holder's responsibility with regard to revegetation shall not be considered to be met until a complete, healthy, predominantly rye grass/white clover sward has been achieved over the worked areas.**

Groundwater monitoring

~~103-101.~~ The monitoring bores required by **condition 4547** shall be sampled every three months following the commencement of any works, in accordance with the GMP. The samples shall be analysed by a suitably qualified and experienced person for all of parameters detailed at **condition 4648**.

All testing equipment must be calibrated and verified as accurate prior to testing by a suitably qualified and experienced person. All testing shall be at the full expense of the consent holder. Sampling results shall be submitted to the Council's Team Leader - Monitoring & Enforcement within 10 working days of the results being obtained.

Sampling and reporting shall continue for two years following the cessation of quarrying and backfilling/ rehabilitation activities on the site.

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Procedures to respond to any issues arising from the groundwater monitoring shall be in accordance with the requirements detailed in the GMP, ~~except as detailed below:~~

~~404.102. If the monitoring of parameters detailed at condition 4648, with the exception of E.coli, shows changes > 20% compared to the background levels established under Condition 4648, all works shall cease, and investigations shall be undertaken to ascertain the cause of these changes.~~

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~~405.103. If the monitoring parameter E.coli shows changes by one order of magnitude compared to the background levels established under condition 4648, all works shall cease, and investigations shall be undertaken to ascertain the cause of these changes.~~

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~~406.104. If the monitoring shows an increase in E.coli resulting in the water being unsafe to drink, all works shall cease, and investigations shall be undertaken to ascertain the cause of these changes.~~

~~407.105. If the monitoring required by condition 101103 shows that Drinking Water Standards New Zealand (DWSNZ) are exceeded, the Consent hold shall supply drinking water to affected residences.~~

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~~408.106. Works shall only recommence once the Consent Holder has established, to the satisfaction of Council's Team Leader – Monitoring & Enforcement, that the activity is not causing the changes/ decrease in water quality.~~

Accidental Discovery Protocol (ADP)

~~409.107.~~ In the event of Māori archaeological sites (e.g. shell midden, hangi or ovens, garden soils, pit depressions, occupation evidence, burials, taonga) or koiwi (human remains) being uncovered, activities in the vicinity of the discovery shall cease. The consent holder shall notify a representative of Ngāti Rārua and Te Ātiawa and Heritage New Zealand Pouhere Taonga Central Regional Office (phone 04 494 8320), and shall not recommence works in the area of the discovery until the relevant approvals to damage, destroy or modify such sites have been obtained.

Reporting & monitoring

~~410.108.~~ Monitoring and reporting in relation to dust management, and soil reinstatement and rehabilitation shall be undertaken in accordance with the requirements of the certified DMMP and SMP.

~~411.109.~~ The consent holder shall maintain a complaint's register, which shall detail the following as a minimum:

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- (a) The person responsible for the complaints register and appointment of a nominee who can be contacted in case of concerns/ complaints arising;
- (b) The location, date and time of the complaint;
- (c) The nature of the complaint (e.g., noise, dust, vehicle speeds etc.);
- (d) A description of weather conditions at the time of complaint (notably wind speed and direction as per the meteorological monitoring required by **condition 58**);
- (e) Any identified cause of the complaint;
- (f) The action(s) taken to investigate and if appropriate remedy the issue.

~~112-110.~~ The consent holder shall inform the Council's Team Leader Monitoring and Enforcement within one working day of any complaint being received.

~~113-111.~~ The complaints register shall be forwarded to the Council's Team Leader - Monitoring & Enforcement on request.

~~114-112.~~ A contact number of the nominee detailed in the complaint's register shall be provided to all adjoining property owners and occupiers.

~~115-113.~~ The consent holder shall, no more than 20 working days following the completion of each stage of work, notify the Council's Team Leader - Monitoring & Enforcement. Notification shall be in writing and include a visual representation (such as photo or video) of the completed stage of work.

~~116-114.~~ The consent holder shall keep a daily record of the weight of gravel extracted, which shall be submitted on a monthly basis to the Council's Team Leader - Monitoring & Enforcement.

Advice Note:

Returns are to be submitted in "solid measure". A multiplier of 0.80 should be used to convert "truck measure" to "solid measure".

~~117-115.~~ Within 3 months of the completion of all recontouring work on site the consent holder shall forward to the Council's Team Leader - Monitoring & Enforcement a topographic survey to NZVD 2016 of the final levels on site, with intervals at 0.2 metres, as required by condition 13(a).

Unformed legal road

~~118-116.~~ Following completion of the works, the consent holder shall confirm with the Council's Transportation Manager whether:

- (a) the section of unformed legal road ("paper road") used to access the application site shall either be returned to pasture at the consent holder's cost; or
- (b) retained in its current form.

