BEFORE THE WEST COAST REGIONAL COUNCIL & GREY DISTRICT COUNCIL OPERATING AS JOINT DECISION-MAKERS THROUGH THEIR APPOINTED COMMISSIONER PANEL

IN THE MATTER OF	An application under Part 6 of the Resource Management Act 1991
AND	
IN THE MATTER OF	An application by TiGa Minerals and Metals Limited for resource consents. Reference WCRC: RC-2023-0046 and GDC: LUN-3154/23.
AND	
IN THE MATTER OF	An application at a Site on Barrytown Flats, State Highway 6, approximately 9 km south of the Punakaiki Township and 36 km north of Greymouth, to establish and operate a mineral sand mine in an area of roughly 63 ha over 12 years, including the construction of associated infrastructure, such as a processing plant and associated facilities of an area of about 2.0 ha up to 15 m in height and for a minimum average of 50 truck movements per day.

INDEPENDENT COMMISSIONERS' DECISION ON APPLICATION BY TIGA MINERALS AND METALS LIMITED TO MINE AT BARRYTOWN

Dated 29 April 2024

The **outcome** the Panel arrived at unanimously on the joint applications is**:**

(a) **Grant** the consents that TiGa Minerals and Metals Limited sought from Grey District Council.

(b) **Grant** the consents that TiGa Minerals and Metals Limited sought from the West Coast Regional Council.

(c) **Impose** the composite set of conditions in **Appendix 1** and **Appendix 2** on all consents granted.

Table of Contents

Attachment 1: List of application items, materials, reports and evidence received by the Panel excluding individual lay submitter items presented on the day of the hearing

Attachment 2: – Index of items provided as part of the planning bundle for the hearing

Appendix 1: Consent Conditions – Provided as a separate document

Appendix 2: Consent Condition Schedules provided as a separate document

- **Schedule 1: Tai Poutini Resources, TiGA Consent Application Plan, 18 January 2024**
- **Schedule 2: IHC Mining, Site Layout, Structure Layout, and General Process Infrastructure Plans**
- **Schedule 3: Novo Group Limited, Barrytown Mine, Indicative Access Arrangement**
- **Schedule 4: National Light Pollution Guidelines for Wildlife (Australian Government, 2023), Appendix G - Seabirds**

- **Schedule 5: Glasson Huxtable Landscape Architects, Barrytown Mineral Sands Mining Project, Landscape Mitigation Planting Plans**
- **Schedule 6: Tai Poutini Resources, Clean Water Facility, Planting Covenant Area**
- **Schedule 7: Tai Poutini Resources, Barrytown ESCP Overview Concept Plan**
- **Schedule 8: Kōmanawa Solutions Ltd, Water Management**

Section 1 – Terminology and summary of context, the main issues and the Panel's assessment

Appointments

[1] Commissioners John Maassen (Chair), Rob van Voorthuysen, and Tim Vial, acting under delegated authority from the Grey District Council (*GDC*) and West Coast Regional Council (*WCRC*), were jointly appointed to hear and decide the resource consent applications lodged by TiGa Minerals and Metals Ltd. to undertake an open-cast sand mineral mine on the Barrytown Flats.

Terminology

[2] We, the Commissioners, refer to ourselves as "the Panel" and by the associated pronouns "we" and "our".

[3] We refer to the Applicant as the "Applicant" or simply as "TiGa".

[4] We have used the usual RMA acronyms where acronyms are familiar for national policy statements, national environmental standards or other legal or planning instruments.

[5] We have developed other terms within the decision, including generic descriptions of resources such as the *Coastal Lagoons* and the *Langridge Wetlands*.

[6] We define other terms using the jargon of the mining industry.

[7] The *Offered Conditions* refer to the final suite of conditions TiGa presented as part of its final reply. These form the foundation for **Appendix 1 and Appendix 2** sent with this decision as separate documents.

[8] Variations in terminology and style reflect the fact all the Panel members contributed to writing the decision.

Evidence and planning instruments

[9] A table of the evidence we received is in **Attachment 1**, which excludes lay submitter statements presented to us at the hearing from a range of submitters. The evidence in **Attachment 1** is on the WCRC website here.

[10] TiGa and the Councils provided the Panel with a hyper-linked planning bundle of the key instruments. **Attachment 2** is an index from that planning bundle. The planning bundle can be found on the WCRC website here.

[11] We have considered those planning provisions in our assessment of the applications and any other provisions brought to our attention.

Decision format

[12] This is a combined decision containing the Panel's reasoning to approve applications for consents to both local authorities.

[13] This section (Section 1) provides a summary and overview of our decision. Section 2 addresses the context and matters more or less relevant to the applications to both Councils, including legal matters. In Section 3, we deal with the GDC consents, and in Section 4, we deal with the WCRC consents.

[14] Where we have assessed adverse or positive effects in assessing the application for GDC consents, and they are relevant to WCRC consents, for example, cultural or economic effects, we have not repeated our findings in Section 4.

Summary

Overview

[15] This section summarises the Panel's lengthy decision about TiGa's proposed mineral sand mining operation. The operation incorporates an innovative water management system and operates on the coast in a delicate ecological setting. The Site is centrally located on the Barrytown Flats and is currently used as a run-off block by the owner, Nikau Farm Limited (the *Site*).

[16] A summary risks detracting from our more detailed reasoning. However, some readers will undoubtedly benefit from an overview of the context, the main issues, and the Panel's assessment. The summary provides a valuable entrée into the denser reasoning that follows in Section 2 onwards and forms part of the decision with complementary and in-depth analysis in later sections.

[17] TiGa is a private company with Australian and New Zealand shareholders. The New Zealand shareholders are minority shareholders, but before that occurred, they were shareholders of another company that made an earlier application to mine the Site. Another Commissioner Panel declined that application because of inadequate information. They are different proposals with a family resemblance. Mr Berry, TiGa's Project Manager, outlined the changes made to the earlier application in his evidence.

[18] TiGa targets the minerals ilmenite (titanium dioxide) and garnet. It may also seek to recover from the sand ore metals, such as titanium. Hence, the company name TiGa. These minerals and metals are providentially found within coastal sand strandlines on the Site.[1] About 4.8 m tonnes of recoverable sand ore are within the mining Site.

[19] Barrytown Flats is a coastal strip of flat land bounded by Pakiroa Beach and the Tasman Sea, a long stretch of open coastline to the west and Paparoa National Park, a majestic forested range to the east. The Barrytown Flats extend latitudinally between the mouth of the Punakaiki River to the north and 17 Mile Bluff to the south.

[20] The Barrytown Flats are a mosaic of natural and cultural resources and activities, including:

(a) Pastoral farms.

(b) Small lot holdings and rural residential development patterns centred on State Highway 6 (*SH6*).

(c) A primary school and a cluster of residential lots.

(d) Swamps and reserves.

(e) A complex network of waterways from catchments of varying sizes that emerge from the Paparoa foothills before travelling a short distance to the Tasman Sea.

[21] The plan below, helpfully provided by the Coastal Road Resilience Group Inc. (*CRRG*), a submitter, illustrates the elements of the Barrytown Flats under a protection management ethic following various statutes and planning instruments.

[1] SOE Robert Brand at [18].

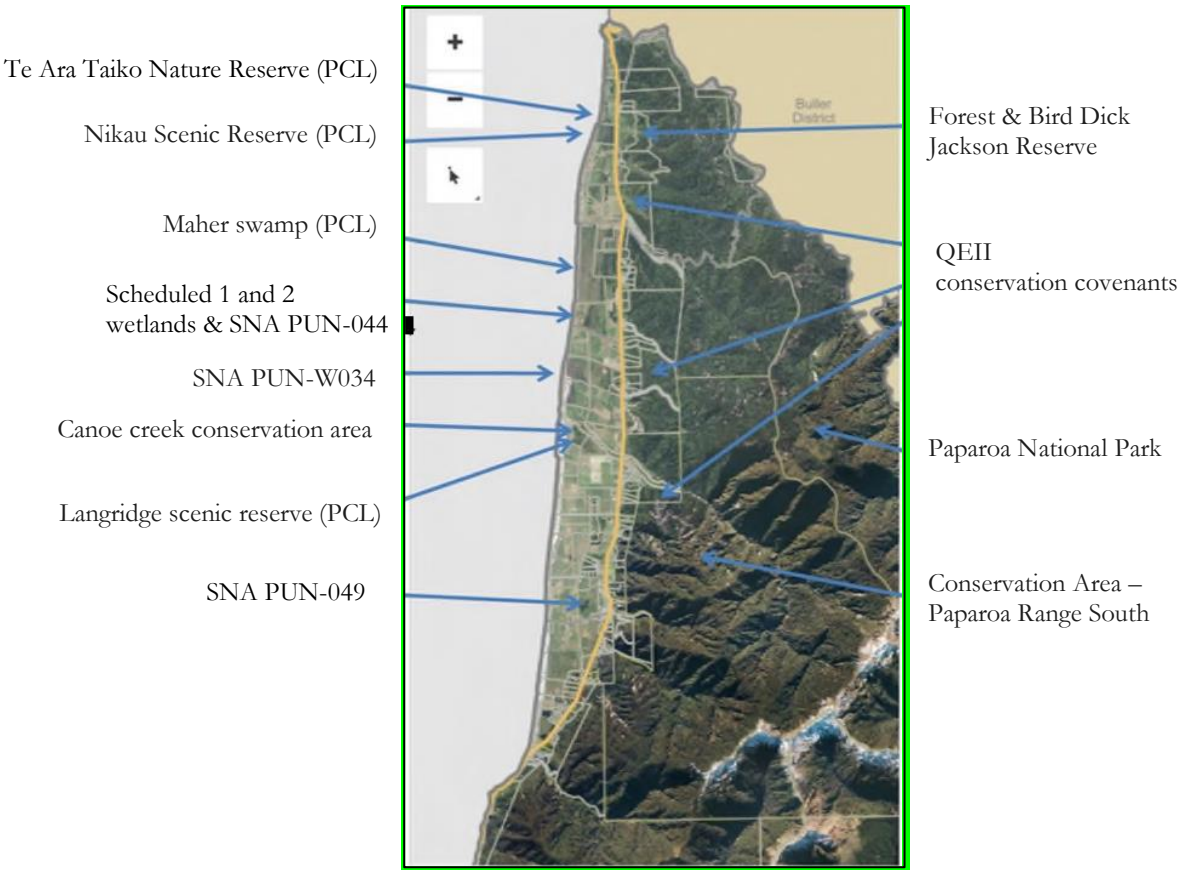

Figure 1-some of the protected areas of the Barrytown Flats

[22] The Barrytown Flats area was once mined, and mining artefacts, such as Rusty Pond, on land owned by the Langridge family interests adjacent to and north of the Site, formed by dredging, remain.

[23] At a Site-specific scale, the mine development area (*MDA*) of 64 ha is bounded to the east by SH6 (also called the *Coast Road*), the main road servicing the settlements of the coastal margin of the West Coast region. To the south is Canoe Creek, and to the north is Deverys Creek. To the west, within a dynamic coastal environment, are two coastal lagoons called Canoe Creek Lagoon and Deverys Lagoon, fed by Collins Creek and Deverys Creek, respectively (the *Coastal Lagoons*). While discrete, these Coastal Lagoons discharge at a mid-point in the littoral zone. The ecologists agreed the Coastal Lagoons are significant natural areas even though the proposed Te Tai Poutini Plan has not identified much of the Canoe Creek Lagoon as an SNA.

[24] The Langridge family owns land to the north and south of the Site and the northern block includes Rusty Pond and possibly other swamps (the *Langridge Wetlands*).

[25] TiGa has not studied or delineated the *Langridge Wetlands* because, as Mr Freeman and other Langridge family members confirmed, the Langridges unhelpfully refused to give TiGa's representatives access to their land for research purposes.

[26] During the hearing, the Langridge family interests consented to and indeed invited access to their land to delineate any wetlands. They said the previous non-engagement with TiGa arose from misunderstandings. That invitation was impractically late. [2]

[27] Without access, TiGa's approach was to regard Langridge's northern block as possessing "natural inland wetlands", including Rusty Pond and potentially other wetlands further northeast and hence within 100 m of the MDA. Therefore, TiGa argued its case on the basis that the Proposal engaged Resource Management (National Environmental Standards for Freshwater) Regulations 2020, Regulation 45D (*NES-FW*) for the Langridge Wetlands.

[28] TiGa applied the effects management hierarchy to manage hydrological interactions using that worst-case scenario i.e., that the *Langridge Wetlands* were natural inland wetlands. In that way, TiGa answered the argument of some submitters, including the Langridge family, that TiGa did not provide adequate information about the potential effects on wetlands on the Langridge property like its predecessor since, for reasons already given, TiGa's experts had neither delineated the wetlands nor assessed them.

[29] The drone photograph below orientated to the south, obtained from Dr Bramley's evidence, captures well the Coastal Lagoons in the foreground and Rusty Pond to the left hand side.[3] Dr Bramley is TiGa's lead terrestrial ecologist.

[2] See email From Langridge family to Dr Durand and the Panel dated 23 February 2023.
[3] SOE Dr Bramley, Figure 17.

Figure 17: Collins Creek Lagoon in January 2024 showing raupō flaxland in the foreground and partially drowned rushes and sedges on the coastal edge of the lagoon (from Gary Teear)

[30] Our brief resource descriptions show that the Site is surrounded by significant natural heritage that supports a complex array of ecological relationships operating within and around the human activities on the Barrytown Flats.

[31] The Barrytown Flats are also notable for being close to the colonies and within the flight path of New Zealand's only remaining mainland Petrel, the Westland Petrel or Tāiko. This large, black, burrowing, boisterous bird has colonies in the forested foothills of the Paparoa Range about 3.6 km north of the Site. The breeding colonies are designated as a scientific reserve called "The Westland Petrel Specially Protected Area". The protected habitat also includes the Te Ara Tāiko Nature Reserve, administered by the Department of Conservation, and the Dick Jackson Memorial Reserve, which is owned and managed by Royal Forest & Bird.

[32] The Site has an MDA of 64 ha with a pit mining area of approximately 34 ha between the Coastal Lagoons and a construction bund to be formed through the Site. The bund will be approximately 80 m wide and located 326 m from SH6. TiGa's proposal includes a process plant with two major elements: the Mining Unit Plant (*MUP*) and the Wet Concentrate Plant (*WCP*). The MUP is adjacent to the mine pit and sizes the sand ore for processing. The sized sand is then processed in a clad WCP building to obtain Heavy Mineral Concentrate (*HMC*). The processing components were set out by Mr Lawson for TiGa in evidence containing many helpful illustrations.

[33] TiGa proposes to mine in ten 100 m wide strips in the sequence shown in the Concept Plan. Mining will progress at 5 m/day or 35 m/week.[4] At any time, an area not exceeding 3 ha will be mined, i.e., 100 x 300 m for any strip. The Concept Plan is shown below.

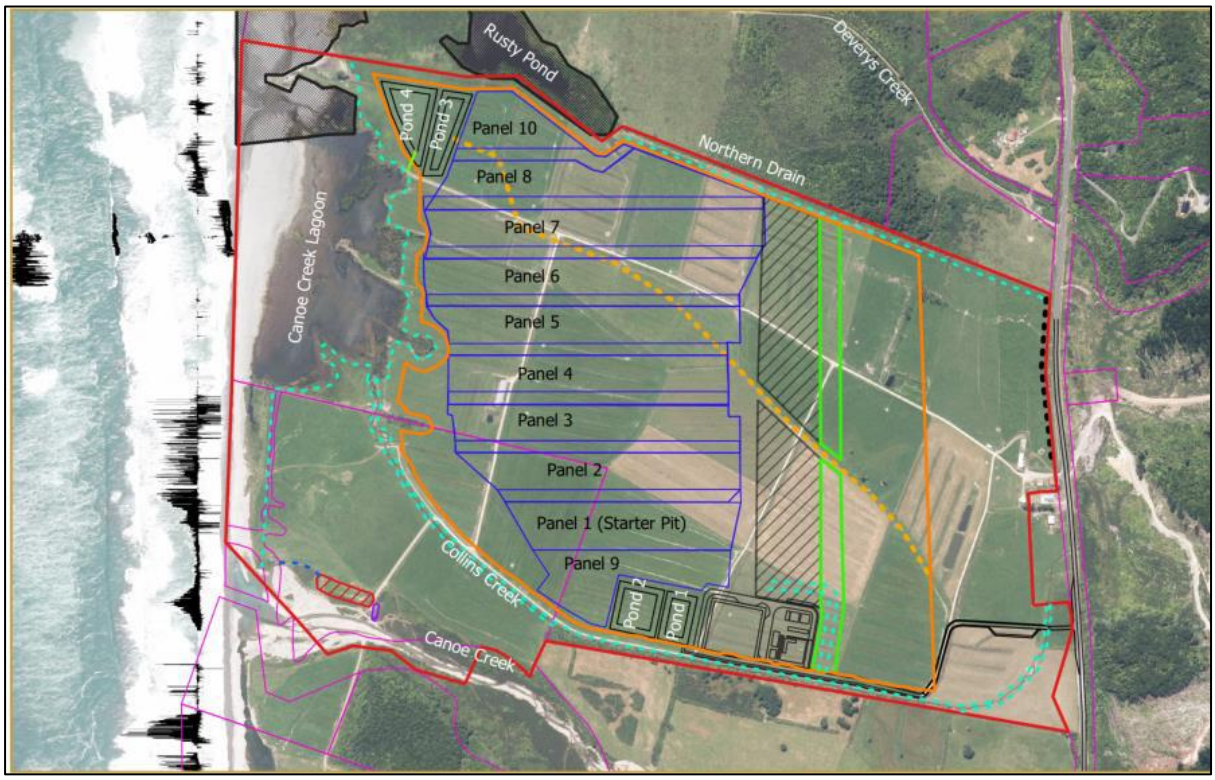

Figure1: General Site layout

[34] The geology of the Site is well-summarised in the Kōmanawa Report "Barrytown Mineral Sands Hydrological Impact Assessment" (Attachment I) to the application where at section 2.4.2, Mr Rekker for Kōmanawa noted:

> The mineral sands that are the focus of mining proposals comprise post-glacial coastal sand and gravel deposits grouped stratigraphically within the Nine Mile Formation (Suggate, 1989, see Figure 6). The mineral sands are considered to have been set down in a series of north-south trending pro-grading strand lines. The sediment supply for deposition of the sands is inferred to have been marine long-shore drift originating from the south. The proposed sand extraction area comprises a series of post-glacial strand lines extending from the foot of a Late Pleistocene sea cliff (coincident with SH6) and a staircase of up to four terraces that have prograded westward to the present-day coastline. During the formation of strand lines, heavy minerals were concentrated within the surf-washed

[4] SOE Kate McKenzie at [2.14].

> zone into lenticular black sand leads. These terraces and coastal gravelly sands are stratigraphically grouped within the Nine Mile Formation of Holocene to Late Pleistocene age (i.e. Recent to 14,000 years Before Present). The Nine Mile Formation contains marine placer mineral concentrations of ilmenite, gold and associated heavy minerals (epidote, garnet, titano-magnetite, zircon and trace monazite). The heavy minerals contain fractions with high magnetic susceptibility that were revealed in the Total Magnetic Intensity (TMI) channel of a recent airborne geophysical survey (Vidanovich, 2008).

[35] The indurated black sand strandlines that TiGa targets were quantified for their resource value by H&S Consultants Pty Limited as part of a Mineral Resource Estimate (*MRE*).

[36] TiGa aims to uncover the mineralised material, extract it and rehabilitate the mined area using excavators and trucks comprising the following steps[5]:

(a) Topsoil, approximately 0.2-0.6 m thick, and overburden will be removed and preserved (stockpiled) for rehabilitation using an 85-tonne excavator, and 40-tonne articulated trucks. This area will be approximately 0.5 ha. Once in mining sequence, topsoil will be removed ahead of mining and placed straight onto rehabilitated ground behind the mining pit.

(b) The sand ore will be mined via excavator and deposited onto a mining bench of approximately 1 ha in area. The ore will then be picked up by front end loader directly to the in-pit mining hopper. The slurry will pass through a trommel and desliming circuit before being pumped to the Wet Concentrator Plant (Processing Plant.

(c) Reject large material from the trommel and slimes (small particles such as clay, mixed with water) will be returned to the mine pit.

(d) Mining will occur at a faster rate (approximately 350 tonnes per hour of sand ore) than processing (approximately 165 tonnes per hour), and the excess ore will be stored at the processing plant and used overnight to ensure the processing plant can run 24/7.

(e) Excavated material will be processed at the Processing Plant to extract the HMC. Heavy minerals will be separated from the ore using a water and gravity circuit,

[5] This list is taken from Mr Rekker's evidence, TiGa's hydrologist.

drained of excess moisture, and stored at the Processing Plant in a farm implement building with a concrete floor.

(f) Un-mineralised sands will be pumped back to the pit cavity, which will be progressively filled as the mine pit progresses. Pumped tailings will be spread across an approximate 1 ha area of the mining void. Tailings are dewatered and discharged to the mining void via cyclone. The tailings will be allowed to naturally beach out (spread out). The cyclone will be moved as required to distribute the tailings as necessary. Tailings will be levelled and contoured with the use of excavators and bulldozers ready to receive the pre-stripped overburden and soil. The mining void will be progressively rehabilitated as the mining void advances. Once vegetative cover (sowing of grass) is established, these areas are removed from the disturbed area.[6]

[37] The Site's hydrological setting is complex, involving interconnected groundwater, surface water, and wetland systems. The groundwater and surface water systems are highly responsive to rainfall because of the presence of very vertical catchments and the short distance from the foothills across the coastal margin to the sea.

[38] The presence of saturated sands below the topsoil and the sensitivity of the water bodies and wetland complex on the coastal flat demand a sophisticated water management system. The water management system was explained to the Panel by Mr Rekker of Kōmanawa Solutions Limited, with more detail contained in the updated Water Management Monitoring and Mitigation Plan Rev 3 dated 14 December 2023 Report No. Z22004_2.[7]

[39] The goals of the water management system, in the Water Management Plan (and translated into offered conditions), are in summary:

(i) The flows from the springs on RS 4884 (Langridge property to the south) used for domestic and stock water supply are not reduced by mining.

(ii) The water levels in the wetlands on Lot 1 DP 3424, including 'Rustys Pond' (Langridge property to the north) are not altered by mining.

[6] This summary is from the Draft Water Management Plan prepared by Kōmanawa Solutions Limited for TiGa, and the Rehabilitation Management Plan attached to the evidence of Stephen Miller.
[7] An earlier version was in TiGa's application.

(iii) The rate of surface water inflow to Canoe Creek Lagoon from Collins Creek is not reduced by more than 10% of the Collins Creek Mean Annual Low Flow (MALF).

(iv) The flow in Collins Creek is not reduced by more than 10% of the MALF as the creek approaches low flow condition.

(v) Flow consistent with the drain's intermittent hydrological function and with dry weather flows is maintained in Northern Boundary Drain downstream of piezometer PZ-10 during periods when Collins Creek approaches within 120% of its MALF, i.e., dry spells.

(vi) The quality of water discharged to receiving waters will not cause adverse impacts on stream ecology and visual clarity.

(vii) The rate of take of water from Canoe Creek is not greater than 10% of the MALF.

(viii) Potential adverse ecological impacts associated with discharge of naturally present toxic metals and phosphorus in downgradient surface waters are avoided.

(ix) The pre-mining surface drainage patterns are restored such that the catchment areas for the Northern Boundary Drain and Canoe Creek Lagoon are not changed significantly.

(x) The soil profile restoration, land contouring and surface drainage installed during mine rehabilitation does not increase the rate of groundwater drainage at the site.

[40] The Panel conducted a hearing on TiGa's application in Greymouth over seven days in early February 2024. There were further audio-visual hearings on two days, giving an effective hearing period of about nine days. During that process, the Panel heard extensive evidence from experts and lay submitters and extensively questioned expert witnesses and lay submitters on all key matters.

[41] In her written legal submissions for TiGa's reply, Ms Booker, TiGa's lawyer, accurately characterised the hearing process as leaving "no stone unturned". The process was iterative to the extent that TiGa provided many versions of conditions to respond to particular issues or clarify matters that remained. Further, TiGa provided a mine lighting plan, which the Director-General of Conservation reasonably requested. That arrived mid-way through the process. We then permitted Westland Petrel experts more time to comment on that lighting plan.

[42] At the end of the hearing, TiGa provided a final set of conditions in their reply, setting the parameters that they offer to manage the activity's effects (the *Offered Conditions*). These

parameters formed the basis for our assessment of the degree of effects that is likely to remain when applying those Offered Conditions.

[43] The Panel heard from many submitters and Council experts. Notable for the depth of participation were the following individuals and groups:

(a) The CRRG is a community -group whose members placed a close ruler over the application and provided extensive and mostly lay evidence on a range of topics, including ecology, radiation, transport, indigenous biodiversity, dust, and noise. CRRG's chair, Katherine Crick, led that local group. As that group's name suggests, SH6 is the lifeline for West Coast communities and a key concern related to the transport-related effects of TiGa's proposed mining operation. Undoubtedly, CRRG's contribution to the process prompted many of the Proposal's design adjustments reflected in the Offered Conditions.