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ADVICE NOTES

1. *Officers of the Council may carry out site visits to monitor compliance with resource consent conditions. The consent holder is liable to the Council for actual and reasonable inspection and monitoring costs associated with this consent.*
2. *An Approval to Work Permit is required from Council's Transport team to form the unformed legal road (paper road).*
3. **A Corridor Access Request (CAR) is required from Council's Transport team to upgrade the vehicle access.**
4. *The consent holder should meet the requirements of the Council with regard to all building, safety, and health bylaws, regulations and Acts.*
5. *Access by the Council or its officers or agents to the property is reserved pursuant to section 332 of the Resource Management Act.*
6. *All reporting required by this consent should be made in the first instance to the Council's Team Leader - Monitoring & Enforcement.*
7. *This resource consent only authorises the activity described above. Any matters or activities not referred to in this consent or covered by the conditions must either:*
 - (a) *comply with all the criteria of a relevant permitted activity rule in the Tasman Resource Management Plan (TRMP);*
 - (b) *be allowed by the Resource Management Act; or*
 - (c) *be authorised by a separate resource consent.*
8. *The Council draws your attention to the provisions of the Heritage New Zealand Pouhere Taonga Act 2014. In the event of discovering an archaeological find during the earthworks (e.g., shell, midden, hangi or ovens, garden soils, pit depressions, occupation evidence, burials, taonga, etc.) you are required under the Heritage New Zealand Pouhere Taonga Act 2014 to cease the works immediately until, or unless, authority is obtained from Heritage New Zealand under section 48 of the Heritage New Zealand Pouhere Taonga Act 2014.*
9. *The consent holder must meet the requirements of the Tasman-Nelson Regional Pest Management Plan (2019-2029) when dealing with any pest plants or animals within the subject site.*
10. *Copies of the Council Standards and documents referred to in this consent are available for viewing at the Richmond office of the Council.*

General

1. The consent holder shall ensure that all works are carried out in general accordance with:

(a) the application documents received by the Council on XX

(b) further information provided on and 2 September 2022;

(a)(c) **the evidence received on 15 July 2022 and 4 November 2022;**



Where there is any apparent conflict between the application and consent conditions, the consent conditions shall prevail.

2. The consent holder shall ensure all persons undertaking activities authorised by this resource consent are made aware of the conditions of the consent and ensure compliance with those conditions. A copy of the consent documents shall be kept available on site and shall be produced without unreasonable delay upon request from a servant or agent of the Council.

Lapse and expiry

3. Pursuant to section 125 of the Act, this consent shall lapse 5 years after the date of issue of the consent unless either the consent is given effect to, or the Council has granted extensions pursuant to section 125(1A)(b) of the Act.

4. This consent shall expire 17 years after the date it commences.

5. The discharge of cleanfill to land shall cease no later than 15 years after the date this consent commences.

Prior to the work

~~6. The Consent Holder shall engage a Matakite (someone who can visualise and feel the mauri of early occupants of the site and locate kōiwi). No excavation shall be undertaken until the Matakite has walked the site, and the Consent Holder shall follow all recommendations made by the Matakite as a result of what is found on site, provided that such recommendations do not frustrate this resource consent.~~

~~7.6.~~ The Council's Team Leader - Monitoring & Enforcement shall be notified in writing:

(a) A minimum of 10 working days prior to commencement of discharge to land; and

(b) Prior to the recommencement of work where works have been discontinued for more than one month.

Notification shall include:

(a) The proposed start date for the period of work; and

(b) The name and contact details of the following persons:

- (i) A representative nominated by the consent holder who shall be the Council's principal contact person in regard to matters relating to this resource consent; and
- (ii) The Site Manager (if not the consent holder's representative).

Should either of the above persons change during the term of this resource consent, the consent holder shall provide the new name and contact details, in writing, to the Council's Team Leader - Monitoring & Compliance within five working days.

Submission of plans

~~8.7.~~ The consent holder shall, at least 10 working days prior to the commencement of works, prepare and submit a Groundwater and Clean Fill Management Plan (GMP) prepared in accordance with **condition 10** to the Council's Team Leader - Monitoring & Enforcement for certification. No works shall be undertaken until this management plan has been certified by the Council's Team Leader - Monitoring & Enforcement, unless **condition 9** is invoked.

~~9.8.~~ The following shall apply in respect of **condition 8**:

- (a) the consent holder may commence the activities in accordance with the submitted plans 15 working days after their submission, unless the Council advises the consent holder in writing that it refuses to certify them on the grounds that it fails to meet the requirements of the condition and gives reasons for its decision; and
- (b) should the Council refuse to certify the plan, the consent holder shall submit a revised plan to the Council for certification. Clause (a) shall apply to any resubmitted plan.

~~10.9.~~ The GMP required by **condition 8** shall demonstrate the best practicable option to ensure that discharge of cleanfill to land is managed to avoid adverse effects on groundwater, to:

- Ensure that excavations do not expose groundwater in excavations (**condition 15**) with the exception of small scale temporary test pits that are back filled within 30 minutes.
- Ensure that all backfill material is strictly managed to ensure it meets the definition of 'clean fill' under WasteMINZ guidelines (**conditions 18-20**).
- Ensure that under no circumstances that the land use and discharge activities associated with quarry activities result in groundwater quality exceeding the acceptable trigger levels at Table 3 of the GMP-values in the Drinking Water Standards for New Zealand.

The GMP shall be in general accordance with the draft GMP prepared by Pattle Delamore Partners dated **June-September 2022** and shall address, as a minimum:

- (a) Acceptable clean fill materials
- (b) Proposed clean fill management system
- (c) Groundwater level monitoring and excavation controls
- (d) Response and mitigation to a spill
- (e) Groundwater quality monitoring
- (f) Results of background water quality monitoring required by condition 40
- (g) Response to issues arising from groundwater quality monitoring
- (h) Complaints
- (i) Reporting requirements

Groundwater monitoring to establish background levels

11.10. The consent holder shall establish one dedicated bore upstream and two downstream of the works for groundwater quality monitoring purposes. These shall be installed in accordance with the recommendation contained in the GMP. The Consent Holder shall also endeavour to obtain agreement of Council or any private bore owners to undertake additional testing within an area up to 1km downgradient of the site.

Advice note

The appropriate bore locations shall be confirmed by the Council's Senior Resource Scientist – Water to account for groundwater flow direction in the area.

12.11. A minimum of ~~two~~ three groundwater samples, at least ~~3~~ 2 months apart, shall be taken prior to commencement of any works to establish background levels. The samples shall be analysed by a suitably qualified and experienced person for:

- Measurements of depth to water (where possible) prior to purging.
- pH (field and laboratory measurement).
- Electrical Conductivity (field and laboratory measurement).
- Water temperature (field measurement).
- Calcium.
- Magnesium.
- Hardness.
- Alkalinity.
- *E. coli*.
- Dissolved Aluminium.
- Dissolved Arsenic.
- Dissolved Cadmium.

- Dissolved Chromium.
- Dissolved Copper.
- Dissolved Lead.
- Dissolved Nickel.
- Dissolved Manganese.
- Dissolved Iron.
- Sodium.
- Sulphate.
- Chloride.
- BTEX compounds.
- Total Petroleum Hydrocarbons.
- Ammoniacal-N
- Nitrate-N
- Dissolved Boron

All testing equipment must be calibrated and verified as accurate prior to testing by a suitably qualified and experienced person. All testing shall be at the full expense of the consent holder. Sampling results shall be submitted to Council's Team Leader - Monitoring & Enforcement prior to the commencement of any works.

Site meeting

13.12. The consent holder shall arrange for a site meeting between the consent holder's representative and the Council's assigned monitoring officer, which shall be held on site prior to any works commencing. No works shall commence until the Council's assigned monitoring officer has completed the site meeting.

Environmental standards

14.13. Quarrying activities, including the discharge of cleanfill to land and any accidental spills on the site shall not result in any existing water supply bore or dedicated monitoring bore within a 1 km buffer zone downgradient of the quarry to breach the maximum acceptable values or guideline values in the Drinking water Standards 2005 (revised 2018) trigger levels in Table 3 of the GMP.

Excavation

15.14. All excavation shall be undertaken in accordance with the GCFMSGMP to ensure that excavations do not occur below a level 0.3m above actual ground water level at the time of excavation. Where excavations are undertaken below a level 1.0m above groundwater level, they shall only be undertaken in dry-stable weather conditions (as defined in the GMP), and shall be backfilled to a level not less than 1.0m above groundwater level by the end of the same working day.

Backfilling

~~16.15.~~ During the course of excavations, backfilling shall be undertaken as soon as practicable. Any excavated area in a particular location shall not remain open for longer than 6 months.

~~17.16.~~ Backfilling shall be undertaken in accordance with the certified GMP.