(b) The Director-General of Conservation provided evidence from Ms Simister, an expert on the Westland Petrel, supporting the Director-General's submission on the application. The submission focused on protecting the Westland Petrel from artificial light during darkness when the Westland Petrel leaves and returns to its colony. Ms Simister manages the only monitoring programme for the species in New Zealand, leads several National Scientific Research Priorities, and manages the recovery response and rehabilitation of grounded Westland Petrel in the Western South Island. In 2019, Ms Simister co-authored a paper on the current Westland Petrel population estimates and trends in the international scientific journal, Marine Ornithology. Ms Simister gave evidence on the potential for artificial lighting to disorientate the Petrel, causing it to be grounded and die if it is not rescued because the Westland Petrel needs an elevated runway to get airborne. The Director-General's case was supported by legal submissions from Ms Warnock on that issue. Ms Warnock also gave submissions on whether the activity adjacent to the wetlands within the 100 m setback met the "functional need" requirement under Regulation 45D of the NES-FW and other topics within the issues identified in the Director-General's submission.

(c) West Coast Penguins Trust is interested in protecting Blue Penguins (Kororā) and made a full submission on that topic.

(d) Royal Forest & Bird has a special interest in the Westland Petrel and other at-risk avifauna using the Coastal Lagoons.

(e) The Langridge family interests in land on either side of the Site. The family's large adjoining blocks are managed with a mostly conservation ethic with a Scenic Reserve within the boundaries of the family's southern block.

(f) The Barrytown School Board of Trustees was concerned with ensuring student safety was not compromised by mining traffic and that TiGA controlled dust from the mine appropriately.

(g) The WCRC appointed Dr Durand to provide planning evidence. His section 42A report was accompanied by a detailed hydrological peer review by Brett Sinclair of Wallbridge Gilbert Aztec.

(h) The GDC appointed Mr Geddes as its planner. His assessment was also supported by technical experts undertaking peer review assessments. Mr Harding, an ecologist, provided a detailed statement of evidence and supplementary evidence on the potential ecological effects of the Proposal. Towards the end of the hearing, Mr Geddes proposed a further review of TiGa's transport assessment by Mr Fuller, which we allowed.

[44] Except for Mr Harding, there was a high degree of agreement amongst the Council's technical experts that the Proposal's effects could be managed appropriately by conditions as proposed by TiGa with the refinements now reflected in the Offered Conditions. However, neither Dr Durand nor Mr Geddes supported mining activity within 100 m of the Coastal Lagoons and the Langridge Wetlands. Consequently, their advice to us was to decline TiGa's applications because, in its current form, the mine design relied on mining and ancillary activities in that 100 m setback established by NES FW, Regulation 45D.

[45] Dr Durand considered there was no "functional need" for the Proposal's activities to be located within the 100 m setback of inland natural wetlands, and that created a jurisdictional bar under NES FW, Regulation 45D(6). Mr Geddes considered that the 100 m setback was necessary to reduce the effects of mining activity on the occupancy levels by at-risk avifauna in the Coastal Lagoons relying on Mr Harding's advice.

[46] But for the 'deal-breaker' setback issue above, the Council's planners substantially supported the Offered Conditions and considered the Proposal acceptable.

[47] Submitters raised a wide range of potential effects and issues arising from TiGa's proposal, all of which are addressed in detail in this decision.

[48] The Panel assessed that there were seven key matters in contention. Four of these were of intense ecological importance, reflecting the many significant natural areas and delicate ecological relationships on the Barrytown Flats. Two of these matters ((a) and (e) below) are related to the wetland set-back issue and the reasons the local authority planners opposed consent as outlined above. The last two matters concerned effects on the Coast Road and its users and the measurement of economic benefits.

[49] These key matters in contention were the following:

(a) Whether there was a "functional need" under Regulation 45D of the NES-FW for the proposed mine to operate within the 100 m setback of Coastal Lagoons and Langridge Wetlands treated as "inland natural wetlands". That is a jurisdictional requirement before there is a pathway to giving consent as a discretionary activity under NES-FW for activities within the setback.

(b) The impact of mine lighting on the Westland Petrel given that Westland Petrel has the potential to be disorientated by light while entering and leaving the colony during darkness causing individual birds to be grounded. This is a phenomenon called 'fallout'.

(c) Impacts on blue penguins (Kororā).

(d) Hydrological impacts on surface water bodies and groundwater systems.

(e) Impacts on levels of occupancy of avifauna in the coastal lagoon.

(f) Impacts from vehicle movements on SH6 associated with TiGa's mine operations, including impacts on pedestrians and cyclists.

(g) The economic and employment benefits of the proposed mine.

[50] The Panel summarises these issues and its views on them below.

"Functional need"

[51] We consider that the arguments that TiGa's proposal did not have a functional need to encroach into the 100 m setback were misguided. The arguments did not reflect the words used in NES-FW, Regulation 45D, the regulation's purpose, and the proper application of the evidence on the Proposal's design which required encroachment within the 100m setback to deliver an appropriate viable mine. We consider the constraints and characteristics influencing TiGa's mine design created a "functional need" to operate within the 100 m setback of the Coastal Lagoons and the Langridge Wetlands. The reasons are convincingly set out in the evidence of Mr Miller, TiGa's mine designer, and given more substance by the technical evidence of other experts that show how the design fulfils a range of unavoidable needs in one integrated system.

[52] We have addressed the issue of 'functional need' in considerable detail in this decision because it was widely acknowledged to be a problematic requirement to interpret and apply.

Lighting impacts on the Westland Petrel

[53] This submitter issue was led by the Director-General of Conservation, CRRG, Forest & Bird and Stuart Menteath.

[54] CRRG relied on the expert evidence of Dr Waugh, who had field-based experience of Westland Petrel colonies and the Petrels' behaviour over many years.

[55] The Director-General of Conservation submission dated 13 October 2023, amongst other things, was concerned that the application did not contain sufficient controls on artificial lighting to avoid effects on Westland Petrel from night-time mining and night-time truck movements. The Director-General submitted that if consent was granted, then there should be conditions that:

(a) Prevent mining and truck movements during the hours of darkness.

(b) Compensate for the wildlife management imposed on the Department of Conservation due to mining activities.

(c) Required consultation with the Department of Conservation if the avian management is varied.

[56] Stuart Menteath owns land where a Petrel colony is present in the Paparoa foothills and is deeply interested in the Westland Petrel. He also sought consent conditions that in particular:

(a) Specified the conditions of colour temperature of no more than 2000k.

(b) Limited truck movements to daylight hours.

[57] The Applicant's Offered Conditions on the Westland Petrel issue are the culmination of TiGa's lengthy consideration of that issue during and after the hearing by a group of TiGa's experts. These conditions include the following:

(a) HMC will only be trucked during daylight hours, which are defined as 30 minutes before sunrise and 30 minutes after sunset and will vary seasonally.

(b) Mining will only occur during the same daylight hours.

(c) Trucking of HMC to the south, away from the Westland Petrel colony.

(d) Where a shift change occurs during hours of darkness, the company will require all staff to use minivan transport.

(e) The processing plant will be fully housed within a building with no windows.

(f) Exterior lights will comply with the Australian Light Pollution Guidelines for Wildlife to be shielded, pointed downward, filtered to reduce blue light, with a colour temperature of no more than 2000k, and equipped with switches and motion sensors as appropriate to minimise light at all times.

(g) TiGa's Avian Management Plan (AMP) was updated with a procedure to address interactions (which include sightings) with Westland Petrel on Site. The occurrence of one interaction (which includes a sighting or interaction on a wildlife camera) will prompt a review of the AMP. Two interactions within four weeks of each other, or a grounding, will result in operations being suspended at the Site during the hours of darkness until the AMP has been reviewed and any actions necessary to protect

Westland Petrel incorporated into mining operations. Live birds seen on the road at any time of day/night will be reported to 0800 DOC HOT as soon as possible and encouraged off the road if it is safe to do so. There are requirements for reporting and independent oversight.

(h) Wildlife cameras will be installed around the processing plant, access road and the Coastal Lagoons to detect Westland Petrel (and Little Blue Penguin - Kororā) should they be present on Site.

(i) Predator control is required for the duration of the consent, which will contribute to the survival of any grounded birds..

[58] Despite offering conditions to meet or exceed the requirements of the Director-General identified in the Director's submission, the Director-General contended in legal submissions that the risk represented by TiGa's Proposal to Westland Petrel from light disorientation *militates against consent*. That was a strong submission considering the content of the Director-General's original submission which opposed the mine without estimable night-time mining restrictions.

[59] The Director-General argued that although TiGa significantly mitigated the risk, the risk was not eliminated. Because Westland Petrel mortalities are already above what is necessary to sustain the population, the Director-General considered there is a real risk that the TiGa mine would cause an adverse population-level effect on Westland Petrel. Therefore, applying relevant policy direction and case law, Ms Warnock, for the Director-General, argued that residual risk is heavily weighted against granting consent.

[60] In her primary statement of evidence, Ms Simister stated that "any artificial lighting associated with the mining proposal must follow the National Light Pollution Guidelines for Wildlife (Commonwealth Australia, 2023)."

[61] However, in legal submissions, the Director-General said there was uncertainty about whether those Guidelines were effective for the Westland Petrel because they are generic. That is so even though the Convention on the Conservation of Migratory Species of Wild Animals (*CMSWA*) endorsed the Wildlife Light Pollution Guidelines in February 2020. The Wildlife Light Pollution Guidelines explicitly address the risk to *Procellariformes,* i.e., the Petrel genus.

[62] There is no evidence to suggest that these Guidelines are not fit for purpose, and we doubt that Ms Simister is a sufficiently qualified expert to conclude that there is any material risk that the Guidelines are insufficient to address the Westland Petrel's potential response to light stimulation. We note that Ms Simister did not offer such a view. Instead, Ms Warnock suggested that TiGa needed to provide the Panel with evidence that the Wildlife Light Pollution Guidelines are fit for purpose for the Westland Petrel. We found that submission perplexing for the following reasons:

(a) The Director-General claimed to have the greatest expertise on this lighting risk for Westland Petrel but argued its experts could not say whether the Guidelines were appropriate.

(b) We doubt from the evidence and our review of some of the literature cited by Ms Simister on the 'fallout' phenomenon that there is any witness on the planet who has sufficient knowledge of the mechanisms by which lighting interactions occur such that they could say, without observational fieldwork, that the Wildlife Light Pollution Guidelines are sure to provide adequate protection for the Westland Petrel from the proposed mine safety lighting. The Guidelines have been developed for Petrel species. There is no comprehensive, robust data held by the Department of Conservation or any other person that would enable an expert to conclude the Westland Petrel species' light sensitivity was different from the Petrel genus in a way that made the Guidelines inappropriate. Therefore, the Director-General put forward an insuperable and, in our view, unreasonable argument against TiGa's application, resting on a potential and unresolvable uncertainty, mixed with a reverse onus on TiGa to disprove the precautionary principle should not apply.

(c) Despite the above, situations that raise fallout issues, such as Waka Kotahi's lighting system at Punakaiki, are managed in a more pragmatic way.

[63] We accept that the law and common sense demand that special care is taken to ensure that the Westland Petrel is protected from light-generated interactions potentially caused by the Proposal. We must take all reasonable steps to avoid those effects and manage uncertainties cautiously. That does not require the Panel to take wholly disproportionate steps to avoid the risk, recognising the overall risk to Westland Petrel from existing threats and potentially unregulated changes to the existing environment.

[64] Put another way; the Panel does not see how any further measures beyond the Offered Conditions, such as declining consent, will meaningfully contribute to protecting the Westland Petrel from population-level cumulative effects arising from existing threats and those that foreseeably could arise in the existing environment.

[65] Ms Simister told the Panel that if the lighting was installed in accordance with the Wildlife Light Pollution Guidelines, it would be a "fairly easy adjustment" to mitigate risk on Westland Petrel in the event an interaction arose. Hence, the adaptive management regime in Offered Conditions can manage any residual risks.

[66] A more helpful and meaningful course than declining TiGa's Proposal was to use the applications as an opportunity for the parties to engage and crystallise further community-led efforts to better understand the threats to the Westland Petrel and reduce known and more significant threats where practicable, a concept raised in the Director-General's submission.

[67] TiGa and Ngāti Waewae made proposals of that nature to the Director-General. Ms Booker, TiGa's lawyer, in reply at [13], noted the following in that regard:

> For completeness, it is recorded that engagement with DoC was not forthcoming, and the Applicant's offer (via Dr Bramley to DoC) prior to lodgement of this resource consent application to provide funding for a population monitoring programme was rebuffed - resulting in the Applicant committing to willing stakeholders and mana whenua Te Runanga o Ngāti Waewae to seek to improve biodiversity through predator control - a terrestrial threat to Westland Petrel. The commitment includes activities that will improve the understanding of the Westland Petrel through further research, with Matauranga Maori central to this work, and working with other stakeholders such as DoC and WCPT.

Impacts on Blue Penguins

[68] There are no Little Blue Penguins (Kororā) currently occupying the Site. Further, it is common ground amongst the relevant experts and witnesses that Kororā are unlikely to burrow in the currently farmed MDA. The Applicant proposed a comprehensive suite of mitigation measures developed under the leadership of Dr Bramley, TiGa's lead terrestrial ecologist. Potential effects on Kororā outside the MDA, including disturbance from noise, were addressed by evidence that Kororā are not susceptible to noise disturbance. Of course, they live naturally in a noisy environment on the coastal margin.