~~18.17.~~ Only material that meets the definition of cleanfill under the WasteMINZ document 'Technical Guidelines for Disposal to Land (2018)' shall be imported to the site for backfill. There shall be no disposal of sawdust, concrete, large trees, stumps, refuse, cans, bottles, plastics, timber, household rubbish, or liquid waste. Fill material shall only be imported to the site if total soil contaminant concentrations are below regional soil background concentration limits, as specified in "Background concentrations of trace elements and options for the managing of soil quality in the Tasman and Nelson Districts" - Landcare Research (2015).

~~19.18.~~ Organic material imported to the site shall not exceed 2% by volume per load and is limited to incidental organic matter associated with the excavation of inert natural materials. For the avoidance of doubt this does not apply to topsoil retained on site for reinstatement.

~~20.19.~~ Any backfill material sourced from offsite shall only be brought to the site by the Consent Holder and/or its contractors, and shall be pre-screened for compliance with these cleanfill requirements before being brought to site..

~~21.20.~~ A record shall be kept of all cleanfill used as backfill. be in accordance with the requirements specified in the GMP. This record shall be kept available on site, and shall be produced without unreasonable delay upon request from a servant or agent of the Council.

Groundwater monitoring

~~22.21.~~ The monitoring bores required by condition ~~10.11~~ shall be sampled every three months following the commencement of any works in accordance with the GCFMSGMP. The samples shall be analysed by a suitably qualified and experienced person for all of parameters detailed at condition 12.

All testing equipment must be calibrated and verified as accurate prior to testing by a suitably qualified and experienced person. All testing shall be at the full expense of the consent holder.

Sampling results shall be submitted to the Council's Team Leader ~~—~~ Monitoring & Enforcement within 10 working days of the results being obtained.

~~23.~~—Procedures to respond to any issues arising from the groundwater monitoring shall be in accordance with the requirements detailed in the GMP.

Reporting & monitoring

24.22. Monitoring and reporting in relation to dust management, and soil reinstatement and rehabilitation shall be undertaken in accordance with the requirements of the certified GMP.



BEFORE

Independent Commissioners appointed by Tasman District Council

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of an application by CJ Industries Ltd for land use consent RM200488 for gravel extraction and associated site rehabilitation and amenity planting and for land use consent RM200489 to establish and use vehicle access on an unformed legal road and erect associated signage

**EVIDENCE OF WAYNE SCOTT ON BEHALF OF CJ INDUSTRIES LTD
SUPPLEMENTARY EVIDENCE ON: (1) NATIONAL POLICY STATEMENT FOR
HIGHLY PRODUCTIVE LAND AND (2) APPLICATION FOR DISCHARGE
PERMIT**

4 November 2022

1. INTRODUCTION

1.1 My full name is Wayne Scott. I am Chief Executive Officer (“CEO”) of the Aggregate and Quarry Association (“AQA”) and of MinEx.

1.2 The applicant has applied for resource consents authorising the extraction of gravel, stockpiling of topsoil, and reinstatement of quarried land, with associated amenity planting, signage and access formation at 134 Peach Island Road, Motueka:

- (a) RM200488 land use consent for gravel extraction and associated site rehabilitation and amenity planting, and
- (b) RM200489 land use consent to establish and use vehicle access on an unformed legal road and erect associated signage.

- 1.3 The applicant has also subsequently applied for resource consent for discharges associated with the proposed activities (RM220578). My evidence addresses the topic of quarrying and groundwater resources.
- 1.4 Since the applicant lodged its initial application, the Government has produced the National Policy Statement on Highly Productive Land 2022 (“NPS HPL”). My evidence also addresses the NPS HPL, in particular how the proposed activity meets the relevant criteria in clause 3.9.

Qualifications and Experience

- 1.5 The AQA is the industry body representing construction material companies which produce 50 million tonnes of aggregate and quarried materials consumed in New Zealand each year. MinEx is the national Health and Safety Council for New Zealand’s extractive industries.
- 1.6 I became CEO of the AQA in 2018 and of MinEx in 2017. As CEO I am responsible for the strategic oversight of each organisation and making sure each delivers on their respective responsibilities to the industry. I also have extensive experience in managing quarrying activities, and managing quarry and mine safety in both New Zealand and Australia.

2. EXECUTIVE SUMMARY

Discharge permit

- 2.1 I have experience of a range of quarries that are located above important groundwater resources. In my experience it is entirely feasible to quarry and backfill in a manner that does not adversely impact the groundwater resource.

NPS HPL

- 2.2 I understand that there are two discrete parts of the site classified as LUC 3 to which the NPS HPL applies, although one of those sites is subject to significant constraints that affect its productive capacity (it is subject to flooding).
- 2.3 In these areas aggregate extraction is appropriate if it has a functional or operational need to be located there and if the activity provides significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand.