Hydrological impacts on surface water bodies and groundwater systems

[69] The potential for the Proposal to impact the groundwater system of the Site was a key topic because the hydrological conditions supporting the Coastal Lagoons and Langridge Wetlands are important, and adverse effects should be avoided.

[70] Mr Rekker, the hydrologist for TiGa, undertook a detailed assessment with his Kōmanawa Solutions Limited colleagues concerning the potential impacts of mining activity on the Coastal Lagoons and Langridge Wetlands. He demonstrated to the Panel a thorough knowledge of the stratigraphic complexity of the Site derived from a detailed assessment of geological conditions supplemented by onsite hydrological assessments, including using datasets from a comprehensive network of monitoring bores. Mr Rekker explained how the proposal would employ a water management system using innovative methods to maintain median water levels in the Coastal Lagoons and Langridge Wetlands until mining was complete. Testing these methods by a trial system led to further revisions of the model that Mr Rekker used to assess the Proposal's potential impacts.[8]

[71] Professor McGlynn is a hydrologist and bio-geoscientist with e3Scientific, Arrowtown, New Zealand. He provided evidence for the Langridge family opposing TiGa's mine. Professor McGlynn described the general hydrological setting as a mountain-front valley system where groundwater conditions were critical to sustaining inland natural wetlands and surface water bodies. Professor McGlynn considered the Proposal to extract about 4.8 m tonnes of subsurface material within a 34 ha area within the larger 63 ha MDA as inevitably having significant potential impacts on water flow amounts and pathways in unpredictable ways. Professor McGlynn considered the conceptual model used by Kōmanawa Solutions lacked sophistication or sufficient calibration for uncertainties.

[72] Mr Sinclair was the hydrology peer reviewer commissioned by WCRC. Mr Sinclair impressed the Panel as an experienced and convincing witness who did not share Professor McGlynn's concerns and considered that the water management system proposed by Kōmanawa Solutions was feasible. We received several helpful joint witness statements to that effect.

[8] This further was a detailed in "Barrytown, Coates Block Hydrological Revision: Injection and Infiltration Trials, IT Conceptual & Groundwater Model Re – Model, KSL Report No. Z2204-4-REV0".

[73] The Panel accepts that in the short term, the active pit area will disturb natural groundwater transmission to small parts of the Coastal Lagoons, but this is not a large area at any one time, and the proposed water management system would manage the temporary hydrological effects on wetlands of that activity comfortably. In the longer term, the question is whether the disturbance of the substrate by removal and replacement would disturb groundwater flows in a way that could adversely affect the wetlands. The materials to be extracted are largely homogenous sand deposits from common geological processes and are not substantially altered by mining, albeit re-layered. The forces that drive the groundwater system will remain the same because of the recharging conditions from gravitational forces. Therefore, we consider the present hydrological processes will largely remain the same after mining. Even if the mining process creates different groundwater transmission pathways, this will imperceptibly affect wetland hydrology.

Impacts on levels of occupancy of avifauna in the coastal lagoon

[74] Several submitters were concerned about the potential impact on the occupancy of at-risk avifauna in the Coastal Lagoons. The thesis was that the mine machinery and the level of mining activity would cause effects such as dust and noise affecting occupancy and thereby fail to avoid effects as required by Policy 13 of the New Zealand Coastal Policy Statement (*NZCPS*).

[75] Dr Bramley, TiGa's ecologist, monitored avifauna in the Coastal Lagoons. Sixteen threatened species were confirmed as present within or near the mine site. These species include Pacific Reef Heron (threatened - nationally endangered, c. 300 to 400 birds left), Caspian Tern (threatened - nationally vulnerable), Grey Duck (threatened - nationally vulnerable), and White Heron (threatened - nationally critical, c. 150 to 200 birds left).

[76] Dr Susan Waugh noted that the Barrytown Flats are classified as an Important Bird Area. In oral evidence, Dr Waugh described the environment surrounding the mine site as a "biodiversity hotspot".

[77] It is notable, for example, that the Coastal Lagoons provide suitable habitat for Australian bittern (Matukū) (threatened - nationally critical – estimated population of 900 in the 1980s with steep population decline since then).[9]

[9] SOE Mike Harding, 12 December 2023 at [104].

[78] The Director-General of Conservation supported a 100 m setback from the Coastal Lagoons because Mr Harding concluded that a 100 m setback was efficacious in sustaining current levels of occupancy by threatened and at-risk avifauna frequenting the Coastal Lagoons. However, under questioning, that was not Mr Harding's opinion, for good reasons. It certainly was Mr Harding's initial view in his section 42A report; however, like everyone else, his understanding of mining operations developed during the hearing.

[79] In response to a question from the Panel, Mr Harding confirmed that he did not understand the small temporal and spatial extent of activity within the 100 m setback caused by TiGa's Proposal. Mr Miller, TiGa's mining design expert, told the Panel the total time spent inside the 100 m area of the lagoons is approximately between 8 to 11 months. This is not one consecutive period. It involves 5-7 weeks in each of mining panels 4-8 and 10. No other evidence, such as hydrology or noise evidence, supported Mr Harding's initial views. There will be no mining occurring at night in the pit, which would address any lighting concerns.

[80] When the Panel questioned Mr Harding, he acknowledged that the 100 m setback in the NES Freshwater was not established to manage the effects on avifauna in the adjacent lagoon. Mr Harding accepted that establishing whether the effects of mining operations within the 100 m setback were materially different than those effects that would arise from mining operations outside the setback, was not feasible. Mr Harding did not challenge the evidence that the Coastal Lagoons are in a relatively noisy environment from natural processes. A point covered by TiGa's acoustician, Mr Farren. Mr Harding began to have reservations about a setback based control as a tool to manage impacts on avifauna and to maintain occupancy. He merely raised a more general question as to whether the activity was appropriate in that environment assessed in a more general way.

[81] We have not considered how the environment could be modified by any other permitted rural activities. However, if one were to do so, it would underscore the Panel's conclusion on this topic.

[82] Dr Bramley's evidence included a recommended condition requiring a setback of mining activity during the breeding season as part of a suite of controls to enhance and maintain the Coastal Lagoon habitat.

[83] The Panel considered Dr Bramley's recommended conditions a sufficient response to the 'occupancy issue' in combination with all the other mitigation measures in the Offered Conditions, including improving the habitat of the Coastal Lagoons' margins by native planting.

[84] The Panel considers the mining activities will not reduce occupancy by at-risk species. Also, given the narrow strips in which mining is occurring, there will be more than enough habitat in the remaining part of the Site for species that are more distant from the mining activity than a 100m separation would provide in any event. Species that might be disturbed have flexibility about where they locate themselves within or around the Coastal Lagoons. Less flexibility exists if breeding pairs make a suboptimal choice of breeding location, but that potential effect is remedied by TiGa's Offered Conditions.

Impacts from vehicle movements on State Highway 6 associated with TiGa's mine operations

[85] The mining activity will involve hauling heavy mineral concentrate (HMC) on SH6. The Grey District Plan classifies SH6 as a Strategic Route, which is defined as "roads and motorways which form part of a network of national strategic importance, which are a significant element in the national economy, for which a high level of user service must be provided at all times and are a significant element in the regional economy."

[86] About 50 truck movements a day are anticipated, comprising 25 arriving at the Site and 25 leaving the Site. At the commencement of the hearing, the Applicant had yet to decide if the HMC would be hauled north to Westport or south towards Greymouth. However, during the hearing, they advised that the HMC would be hauled south towards Greymouth either to a rail siding site located at Rapahoe or Stillwater. From there, the HMC would most likely be taken by rail to the Port of Timaru for export. This southern route selection was confirmed by Ms McKenzie.

[87] The selection of the southern HMC haulage route greatly assisted the Panel's consideration of traffic and road safety issues because many submitters were justifiably concerned about the traffic safety risks that would occur should the HMC be trucked north towards Westport over a tortuous section of SH6.

[88] The Panel acknowledges that there is an existing high level of risk to the safety of pedestrians and cyclists who choose to use the section of SH6 between the proposed mine

site and Greymouth. However, we do not consider that the maximum of five additional HMC haulage truck movements per hour, six days a week, coupled with the daily morning and evening minibus movements for shift workers, will exacerbate that risk to such a degree that would warrant consent being declined. In saying that we are mindful of the statement in the Regional Land Transport Plan (RLTP) that sections of SH6 are currently "...not fit for purpose for cyclists". We also agree with Ms Booker that it is not the Applicant's responsibility to resolve existing concerns for cyclist safety on SH6.

[89] The Panel is satisfied that the combination of proposed consent conditions and the implementation of the Traffic Management Plan (TMP) will reduce the level of additional risk posed by the Applicant's maximum five additional truck movements per hour to the extent practicable for pedestrians and cyclists who choose to venture onto SH6.

Regional economic and employment benefits

[90] The West Coast region has a history of mining; mining is part of the West Coasts identity. Many agencies promote mining as a source of economic development for the West Coast.

[91] We received evidence from Mr John Ballingall, an economist for TiGa, about the Proposal's economic benefits.

[92] The economic impact on regional GDP is large. At [28] Mr Ballingall said:

> To give a sense of significance, this 3.8% boost for the Grey District would be equivalent to adding the combined GDP of the Meat and Meat Product Manufacturing, Seafood Processing, Dairy Product Manufacturing, Fruit, Oil, Cereal and Other Food Product Manufacturing, Beverage and Tobacco Product Manufacturing, and Wood Product Manufacturing to the national economy (their combined share of national GDP is 3.7%).

[93] Concerning employment Mr Ballingall said at [48]:

> Given total employment in the Grey District was 6,900 at February 2023, the mining operation would directly increase the total number of jobs available in the District by 0.8% to 6,957. Total employment in the West Coast Region would increase by 0.4% to 14,957.

[94] Mr Ballingall concluded at [59] the following:

> In my opinion, the proposed operation will deliver a range of significant benefits to the regional economy:
>
> (a) It will support 57 high-paying direct jobs and a further 80 indirect jobs in the wider economy, boosting Grey District employment by 2.0% and West Coast regional employment by 0.9%.
>
> (b) The wages paid to the 57 direct employees total around $6.6 million per year.
>
> (c) Export revenue averaging $63 million per year, equivalent to 37.8% of the Grey District's total exports of goods and services and 7.1% of the West Coast region's total exports.
>
> (d) regional GDP contribution of around $33.7 million per year, equivalent to 3.8% of GDP in the Grey District and 1.5% of GDP for the West Coast region.
>
> (e) Spending on intermediate inputs of around $27.4 million per year, much of which will go to local businesses.
>
> (f) A contribution to government tax revenue of around $33.0 million over the mine's lifetime, comprising royalties, employees' income, and business taxes.

[95] Unsurprisingly, the opportunity cost of the temporary loss of the farmland because of mining pales into insignificance.

[96] Mr Ballingall's assessment was supported by a peer review assessment commissioned by the WCRC and GDC dated December 2023 by Mr Heath. Mr Heath largely endorsed the conclusions of Mr Ballingall.

[97] Ms Bradley, a submitter living on the Coast Road with experience at New Zealand's Treasury office, considered that the TiGa economic assessments were deficient. For example, she considered that an assessment of the social and environmental costs had not been undertaken in assessing the regional benefits. Ms Bradley also considered there was an inadequate assessment of the cost of the displacement of employment and adverse effects on other economic generators including tourism.

[98] We do not consider that a Treasury cost-benefit analysis involving an assessment of social and environmental costs is required to assess regional economic and employment benefits under NES-FW Regulation 45D(6)(a). Such a tool may be appropriate for economic development decisions where the Crown funds major projects. In this case, we have a range of experts covering all relevant environmental effects, and these are to be weighed as part of the process in which economics is just part of the RMA, s 104 assessment.

[99] We received several unwelcome arguments that we should discount any regional benefits because the majority shareholders of the Applicant are Australian. New Zealand has international commitments governing close economic relations with Australia that demand free commerce between the countries, and any such assessment would run against those important obligations. Furthermore, the degree of foreign ownership of investors is not a useful yardstick to dilute the value of regional benefits. The regional benefits will ensue even if significant profits are repatriated to a foreign country.

Conclusion

[100] The West Coast's available mining areas are small, given the levels of public ownership of natural resources in the region. The high incidence of special natural resources on the West Coast means any mining operation likely to receive consent must work within carefully framed and robust parameters to achieve directive policy in national, regional, and district plan requirements. We consider that if a proposal can achieve these ideals and significantly support regional development, then it should be approved. This is also the kaupapa Ngāti Waewae encouraged the Panel to adopt.

[101] That approach is supported by the following scene-setting passage from the Rural Zone chapter of the Grey District Plan, although the Applicant and the Panel took a sterner approach to condition-setting than this text suggests:

> The rural environments of the Grey District contain extensive resources, which on a per capita basis must be as great as anywhere else in New Zealand. These resources include indigenous forest, exotic forest, farmland, minerals, rivers, lakes, buildings and infrastructure. They are all used to a greater or lesser extent to provide social, economic and cultural well being of the community. ...

> In addition to those industries above, the rural area has traditionally supported a diverse range of rural service industries, such as contractors' depots or trucking companies among other things. These are typically situated within or adjoining rural settlements. ...
>
> The principal activities associated with mineral resources are coal mining, gold mining, and gravel and limestone. There are also ilmenite mining and petroleum resources that have potential for future development. There are several coalmines presently operating, both State and private, and other projects are being progressed. Much of the gold and bituminous coal resources of the West Coast are contained in the Grey District.
>
> Underground hydromining and open cast mining are the most commonly used methods of extraction, with mines having crushing and screening facilities onsite.
>
> Extraction of gold from alluvial fans and terraces is the principal means of gold recovery in the Grey District. ...
>
> The size of operations varies, from the large dredging operations to recreational or hobby mining using cradles, sluice boxes and other handheld equipment. The majority of operators mining alluvial deposits use hydraulic diggers and rotary screens that either float in a pond or are skid mounted. ...
>
> While many activities in the rural environment such as farming, mining and forestry enable people to provide for their economic, social and cultural well being, potential adverse effects may be generated.
>
> Given the area of the District, the abundance of resources (many of which are protected or sustainably managed) and a relatively low population, sustainable management can be approached in a manner differing from that in areas of the country where resources are severely depleted or under pressure. In particular, less restrictive measures may be adopted and non-regulatory methods implemented.

[102] We are satisfied that the mining operation proposed in the application has been suitably refined and polished by the consent process and Offered Conditions into a Proposal of appropriate scale and intensity with robust environmental protection measures. At the end of the mining activity, Nikau Farms Limited will have an improved farming platform.

[103] The Panel considered TiGa's approach cooperative and sensitive to the environmental issues arising from the Proposal. We have no reason to doubt that TiGa would manage a consent appropriately in accordance with its requirements. There sufficient legislative sanctions if they do not, and we did not accept some submitters' assertions that we could

not have confidence that the conditions in **Appendix 1 and schedules in Appendix 2** would be appropriately monitored or enforced.

[104] In achieving an appropriate mining proposal controlled by conditions in **Appendix 1 and schedules in Appendix 2** the Panel acknowledges the enormous contribution that submitters have made to the Panel's process. Their responsible participation has illuminated many areas where improvements were required to the character, scale and intensity of the proposed mining operations to ensure that effects were managed appropriately. Where relevant policy has directed avoidance, the conditions aim to achieve that in a rational and sensible manner without taking the extreme view that 'avoidance' means no interference or no effect, however small or inconsequential.

Section 2 – Background, context, process and legal matters

Description of the proposal

[105] The Applicant's proposal was described in the Applicant's AEE[10], the two Section 42A Reports, and the evidence of TiGa representatives John Barry, Stephen Miller, and planner Katherine McKenzie in particular.[11] We adopt those descriptions, but some of the more salient points are:

(a) The Site is located on the Barrytown Flats on the South Island's West Coast, approximately 9 km south of Punakaiki and 36 km north of Greymouth. The property is owned by Nikau Deer Farm and is a dairy support farm that is humped and hollowed.

(b) There are lagoons and wetlands bordering the Site to the north and west, a small modified drainage channel on the northern boundary and Collins Creek on the southern boundary. There are springs on the property to the south of the Site. The Site contains several individual kahikatea trees and scattered flax bushes;

(c) The proposed mine area is around 64 ha and falls within Mining Permit 60785. Mining will progress in strips, or panels, with dimensions of 100 m wide (strip width) and 300 m long (3 ha in total). The panel sequence is shown in Figure 1 below.

[10] TiGa Minerals and Metals Ltd, Application for Resource Consent to Grey District Council and West Coast Regional Council Mineral Sand Mining Activities at Barrytown, Tai Poutini Resources, April 2023. Section3 'The Proposal'.
[11] Appendix 1 in her evidence statement of 19 January 2024.

Overburden thickness varies from 0.5 m along the western edge of the Site up to 8 m in the east.

(d) The mine area has setbacks of 20 m from the Coastal Lagoons and internal property boundaries. A processing plant area will be 3.5 ha in size, including the mine access road and a Mine Water Facility (treatment Ponds 1 and 2) adjacent to the processing plant. Around 6.5 ha will be disturbed during mining, however a total disturbed area of 8 ha is sought to allow progressive rehabilitation to take into account weather and seasonal impacts on vegetation establishment. The maximum mining depth will be 9 m below the ground surface.

(e) Screening bunds on the eastern boundary of the Site adjacent to SH6 will be constructed prior to mining commencing. A central drain will be installed (following the contour of an existing drain running through the Site) with limestone weirs and rip rap.

(f) The Mine Water Facility will require removing approximately 135,000 m^3 of material. Topsoil and waste from it will be carted to the southern end of the eastern bund. That bund will be no more than 4.5 m high and will be progressively re-grassed as it is constructed.

(g) A Clean Water Facility (additional treatment ponds 3 and 4 in the northwest corner of the Site) will require removing approximately 150,000 m^3 of material. Waste and topsoil from that will be carted to the northern end of the eastern bund.

(h) Mineralised sand from the Mine Water Facility and Clean Water Facility excavations will be carted by truck to an ore stockpile located inside the eastern bund at the northern end of the active mine area, which will be around 4.5 ha in area.

(i) The mine starter pit area (100 m x 300 m) in Panel 1 will have its topsoil and waste carted to the southern end of the eastern bund and ore will be stockpiled at the ore stockpile. This involves the removal of around 180,000 m^3 of material.

(j) Approximately 150 m of the length of a single mining void will be in various stages of excavation, with ore pre-stripped for mining commencement. Mining will progress in this sequence at a rate of approximately 5 m per day, or 35 m per week. The sequence is as follows:

(i) Topsoil, approximately 0.2 to 0.6 m thick, and overburden will be removed and stockpiled for rehabilitation. This area will be approximately 0.5 ha.

(ii) The sand ore will be mined via excavator and deposited onto a mining bench of approximately 1 ha in area. The ore will then be picked up by front end loader and placed in the in-pit mining hopper. The slurry will pass through a trommel and desliming circuit before being pumped to the Wet Concentrator Plant (Processing Plant).

(iii) Reject large material from the trommel and slimes (small particles such as clay, mixed with water) will be returned to the mine pit.

(iv) Excavated material will be processed at the Processing Plant to extract the HMC and stored at the Processing Plant in a farm implement building with a concrete floor.

(v) Un-mineralised sands will be pumped back to the mining pit, which will be progressively filled as mining progresses. Pumped tailings will be spread across an approximate 1ha area of the mining pit.

(vi) The backfilled pit area will drain water into the mining void which is recovered and pumped back to the Mine Water Facility. The drained returned sands, plus the oversize material and slimes, will be shaped prior to being covered with the waste and topsoil carted directly from the front of the mining path; and

(vii) The mining void will be progressively rehabilitated with grass as it advances.

(k) There are approximately 4,800,000 tonnes of recoverable sand ore within the mining area, with a yearly extraction rate of 1,100,000 tonnes, yielding approximately 250,000 tonnes of HMC per year. Actual mining is expected to take approximately 5-7 years to complete.

(l) Each mining panel will take between 4 and 6 months to mine and rehabilitate. Topsoil and overburden will be recovered from the eastern bund and used in the rehabilitation and final contour of panels 8, 9, and 10.

(m) The mine will utilise a range of standard earthmoving machines, together with a variety of pumps (including land based, floating and submersible).

(n) The Processing Plant (3,800 m^2 gross floor area) and associated facilities will cover an area of approximately 2 ha. Buildings and structures will be painted in recessive colours and will not exceed 15 m in height. All buildings and plant will be removed from the Site at the completion of mining operations, with the exception of the HMC storage and loading building which will be retained on Site and used for farming purposes.

(o) All lighting on Site will adhere to the Australian Government's National Light Pollution Guidelines for Wildlife January 2020 (or subsequent revision). Lighting design and installation will be audited by a suitably qualified professional.

(p) The Processing Plant will run 24 hours a day, 7 days a week. There will be no mining activities or trucking of HMC during the hours of darkness, defined as being 30 minutes after sunset and 30 mins before sunrise.

(q) Once the plant has been commissioned, the Site will generate approximately 50 heavy vehicle (HV) movements a day. The Applicant intends to run passenger min-vans to provide staff transport to the mine.

(r) Processed materials (HMC) will be trucked from the Site southwards towards Greymouth and there will be a maximum of 5 HV movements an hour. HV movements will be restricted to no more than 3 per hour between 5am and 7am for noise mitigation purposes.

(s) Operational noise will comply with Grey District Plan permitted activity standards, except on Sundays.

(t) The Processing Plant may require an initial water take from Canoe Creek. Water from Canoe Creek may also be required sporadically during mining to top up the Processing Plant water circuit, however generally the Processing Plant will use water recovered from pit dewatering or mechanically from the HMC product.

(u) Any excess water from the Processing Plant together with stormwater generated from the Processing Plant area will be directed to the Mine Water Facility (Ponds 1

and 2). Flocculent may be used in the Mine Water Facility to enhance the settlement of sediments.

(v) The central drain will carry discharged water from the Mine Water Facility (Pond 2) overland to the Clean Water Facility. Alternatively, where it is required for water clarity reasons, the discharged water will come directly from the WCP Process Water Tanks and be discharged via a clarifier to the central drain. The central drain will have rip rap and limestone rock weirs installed to slow water velocity and increase water hardness. At the Clean Water Facility Pond 4 will be partially planted in wetland species at the commencement of mining. Excess water from Pond 4 will discharge into Collins Creek Lagoon.

(w) Infiltration trenches and/or injection wells around the perimeter of the mine area will be used to recharge groundwater and avoid surface water depletion.

(x) In extreme weather events the mine pit can be flooded to provide significant additional containment and settling capacity and allow groundwater levels and stream flows to recover.

(y) Routine dust management measures will be employed at the Site to avoid dust emissions beyond the property boundary. Dust and radiation monitors on the perimeter of the Site will remain in place for the duration of mining activities.

(z) Machinery will be refuelled on Site using a mobile fuel tanker, and a centralised fuel store will be located at the Processing Plant which will contain up to 40,000 Litres of diesel.

(aa) Landscape planting is proposed to reduce potential visual effects on surrounding properties and public viewpoints, as well as improve ecological outcomes for the Site. All planting will remain at the completion of mining, except on the bunds that will be removed.

(bb) Rehabilitation works will occur on a progressive basis to minimise the area disturbed at any one time as operations move through the mining area. Rehabilitated land will be returned into the farmed area as soon as possible to allow for the landowner to have input into the continued redevelopment of the land and to regain soil fertility; and

(cc) The removal of HMC from the Site will result in an overall reduction in ground levels with an average reduction of 0.8 m over the mine disturbance area, however the Site will be rehabilitated to ensure that the lower lying western paddock's ground levels are not reduced.

[106] The general mine layout is shown below.

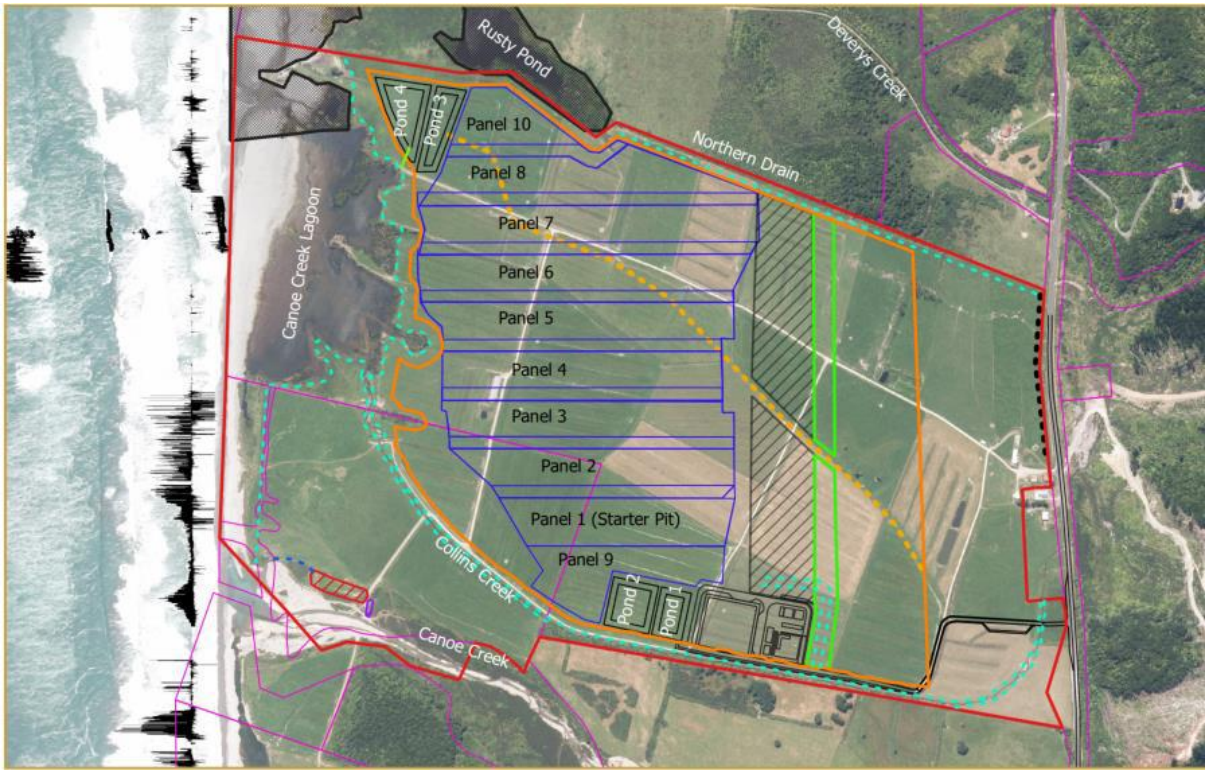

Figure 1: General site layout

[107] Further details of the proposal (including amendments by the Applicant before and during the hearing) are set out in the effects assessment sections of this decision.