- 2.4 In my opinion the proposed activity has a functional and operational need to locate on the site, because aggregate extraction must be located where aggregate is available. It is locationally constrained.
- 2.5 I also consider that the proposed activity could provide a significant regional benefit through providing aggregate to meet current and increasing demands for aggregate based products (concrete and chip seal) for essential infrastructure including homes, roads, marae, and coastal and flooding infrastructure.
- 2.6 These benefits could not otherwise be achieved using resources within New Zealand because of the limited availability of aggregate everywhere (aggregate in other regions is needed for those regions) and because the cost of transporting aggregate from elsewhere would significantly change the end cost of aggregate and products that use aggregate. There are also significant carbon emissions associated with transporting aggregate.

3. EVIDENCE

Discharge permit

- 3.1 There are a number of alluvial quarries across the South Island that operate successfully within close proximity to groundwater. Quarries in the Yaldhurst area near Christchurch, for example, supply aggregate and sand to the Christchurch market. These quarries extract aggregate to close to the water table with no impact on the groundwater. Other quarries operate within rivers where environmental controls manage not only water quality, but fish passage and bird nesting needs.

Applicability of the NPS HPL to the application site

- 3.2 “Highly productive land” is defined as:¹

means land that has been mapped in accordance with clause 3.4 and is included in an operative regional policy statement as required by clause 3.5 (but see clause 3.5(7) for what is treated as highly productive land before the maps are included in an operative regional policy statement and clause 3.5(6) for when land is rezoned and therefore ceases to be highly productive land)

¹ Clause 1.3 Interpretation

3.3 I am advised that clause 3.5(7) applies because maps produced in accordance with clause 3.4 have not yet been included in an operative regional policy statement as required by clause 3.5. Clause 3.5(7) says:

(7) Until a regional policy statement containing maps of highly productive land in the region is operative, each relevant territorial authority and consent authority must apply this National Policy Statement as if references to highly productive land were references to land that, at the commencement date:

(a) is

- (i) zoned general rural or rural production; and
- (ii) LUC 1, 2, or 3 land; but

(b) is not:

- (i) identified for future urban development; or
- (ii) subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle.

3.4 I understand that the site has two discrete areas classified as LUC 3 one inside and one outside the stopbank and that it is these areas to which the NPS HPL applies.

Use of the site under the NPS HPL

3.5 I have reviewed and am familiar with clause 3.9 of the NPS HPL.

3.6 Clause 3.9(1) tells territorial authorities to avoid the inappropriate use or development of highly productive land that is not land-based primary production. A use or development of highly productive land is inappropriate unless it meets one or more of the criteria in clause 3.9(2) and the measures in clause 3.9(3) are applied.

3.7 The criterion in clause 3.9(2)(j) make specific provision for quarrying and aggregate extraction. Aggregate extraction is an appropriate use of highly productive land if:

- (a) there is a “functional or operational need” for it to be on the highly productive land; and
- (b) it “provides significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand.”

- 3.8 in my view, the applicant's proposal meets that criterion as discussed below. It is beyond my expertise to comment on clause 3.9(3).

Functional or operational need

- 3.9 I have been advised that for the purposes of the NPS HPL a "functional need":²

means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment

and that "operational need":³

means the need for a proposal or activity to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics or constraints.

- 3.10 In my view aggregate extraction meets the definition of "functional need". Aggregate deposits are 'location specific' - limited in quantity, location, and availability. They can only be sourced from where the aggregate is physically located and where the industry is able to access them. The "environment" in which they must occur is an environment that contains river gravel. The site is one such location in the Nelson-Tasman region.
- 3.11 Logically this means there is also an "operational need" to locate where the aggregate source is located. It is not technically, logistically, or operationally possible to extract aggregate from anywhere other than where the aggregate is located.
- 3.12 The quarry has other functional and operational needs such as the need to be located close to the end use location, but these are not directly relevant to "functional need" for the NPS HPL.

Significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand

- 3.13 In my opinion there is a significant regional public benefit from the extraction of river run aggregate at the site.
- 3.14 This is because on the one hand the region's growing economy and population means there is increasing pressure on existing aggregate sources, and consequently to find other

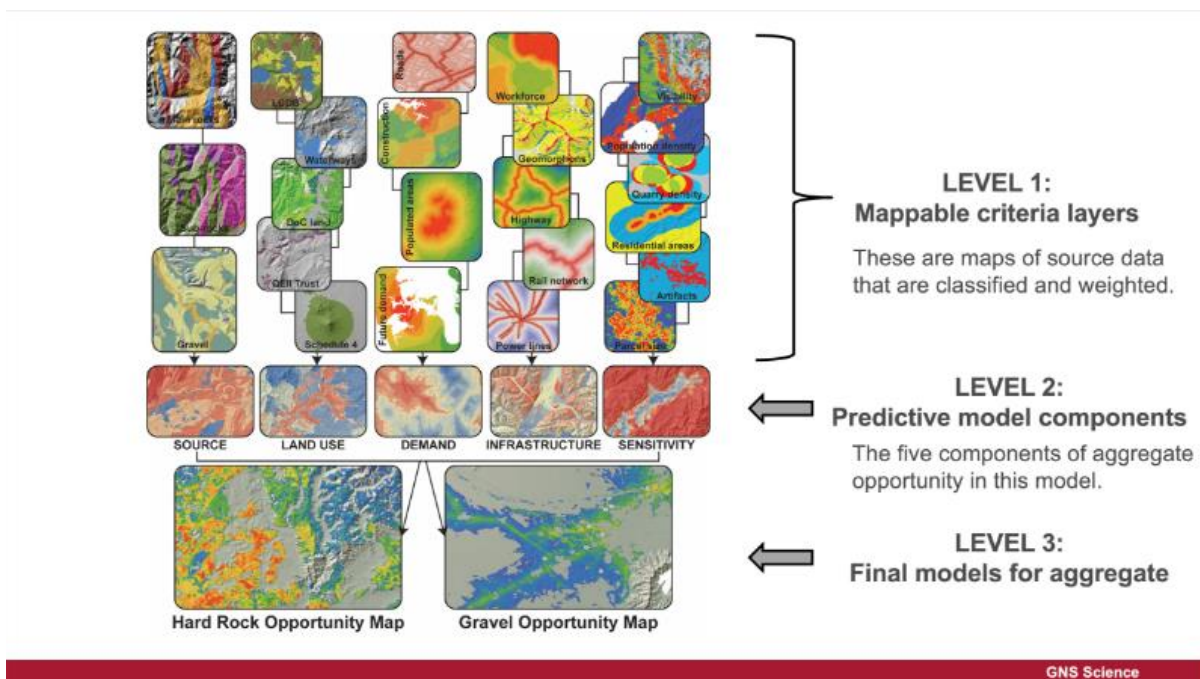
² From the National Planning Standards.

³ Ibid.

sources. Further aggregate sources are needed to deliver essential public infrastructure now and in the future. And on the other hand, there is a serious shortage of accessible aggregate within the region.

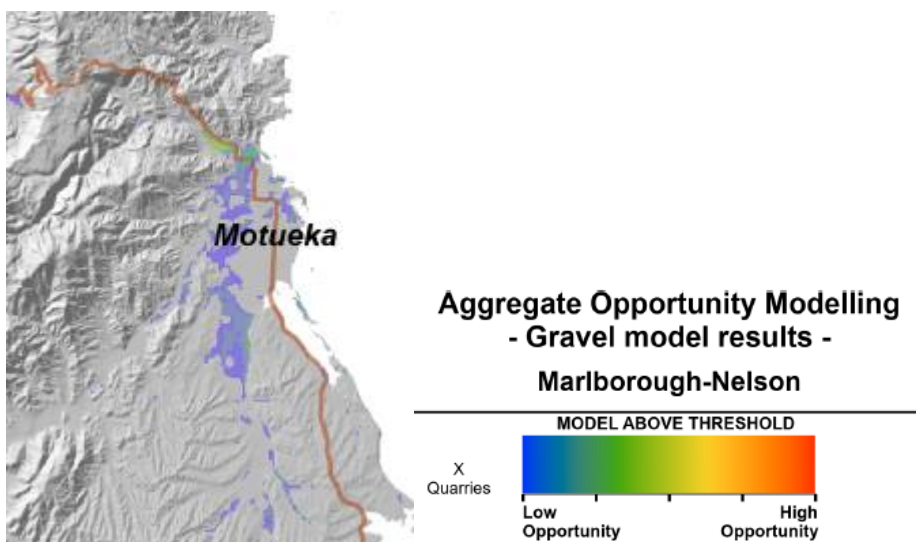
- 3.15 Beginning with demand, aggregate production in the Nelson Tasman region has been at around 1 million tonnes a year in recent years (in 2020 it dropped to 640,000 due to Covid factors). The region is a higher (per person) user of aggregates than other parts of the country because of its population growth, extensive roading network and lengthy coastal area. Anticipated growth, as reflected in the draft Nelson Tasman Future Development strategy, suggests demand will increase.
- 3.16 Looking at housing alone, the anticipated 29,000 new homes needed in the next 30 years amounts to 7.2 million tonnes of aggregate, based on industry averages, or 240,000 additional tonnes being required annually. This extra 7.2 million tonnes shows the extent of current shortfall.
- 3.17 As Mr Corrie-Johnston has explained in his primary evidence dated 15 July 2022, the aggregate from the site will be used predominantly for concrete and sealing chip. It is highly valued for these uses because of its hardness and because river gravel is one of the few rock sources that can be used to make concrete and sealing chip to meet NZ specifications (M06 Sealing Chip Specifications 2019).
- 3.18 It is also important to note the regional public benefit stemming from the role of aggregates in strengthening resilience to natural hazards and climate change. Aggregates, for example, are needed for flood protection and to adapt to sea level rise and coastal erosion through strengthening of sea walls etc. They will be needed to repair damage to coastal infrastructure and to make infrastructure generally more resilient to greater intensity storms and extreme weather events.
- 3.19 In terms of climate change mitigation and the reduction of emissions, aggregate plays a role in, for example, the construction of wind farms. New wind capacity for New Zealand, expected by the Climate Change Commission in the next 15 years, will require an additional 1 million tonnes of aggregate and sand.
- 3.20 Lastly, the recent flooding events in the Nelson and Tasman regions caused significant damage to these regions' roads which has also increased the demand for chip seal.