[108] The Applicant sought a consent duration of 12 years.

Preliminary matters

Written approvals, notification and submissions

[109] Written approvals were obtained from:

(a) The owners and occupiers of 3261 Coast Road.

[110] The applications to both councils were publicly notified at the Applicant's request. A total of 357[12] submissions were received, with 153 submissions in support, 194 in opposition and 9 either neutral or did not state a position.

[111] The Councils provided us with complete copies of all of the submissions. We record that we have read and had regard to all the submissions that were lodged, regardless of whether or not the submitter appeared before us at the hearing.

Site visit

[112] Commissioners Maassen and Vial undertook an escorted Site visit on Friday, 2 February 2024. Commissioner van Voorthuysen undertook an escorted site visit on Tuesday, 6 February 2024.

Hearing

[113] We conducted a hearing in Greymouth on February 5, 7, 8, 9, 10, 12 and 13, 2024.

[114] We held an audio-visual hearing on 26 February 2024 to hear the submission of the Director-General of Conservation. We held an audio-visual hearing on 20 March 2024 addressing the end of hearing section 42A Reports from Mr Harding[13] (the ecologist engaged by the councils), Mr Geddes and Dr Durand. At that hearing, we also posed questions to the Applicant regarding the conditions circulated by Ms Mackenzie on 19 March 2024. Finally, the scheduled audio-visual hearing on 28 March 2024 to address the Applicant's Reply submissions was vacated, as the material filed in reply did not raise questions of a degree or nature that would justify a hearing. [14] On 3 April 2024, we concluded that we required no further information from any of the participants and began formulating our decision.

[115] We heard from the Applicant's experts, the councils' experts, and many submitters. Copies of the evidence and legal submissions that all parties presented are held by the respective councils (See Attachment 1). We do not itemise or summarise that material here but refer

[12] By way of the Panel's Minute 1 we accepted twelve late submissions.
[13] Michael Harding who came down with COVID during the hearing and so could not appear at that time.
[14] We received those submissions on Wednesday 27 March although they were provided to WCRC on 26 March 2024.

to it in the remainder of this decision where appropriate. We took notes of any verbal answers to questions we posed.

Key legal and jurisdictional matters

Precautionary approach

[116] The precautionary principle, or precautionary approach, is an international environmental law principle adopted in various national directions in New Zealand, such as the NZCPS and NPS-IB.

[117] The precautionary principle is often invoked by opponents to a project as justification to decline consent when there exists some uncertainty or residual risks with serious consequences. For example, where species have an unfavourable conservation status. That happened in this case, and the following are examples:

(a) CRRG argued that the precautionary principle applied to potential effects on all indigenous biodiversity, citing Policy 3 NPS-IB Policy 3A. CRRG argued the application of that principle meant that consent should be declined. CRRG also argued that the principle applied to public health risks from radiation

(b) The Director-General of Conservation invoked the precautionary approach concerning the residual risk of mine lighting on Westland Petrel by applying the NZCPS, Policy 3.

[118] We disagree with the view that any uncertainties or residual risk must incline a decision-maker to prefer the option of declining consent following the precautionary approach.

[119] The precautionary principle is a broad epistemological, philosophical, and legal approach to actions or innovations with the potential to cause harm when extensive scientific knowledge is lacking. It emphasises caution, pausing and reviewing before leaping.

[120] There are many formulations of the principle. Principle 15 of the Rio Declaration Notes:

> In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

[121] There are many shades of the precautionary policy in literature, and these shades are considered by the New Zealand Treasury in a Policy Perspectives Paper in 2006 entitled "Environmental Risk Management in New Zealand - Is There Scope to Apply a More Generic Framework?"[15].

[122] There are many options when implementing a cautious approach in the face of uncertainty. Since the nature of the uncertainties and potential hazards vary case-by-case, the appropriate response will also vary depending on the circumstances. The range of possible precautionary measures includes:

(a) Research to reduce uncertainties and improve information for decision-making.

(b) Incorporating 'safety margins' or 'uncertainty factors' in risk assessments.

(c) Adopting measures that are robust to a range of possible circumstances based on sensitivity analysis.

(d) Adaptive management to respond to new information.

(e) Declining consent.

[123] Options may be combined, such as temporary prohibition while conducting research. The course of action will depend on the circumstances of each case, which include:

(a) The extent and significance of the information gaps and uncertainties.

(b) The prospects and potential costs and benefits of obtaining better information in the future.

[124] In many of the areas where the precautionary principle was urged upon us, there was no real uncertainty. For example, concerning radiation risk we were satisfied that there was no health risk arising from the Proposal based on the technical evidence and applying the Offered Conditions.

[15] Linda Cameron: Environmental Risk Management in New Zealand - Is There Scope to Apply a More Generic Framework, New Zealand Treasury Policy Perspectives Paper 06/06 July 2006.

[125] The Supreme Court decision *Sustain Our Sounds*[16] considered the precautionary approach under the Zealand Coastal Policy Statement, Policy 3 and the decision undertakes an extensive comparative law assessment.

[126] We regard, of course, the *Sustain Our Sounds* decision as authoritative. The decision recognises an enormous variety of circumstances in which the precautionary principle must be considered, and a precautionary risk assessment and management needs to respond to that context. In *Sustain our Sounds*, the principal cause of a potential impact on an existing sensitive benthic environment, where no other threats or stressors applied, was the proposed salmon farm. Therefore, the cause of the potential threat was somewhat linear (a clear cause-and-effect relationship from a single activity) even if the scale and extent of the potential effects on the sensitive receiving environment, including synergistic effects, were uncertain.

[127] In the present case, more significant non-linear stressors in the existing environment significantly impact the Western Petrel, and any residual risk must be assessed (preferably statistically) within that context to assess its significance.

[128] A summary of our application of the precautionary principle to the issue of night-time lighting impacts on Westland Petrel is useful here.

[129] Unfortunately, the Westland Petrel mortality dataset is relatively poor and not resolved sufficiently to attribute mortality to identified major threats.

[130] A threat matrix was recorded in Waugh and Wilson (2017).[17] The paper identified serious threats to fishing methods controlled under the Fisheries Act and damage to the colonies from natural events such as landslides and predators. Interactions from lighting are better understood now than in Waugh and Wilson (2017), but these interactions occur along the entire length of the West Coast. Further, mortalities from fallout can arise from various causes, not just lighting interaction and the data does not assist in understanding the percentage of birds grounded because of 'fallout'.

[131] The threat assessment matrix by Waugh and Wilson 2017 is set out below.

[16] *Sustain Our Sounds Incorporated v. The New Zealand King Salmon Company Limited & Ors* - [2014] NZSC 40.
[17] WAUGH, S.M. & WILSON, K-J. 2017. Threats and threat status of the Westland Petrel *Procellaria westlandica*. *Marine Ornithology* 45: 195–203.

TABLE 2
Assessment of terrestrial threats to Westland Petrels considered to be at such a level to affect the survival of individuals, colonies, or to influence breeding habitat or feeding opportunities [a]

Terrestrial threat	Severity	Scope	Notes and references
Predators (feral pigs)	High potential	High potential	Pigs have the ability to extirpate whole colonies or, at worst, the whole population. Feral populations currently occur about 20 km north of the Petrel Colonies, they may arrive at any time, and they have been released by hunters close to the petrel colonies on occasions during the last 20 years.
Predators (vagrant dogs)	High potential	High potential	Dogs have entered the petrel colonies infrequently over the last 20 years and killed petrels, but could invade at any time, with Punakaiki village only 2.5 km from the colonies.
Landslide and windfalls leading to erosion of nesting substrate	High	High	Likelihood increased by storm damage in 2014, with erosion fronts currently at the periphery of major colonies leading to ongoing erosion of nesting areas (Waugh *et al.* 2015b).
Habitat damage by introduced mammals	Low	High	Possums and goats are always present, degrading breeding habitat and destroying burrows.
Predators (weka, possums, stoats, rats)	Low	High	Weka, possums, stoats, and rats are all present at breeding colonies but do not appear to be affecting the colony dynamics in measurable ways.
Land development (mining, farming, housing)	Low	High potential	Currently, no land development is planned adjacent to the colonies, but development and changes in land use on and adjacent to flight paths remains possible. There is some housing intensification on the margins of the Specially Protected area.
Attraction to lights (fallout)	Low	Not quantified	Each year, some young petrels are found grounded near lights in Punakaiki and other West Coast settlements. Mitigation, low light levels, and recovery and release of grounded birds may assist in reducing numbers of birds affected. There are restrictions on lighting in nearby Punakaiki village and developed areas near some flyways. The frequency is moderate, with birds recovered most years, but with high uncertainty around the numbers of individuals affected.
Powerline strikes	Low	Low	Mitigated by underground wires across the major flight path, but wires remain across all secondary flight paths.
Harvest (human take)	Low	Low	Mitigated by restricted access, but occasionally appears to affect >20% of chicks in monitored colonies. If unchecked, this could lead to a >10% reduction in population growth over 10 years, but is unlikely to be carried out at this severe level without being reported.
Tree captures	Low	Low	A natural threat affecting adults of breeding age, but ongoing at a low level annually.
Pathogens, parasites	Low	Low	Not identified for Westland petrels, although the potential exists.
Soil loss through burrowing	Low	Low	Ongoing natural process resulting from the birds' nest-building activity.
Human disturbance and trampling	Low	Low	Mitigated by restricted access.

[a] All threats are discussed in Wilson (2016) or Waugh *et al.* (2015a or b), except where otherwise noted. Threat levels are aligned to those described in Table 1, and are listed as High, High potential, Unquantified, Low, or Negligible for severity and scope.

Marine Ornithology 45: 195–203 (2017)

[132] New Zealand is a signatory of the Agreement on the Conservation of Albatrosses and Petrels 2018. That Agreement applies a similar precautionary principle to the Rio Declaration.

[133] Agreement on the Conservation of Albatrosses and Petrels 2018, Article II contains the following Objective and Fundamental Principles:

(a) The objective of this Agreement is to achieve and maintain a favourable conservation status for albatrosses and petrels.

(b) The Parties shall take measures, both individually and together, to achieve this objective.

(c) In implementing such measures, the Parties shall widely apply the precautionary approach. In particular, where there are threats of serious or irreversible adverse impacts or damage, lack of full scientific certainty shall not be used as a reason for postponing measures to enhance the conservation status of albatrosses and petrels.

[134] Annex 2 at [2.1] of the Agreement requires "[s]o far as is appropriate and necessary, the Parties shall take such management action, and introduce such legislative and other controls, as will maintain populations of albatrosses and petrels at, or restore them to, favourable conservation status, and prevent the degradation of habitats."

[135] The Panel accepts that any uncontrolled lighting from the mining activity would pose a risk of the phenomenon called 'fallout' by the Westland Petrel. We acknowledge the risk from the literature and from observations but note that there is limited understanding of how lighting causes this behaviour.

[136] The Panel accepts that because of the unfavourable conservation status of the Westland Petrel and because of New Zealand's international obligations and relevant national directions, significant constraints should be placed on the mining operation to a degree that substantially achieves avoidance of adverse effects. That involves preventing night operation in the pits, preventing light from emanating from the processing plant, and, limiting truck movements during the hours of darkness. For the residual outdoor lighting required to safely operate the mine, the Australian Light Pollution Guidelines for Wildlife will be applied to manage that lighting system.

[137] Even with these measures, there is a small but unquantifiable residual risk that the measures are insufficient to prevent any interactions with the Westland Petrel. To cover that risk, TiGa devised an adaptive management regime that adjusts the lighting management system appropriately if light interactions with the Westland Petrel occur in circumstances that meet the criteria at [129] of *Sustain our Sounds*.