3.21 As regards supply, work was recently undertaken by GNS Science for the New Zealand Infrastructure Commission to identify hard rock and gravel sources around New Zealand to rate the extraction accessibility of those on a spectrum from ‘Low Opportunity’ to ‘High Opportunity’. The Opportunity rating of a particular site or area was based on the extent to which it was impacted by a set of 23 mappable layers coming with five categories: source, land use, demand, infrastructure, sensitivity, with each category having a range of criteria layers feeding into it as shown in the graphic below:⁴



3.22 The picture for the Nelson Tasman region can only be described as dire, for both gravel and hard rock, with overall Opportunity being low and much of what is available being classified as Low Opportunity or Medium Opportunity at best. The maps showing this are provided in **Attachment A**, with a clip from the Aggregate Opportunity Map showing the Motueka area below:

⁴ <https://www.gns.cri.nz/research-projects/aggregate-modelling/>



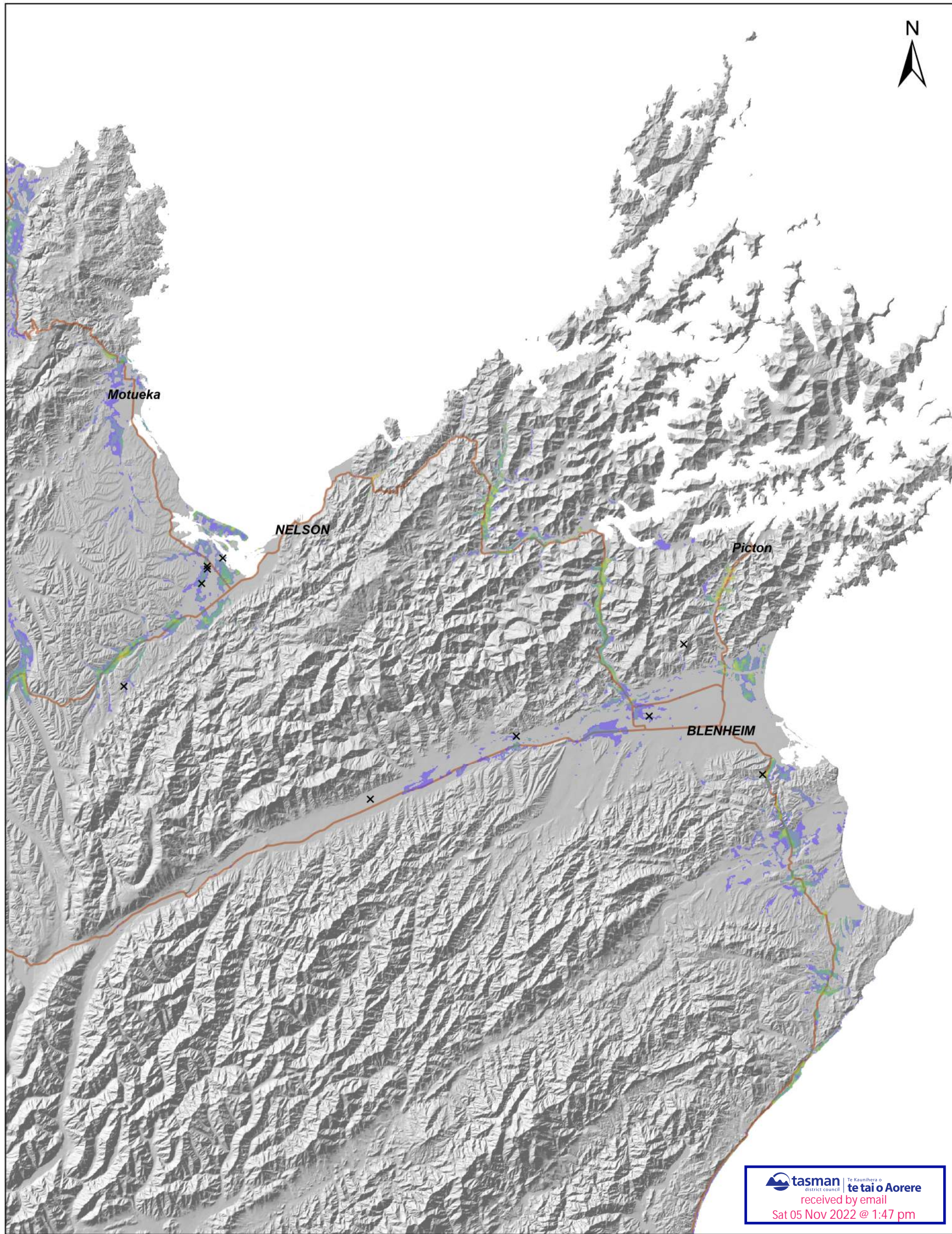
- 3.23 This means that to meet the need for aggregate it is critical that all sites that presents a strong and workable opportunity for extraction are capitalised on. It cannot be assumed that there will be other, “better” locations.
- 3.24 I understand from Mr Corrie-Johnston’s evidence that the concrete produced from the aggregate extracted from the site will be used for a broad spectrum of activities from house builds, factories, sheds, driveways, marae, community facilities, infrastructure, and any other use where concrete is required. In addition, I understand that the technical experts advising the applicant are of the view that the effects of aggregate extraction can be appropriately avoided, remedied, or mitigated. It therefore seems to me to provide a significant regional public benefit.
- 3.25 Turning to the second part of this criterion, in my opinion the regional benefit to be gained from the aggregate available at the site could not otherwise be achieved using resources within New Zealand. This is because, although aggregate could theoretically be sourced from elsewhere in New Zealand and brought to the Nelson and Tasman regions, this is likely to be both unachievable in reality and impractical.
- 3.26 First, there is extremely high demand for aggregate around the country – nowhere does supply exceed demand. This means that even though aggregate is sourced in other parts of New Zealand, it is very unlikely there will be any surplus available to provide for the demands of regions other than the region in which the quarry is located. This situation is compounded by policy that only provides for quarrying where it has a significant regional benefit, such as the NPS HPL, as it makes it unlikely that a quarry in one region could be used to supply the aggregate needs of a different region.

- 3.27 Second, in the unlikely event excess aggregate were available to be sourced from outside the region, the costs, both economic and environmental, mean it is impractical and in some cases not viable. Aggregate is typically transported by diesel powered trucks. This has a high carbon emission footprint, and additional truck movements can result in traffic congestion and damage to roading infrastructure. These factors mean bringing in aggregate from elsewhere can be prohibitive from a social licence perspective. If those factors are disregarded and aggregate is available and is brought into the region from elsewhere, the cost per tonne becomes significantly more expensive. This means that the final cost of the product goes up significantly, potentially prohibitively, which reduces the regional benefit that the quarry provides.
- 3.28 For completeness I also note that any flow on benefits from the activity, such as direct employment and indirect (associated with monitoring etc) employment will not be realised if aggregate is sourced outside the region.

Wayne Scott

4 November 2022

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EXPLANATION:
 Results of aggregate opportunity modelling for gravel includes lithology types of river gravels, beach gravels, dune sand, volcanic sediments (pumice, ignimbrite, tuff) and other unconsolidated material. When using these results, please also cite and consult report: Hill, M. P. (2021) "Aggregate Opportunity Modelling for New Zealand", GNS Science Report: 2021/10. 96 p. (doi:10.21420/ 1RKC-QB05).
PROJECTION: NZGD 2000 New Zealand Transverse Mercator

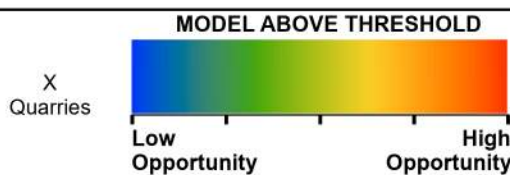
DRW:

MPH

CHK:



**Aggregate Opportunity Modelling
 - Gravel model results -
 Marlborough-Nelson**



APPENDIX 2

Map 22

REPORT:
 GNS SR 2021/10

DATE:
 March 2021