[138] Despite these measures, Ms Warnock, submitting for the Director-General, said that the remaining residual risk did not achieve Policy 13 of the Zealand Coastal Policy Statement, and any risk of death of even one bird was an unacceptable population-level effect that should be avoided by applying the precautionary principle.

[139] The Panel had difficulty with that submission by the Director-General because it struck the Panel as beyond the boundaries of sensible, prudent precautionary analysis and required the Panel to unreasonably decline consent for no practical or helpful purpose and, arguably, because any risk was not quantified, the risk could not be regarded as significantly affecting populations outcomes for the Westland Petrel.

[140] We know that the significant impacts on population health relate to fishing methods and colony disturbance by natural causes and predators. In addition, there is already pre-existing fallout from lighting across the West Coast. The District Plan does not control lighting for the purposes of avoiding 'fallout', nor does it seek to require lighting controls for any land use activities within the Barrytown Flats except to a limited degree and not for the purpose of protecting the Westland Petrel. Changes in lighting patterns associated with changes in permitted activities on the Barrytown Flats or increases in night-time traffic could all significantly increase the potential for fallout to occur within the Site.

[141] When the Panel asked Ms Simister for the reason why so much attention was being paid to the residual risk of mine lighting in the face of the estimable conditions offered by the Applicant and in the face of other serious threats, Ms Simister described the approach as paying attention to a threat the Department of Conservation could control. It seems the Director–General has not sought a planning regime to control light through any RMA, Schedule 1 process. Mr Geddes confirmed this in a separate report on lighting controls in the operative and proposed District Plans. Also, the argument for the Director-General went beyond careful control and was an invitation to weigh any residual effect as sufficient to decline consent on the basis that residual risk would be, to borrow an idiom, an unacceptable straw on the Westland Petrel population camel. Without a proper statistical assessment of the multiple stressors and their relative contribution to risk in a dynamic existing environment, we do not know what the additional risk is and how it makes any statistical difference, given the fluctuating nature of those stressors. Further, in such a case the question is not only whether one should avoid the straw or feather but whether it is more sensible to take steps to, continuing the metaphor, make a stronger 'population camel' using more certain and efficacious measures.

[142] Those sorts of statistical assessments can be done although we suspect Ms Simister is unfamiliar with those tools. It would require better datasets than are currently available and therein lies a key point. Better monitoring and better datasets of the type promoted by

TiGa are likely to enable more intelligent interventions to protect Westland Petrel than a clumsy decision to decline consent made ignorantly based on a very small and uncertain cumulative risk known to be addressed by strict adaptive measures.

[143] Agency and community cooperation to support better monitoring and collaborative efforts to address more serious threats in combination with the estimable conditions offered by TiGa would, in all likelihood, better advance Westland Petrel population sustainability rather than simply declining consent. As noted in the summary of this decision, Ngāti Waewae and the Applicant tried to promote these practical ideas to the Director-General, but to no avail.

[144] The Director-General did not present statistical analysis that would demonstrate our assessment as described above is wrong. A methodology that simply says, irrespective of any other real-world context of what can and does affect Westland Petrel, a very small residual risk of death of one or two birds is unacceptable, and hence any light-generating activity, however modest and controlled to avoid effects, should be declined is not a precautionary approach that we can in good conscience follow. Better tools and solutions exist.

Are the Coastal Lagoons and Langridge Wetlands "natural inland wetlands" governed by the Resource Management (National Environmental Standards for Freshwater) (NES-FW)?

[145] The Panel heard arguments as to whether Canoe Creek Lagoon and Deverys Lagoon fell within the Coastal Marine Area (*CMA*). If the lagoons are within the CMA, then they would not be subject to the NES-FW[18] because they are not natural inland wetlands.

[146] If Rusty Pond was artificially constructed from former dredge mining, it is not a natural inland wetland.

[147] The Site is located within 100 m of the Coastal Lagoons and Rusty Pond. There are potentially other wetlands on the Langridge property to the north of the Site adjacent to the northern drain, although these have not been delineated because access was precluded.

[18] The NES-FW defers to the NPSFM regarding the definition of 'natural inland wetland'. Clause 3.21 of the NSPFM states that "natural inland wetland means a natural wetland that is not in the coastal marine area."

If there is an additional wetland system east of Rusty Pond, only a small part of the MDA would be within 100 m of that wetland.

[148] If the situation described above was not complex enough, there are other elements of complexity. Notably, the perimeters of the wetland of the Coastal Lagoons may be outside the CMA, and parts of the perimeter of Rusty Pond that are not formed by dredging may be natural inland wetlands. In such cases, those perimeter areas are natural inland wetlands and not coastal wetlands. The whole area was once a bog or swamp, and differentiating natural from unnatural parts is difficult.

[149] The complexity of this situation and its consideration by TiGa's principal terrestrial ecologist, Dr Bramley, is described in paragraph [151] of his primary statement of evidence. It is worthwhile setting out that paragraph in full :

> When contributing to the design of this project and assessing the effects, I have considered the national policy statements for coastal areas (2010), freshwater management (2020), and indigenous biodiversity (2023) and assessed the effects against these policies in the first instance. For the purposes of my assessment relating to the SNA, and effects on that SNA, I note that I am referring to the area proposed in the TTPP and shown in Figure 15 of Attachment D to my evidence. Figure 15 also shows my best estimate of the location of the Coastal Marine Area ('the CMA'). The Regional Coastal Plan for the West Coast ('the Regional Coastal Plan') does not include maps showing the entire CMA boundary. Instead, Table 1.1.2 of Schedule 1 provides cross river reference points. The location of the CMA boundary between these points remains unknown. These points are the only detail given in the Regional Coastal Plan, so I have drawn the line to connect them in Figure 15. I accept that this might not represent the true CMA boundary. As shown in Figure 16 of Attachment D, this line bisects Deverys Lagoon, meaning that the largest part would be within the CMA and a smaller part (and all of Rusty Pond) would be considered inland. From an ecological perspective, my view is that the sensible interpretation is that Devery's Lagoon is a coastal wetland and the CMA applies to all of it and the immediately adjoining vegetation. Figure 17 of Attachment D to this evidence shows the wetlands in relation to the Application Site as well as the indicative location of the CMA boundary and a 100 m setback from the wetland areas and the SNA. Given the location of the CMA boundary and my opinion that the lagoons should be included within the CMA, rather than bisected by it, the natural inland wetlands would include those to the north and south of the Site. The wetland vegetation surrounding Collins Creek and Deverys Creek Lagoon are therefore also coastal in my view, whilst Rusty Pond is inland with the CMA boundary

sensibly falling somewhere between Deverys lagoon and Rusty Pond. On the basis of Figure 17 of Attachment D, Panel 9 is within 100 m of potential natural inland wetlands to the south. Parts of Panels 3-8 are within 100 m of the coastal wetland (Collins Creek Lagoon, which is part of the larger Canoe Creek Lagoon) and Panels 7, 8 and 10 are within 100 m of the natural inland wetland to the north. This wetland surrounds Rusty Pond, which I understand was constructed as I have set out in Paragraph 33.

[150] Dr Bramley's Figure 16 is also helpful, and it is included below.

Figure 16 – Location of 100 m setbacks from the wetlands Application Site, Barrytown

[151] Ms McKenzie provided more detail on how the Regional Coastal Plan (*RCP*) marked the CMA boundary. The Operative Coastal Plan states:

> The boundaries in this Schedule show the landward extent of the coastal marine area, where the line of mean high water springs crosses a river. These boundaries were agreed and set between the Minister of Conservation, the regional council, and the appropriate territorial authority, in accordance with the RMA 1991.
>
> For all rivers not shown, and that enter the coastal marine area, the landward extent of the coastal marine area boundary is five times the width of the river at the point where the river crosses the line of mean high water springs.

[152] The Proposed Regional Coastal Plan (*PRCP*) has better maps, although they have not been changed from those in the Operative Plan.

[153] As we understand it, the reason the Coastal Lagoons fall within the CMA under the Regional Plans is because each of them is fed by a surface water body that has a mouth, and therefore, the extent of the CMA requires delineation by virtue of the definition of coastal marine area in the RMA as follows:

> **coastal marine area** means the foreshore, seabed, and coastal water, and the air space above the water—
>
> (a) of which the seaward boundary is the outer limits of the territorial sea:
>
> (b) of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of—
>
> (i) 1 kilometre upstream from the mouth of the river; or
>
> (ii) the point upstream that is calculated by multiplying the width of the river mouth by 5.

[154] Because of their interactions with coastal processes, we accept Dr. Bramley's evidence that, in an ecological sense, the Coastal Lagoons are coastal wetland ecosystems rather than inland wetlands.

[155] The Panel also considers that the delineation of the CMA in the Regional Plans is a pragmatic assessment of its location, even if it does not completely establish the Coastal Lagoons as wholly within the CMA.

[156] Ms McKenzie correctly pointed out that in the end, the management approach towards mining close to the Coastal Lagoons is no different, even if they are outside the definition of "natural inland wetland". The NZCPS dictates the avoidance of effects on Coastal Lagoons in the same way as the effects management hierarchy required under NES-FW and NES-FM. We agree, and in terms of effects management, the hierarchy of values would be applied irrespective of the classification of lagoons. The main difference is whether or not the other requirements in Regulation 45D(6)(a) and (b) are met for activities within 100 m of the Coastal Lagoons.

[157] Concerning Rusty Pond, members of the Langridge family acknowledged that this lagoon was probably artificial, being established by past dredge mining. However, the Langridge property is being managed to sustain its natural values and is in a state of recovery towards its more natural state, which tends towards swamp or wetland conditions. It is conceivable that the perimeters of Rusty Pond are inland natural wetlands and that there are other inland natural wetlands beyond the northern drain.

[158] The Langridges did not provide access for wetland delineation on their property. A situation that we described as unhelpful in the hearing in that it did not sit comfortably with the Panel that; on the one hand, the Langridges were seeking to preserve these natural values but, on the other hand, preventing a scientific assessment of the extent of those values. The Langridges later described their refusal as arising from a misunderstanding and proposed providing access to enable wetland delineation during the course of the hearing. The Panel was not attracted to that course of action because it was impractical and would have unreasonably delayed the proceedings.

[159] Dr Bramley did have some information about the presence of wetlands on the Langridge property other than Rusty Lagoon. That was obtained from the previous application where Mr Nichol, a respected ecologist in the West Coast region, had undertaken plots and identified and reported relevant flora values on the Langridge property near the Site. The material provided a useful but incomplete picture, and as we understand, it was not a delineation method of the type commonly applied under the NPS-FM using the Clarkson method. Added to that incomplete picture is the fact that the Court of Appeal has recently addressed wetland delineation methods in *Page v. Greater Wellington Regional Council.*[19] In that case, the Court took an approach - argued for by some parties in *Greater Wellington Regional Council v. Adams*[20] - that the definition of wetland and natural inland wetland suggested a requirement for a level of ecological complexity sufficient to sustain a wetland ecosystem comprising flora and fauna. Thus, a wetland determination and delineation assessment has not occurred on the Langridge property on the northern boundary. Given the Court of Appeal's decision, we tend to agree with Dr Bramley that it is unlikely that there are wetlands further to the north of the Langridge property if Mr Nichol concluded, based on

[19] *Page v. Greater Wellington Regional Council* [2024] NZCA 51.
[20] *Greater Wellington Regional Council v. Adams* [2022] EnvC 25.

his plots and digest of flora, that there were no such wetlands. We also note the existence of grazing to the north.

[160] TiGa presented its case on the basis that the Proposal would avoid adverse hydrological impacts on any water bodies or substrate supporting hydrophytic flora that may be classified as within a "natural inland wetland". That is so, TiGa argued, whether the natural wetland was within the 100m setback or beyond it. That outcome would be achieved through the water management system designed by Kōmanawa Solutions Limited. Therefore, any delineated wetland on the Langridge property would not alter the design of the mining system or the methods employed to achieve the required effects hierarchy. The matrix of monitoring networks provided excellent information about subsisting hydrological conditions at the boundary and enabled an assessment of how to maintain those conditions with the natural consequence that these would sustain groundwater conditions, potentially mitigating any impact on wetlands on the northern boundary.

[161] Some doubt remains in the Panel members' minds as to whether the Coastal Lagoons, in whole or in part, fall outside the definition of "natural inland wetlands." Similarly, we were not convinced that parts of Rusty Pond did not meet this definition.

[162] The Panel proceeded on the basis that the Coastal Lagoons and Rusty Lagoon are natural inland wetlands under NES-FW. We have also proceeded on the basis there may be natural inland wetlands on the Langridge property adjacent to the northern drain within 100 m of the MDA, although within the 100 m setback. That conservative approach was endorsed by the Director-General of Conservation.

The Director-General of Conservation's ultra vires argument about conditions controlling mine lighting

[163] Ms Warnock, for the Director-General, argued that any Offered Condition that we imposed controlling mine lighting to prevent impacts on the Westland Petrel is *ultra vires* if those conditions could not meet minimum mine safety guidelines. Further, Ms Warnock argued that TiGa did not satisfy the Panel that the proposed lighting design would meet minimum safety standards.

[164] The Panel does not accept that when imposing conditions under the RMA that it considers appropriate, the Panel must also satisfy itself that those conditions can meet all other statutory requirements. If conditions are required to fulfil the Act's purpose and otherwise

meet the requirements of conditions under RMA, s 108 and s 108A, then they are *intra vires*.

[165] We received information from Mr Lawson at IAC Mining for TiGa, who confirmed the proposed lighting design system attached to his memorandum dated 17 March 2024 was prepared with input from a multi-disciplinary team including David Pollock, Project Manager, Kevin Price, Senior Electrical Engineer, Dr Gary Bramley, Ecologist and Mr Gordon Skinner, Senior Designer. Mr Lawson also stated that he was confident it would meet both health & safety requirements and the National Pollution Guidelines for Wildlife dated May 2023. Therefore, the factual predicate of Ms Warnock's legal submission did not exist.

Enforceability and efficacy of conditions

[166] Some submitters argued that the mechanisms available for enforcement were insufficient for such a complex project subject to numerous conditions.

[167] The Panel does not agree with these submissions. The armoury available for enforcement under the RMA is extensive, widely available, and not burdensome to institute. It is an effective and transparent accountability system that strongly disincentivises non-compliance or attempts to fashion a consent that is hopeless. Additionally, the following is noted:

(a) The maximum penalties under the RMA, s 399, were substantially increased as part of the package of reform in 2009 (Phase ii) by the Resource Management (Simplify and Streamlining) Amendment Act 2009. This was implemented to streamline the RMA to ensure consent requirements were met.

(b) As part of an enforcement order the Court can review conditions where information provided to secure consent is not fulfilled under RMA, s 129(1))(c).

Applicant's autonomy to set the parameters of consent that, in turn, define the scope of activity and the assessment of its effects

[168] A central question and the starting point for any assessment under RMA, s 104, must be the actual and potential adverse effects of allowing the activity under RMA, s 104(1)(a).

Only after that assessment can a meaningful evaluation of the proposal be undertaken, considering other RMA, s 104 matters.

[169] The scope of the application constrains the effects of the activity. It is established RMA practice that the Applicant may offer or agree to conditions through the consent process before a decision is made. RMA, s 108AA(1)(a) expressly acknowledges that. Such conditions must, in turn, limit the scope of the activity (which is shorthand for the activity's character, scale and intensity of effects) because they are agreed upon by the Applicant.

[170] To support these propositions we note the following:

(a) The decision of the High Court in *88 The Strand Limited v. Auckland* City Council[21] at [19] below. That observation complies with greater force to conditions agreed to by the Applicant. In *88 The Strand* conditions were offered as part of its application, so the Court's observations were made in that context.

> "First, a consent authority, when it imposes conditions, is entitled to assume that the Applicant and its successors will act legally and adhere to the rules and conditions: see *Barrie v. Auckland City Corporation* [1975] 2 NZLR 646 (CA) 651. That is obvious. Nothing could ever be approved if consent authorities had to work on the contrary assumption, namely that its rules and conditions would not be observed. There is no suggestion in this case that the noise conditions cannot be observed."[22]

(b) The High Court has confirmed that the conditions affect the scope of the activity. The Court is referred to *Marlborough District Council v. Zindia Limited* at [91] onwards.[23]

[171] The statutory scheme recognises an applicant's autonomy in setting the activity and agreed conditions of consent that the applicant seeks because:

(a) It is for an applicant to assess the appropriate character, scale, and intensity of the activity necessary to operate the business and secure consent.

[21] *88 The Strand Limited v. Auckland City Council* [2002] NZRMA 473.
[22] Note the word "cannot" suggests impossibility rather than challenging to achieve.
[23] *Marlborough District Council v. Zindia Limited* [2019] NZHC 2765 at paras 91-104.

(b) It is for an applicant to pitch what scale and intensity (parameters) appropriately conforms the activity (and hence application) to the objectives and policies of the relative planning instruments.

[172] The scheme of the RMA supports the proposition above. See, for example:

(a) RMA, s 88.

(b) RMA, s 108AA referring to conditions agreed to by an applicant.

(c) RMA, Schedule 4, clause 6(1)(a) and clause 6(1)(e), conditions being methods and measures to control how the activity is undertaken.

(d) The well-recognised liberalising underpinnings of the RMA. It is not based on a wise use assessment. Instead, the RMA allows the market participants to provide for community needs while meeting environmental parameters and managing externalities using their skills and innovation.[24]

[173] It is also the long-standing RMA practice to consider the conditions the decision-maker may impose. For example, in *Bethwaite v. Christchurch City Council*[25] at p 5, Skelton J said:

> Then too, we think it is permissible to consider this question having regard to any mitigation of effects that might be achieved by the imposition of conditions. Put another way, it is permissible to have regard to the effects of the activity, controlled by conditions that would limit or proscribe that activity and its effects. This has been done before - see, for example, *Shell Oil NZ Ltd v Rodney District Council* Decision No: C19/93. We did not have the benefit of any submissions about that in this case but we think it must follow from the way sections 104 and 105 are structured. It would not be sensible to have to rule out a proposed activity on the ground that it failed to comply with both the pre-conditions in section 105(2)(b) of the Act if it was clear that by the imposition of conditions on the granting of consent, such a result could be avoided. We remind ourselves too however, that even though a proposal might be found to satisfy one or other of the preconditions, it does not follow that consent has to be granted."[26]

[24] See, for example, Whata J in *Attorney-General v. The Trustees of the Motiti Rohe Moana Trust and NZMC* [2017] NZHC 1 at [11] citing "Externalities are those consequences, both beneficial and adverse, which flow from the use of the resources." *Meridian Energy Ltd v. Central Otago District Council.*
[2010] NZRMA 477 (HC) at [113], per Chisholm and Fogarty JJ.
[25] *Bethwaite v. Christchurch City Council* C085C/93 (PT).
[26] At [20], paragraph 5.

[174] That passage was cited with approval in *Turner v. Grey DC*[27] W089/94 (PT) and *Calbeley v. Kaipara*[28] at [139]:

> We have considered the activities' adverse effects as a whole, in light of the mitigating influence of the proposed consent conditions (and in this case, also of the proposal's subdivision design).

Approach to formulating conditions

[175] The Panel has considered the Offered Conditions and made amendments. The Panel has approached that task in a manner consistent with *Port of Tauranga Ltd v. Bay of Plenty Regional Council*[29], at [26] where the Environment Court stated:

> We consider the time has passed when conditions of consent can be based on statements of intent as to what will be done at some time in the future. We will require greater certainty of what will occur, by when, what outcomes are to be achieved, who will be responsible and what enforcement mechanisms will be available.

Management plans

[176] In addition to a range of conditions setting out environmental constraints on the proposed sand mineral mine, the Applicant proposed a suite of management plans that will manage the detailed effects of the mine's construction, operation, and monitoring. Each management plan has a separate condition relating to it.

[177] Management plans are commonly used for large-scale projects. We understand management plans to be a suitable mechanism for ensuring that conditions are complied with, and detailed environmental effects are managed appropriately. Management plans avoid cluttering the conditions with excessive detail, particularly with regard to how certain construction activities or mitigation actions will occur. The caveat is that each management plan condition must specify the purpose or objective of the plan, ideally which conditions it is designed to assist with implementing, the minimum contents of the plan, who is to prepare it, and who else should be consulted or involved in that process.

[27] *Turner v. Grey DC* W089/94 (PT).
[28] *Calbeley v. Kaipara DC* [2014] NZEnvC 182.
[29] *Port of Tauranga Ltd v. Bay of Plenty Regional Council*[29] [2023] NZEnvC 270.

[178] Therefore, a management plan implements the objectives and outcomes of the consent and are servants of the consent, not its master.

[179] The High Court[30] has cited *Wood v. West Coast Regional Council*[31] with approval observing that:

> ….In *Wood v West Coast Regional Council*, the Court acknowledged the difficulties that can be faced in specifying a management plan as a condition of consent, particularly where it might benefit from future amendments to keep pace with developments in technology. The Court accepted that a management plan can be required to be prepared pursuant to s 108(3) of the Act, and that its purpose should be to provide the consent authority and anybody else who might be interested with information about the way in which the consent holder intends to comply with the more specific controls or parameters laid down by the other conditions of a consent.

[180] Ms Warnock, for the Director-General, asked us to entrench the draft Avian Management Plan into the consents so that it could not be varied even to the extent that it could not be varied under the RMA, s 127 process. We do not agree with that approach. We have set out in the consent conditions an avoidance ethic to protect the Westland Petrel including by setting clear outcomes that must be achieved by the Avian Management Plan. Management plans must retain scope for adjustment to meet those goals and we consider there is value in the certification process that creates a dialogue amongst experts about how these goals are best achieved by management measures. In the end the certification process provides the Council with the ultimate control to ensure the prescribed outcomes are met. We agree there is value in consultation with the Department of Conservation about the finalisation of, or changes to, the Avian Management Plan.

[181] Mr Geddes asked us to entrench some management plans to limit the management 'overhead' carried by the local authorities. Again, we do not think that is an appropriate course and the ability to charge for administering the consent is a sufficient protection against an unreasonable financial burden on Councils to administer consents. Regulatory oversight of the implementation of these consents cannot be avoided and the flexibility of

[30] *Guardians of Paku Bay Association Inc v. Waikato Regional Council* 16 ELRNZ 544 at [133].
[31] *Wood v. West Coast Regional Council* [2000] NZRMA 193 (EnvC).

management plans is an appropriate tool to manage the exigencies of a dynamic environment while meeting the requirements of consent conditions.

[182] As noted conditions will specify that a management plan is to be submitted to the appropriate council and thereafter 'certified', which for all intents and purposes is an approval process. Ideally, the condition should set out a process for reviewing or amending the management plan as a project proceeds.

[183] We have reviewed the management plan conditions recommended to us by the Applicant. We are satisfied that they meet the above requirements.

Other issues raised by submitters and their legal relevance

[184] Submitters raised two other issues:

(a) The impact on property values.

(b) The prospect of a Minerals Separation plant or further mining activity within or beyond the Site.

[185] Concerning property values, these values are a proxy for negative environmental externalities affecting a property. Most of the externalities that we have identified beyond the Site are minor and none materially affect properties in the neighbourhood. Therefore, we do not expect any material impact on property values from approving the Proposal and, in any case, we do not consider it would be appropriate to assess any change to these values as that would be double counting.

[186] Concerning future activities not in the application, the Councils have determined under RMA, s 91 that no other consents are reasonably required to determine whether the Proposal should be consented. We are bound by those decisions. It is beyond the scope of RMA, s 104 for us to look at any other activities that might arise or be facilitated by approving this Proposal. We have no information that would enable us to assess the likelihood of other mining approvals beyond the Site. The Panel understands that some members of the community are anxious that this Proposal is a gateway to more extensive mining activity on the Barrytown Flats. However, every proposal for mining must be assessed on its own merits.

Interpreting planning instruments

[187] We have had to interpret some Plans for their application to certain activities. An example is whether the greenhouse gases from mining activity meet permitted activity standards in the Regional Air Quality Plan.

[188] We, therefore, set out our interpretation method.

[189] The interpretation or construction task of planning instruments was described in *J Rattray & Son Limited & Son Limited v. Christchurch City Council* [32] by the Court of Appeal. It was reaffirmed in *Centrepoint Community Growth Trust v. Takapuna City Council*[33] on page 706, line 45 and by *Powell v. Dunedin City Council.*[34] The approach is to consider the definition of a Plan in the context of the *scheme as a whole and to the policies emerging from it when examined as an entity*.

[190] Importantly, the High Court also said in *Nanden v. Wellington City Council*[35] that the following principles are important:

(a) The desirability of an interpretation that avoids absurdity or anomalous outcomes.

(b) The desirability of an interpretation that is likely to be consistent with the expectations of property owners.

(c) The importance of practicality in administration.

NES Freshwater – functional need

Introduction to the question of whether Regulation 45D of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 apply

[191] A key legal jurisdictional issue was whether the Proposal met the "functional need" requirement in the NES-FW, clause 45D(6)(b) by proposing activities within the 100 m setback envelope established for the listed activities in Regulation 45D.

[32] *J Rattray & Son Limited & Son Limited v. Christchurch City Council* (1984) 10 NZTPA 59.
[33] *Centrepoint Community Growth Trust v. Takapuna City Council* [1985] 1 NZLR 702.
[34] *Powell v. Dunedin City Council* [2004] 3 NZLR 721.
[35] *Nanden v. Wellington City Council* [2000] NZRMA 562 (HC).

[192] The Resource Management (National Environmental Standards for Freshwater) Amendment Regulations (No 2) 2022 from 5 January 2023 provided a discretionary pathway for mining within wetland setbacks if three jurisdictional requirements in subclause (6) of Regulation 45 requirements are met.

[193] If the Proposal or any of its parts do not meet that "functional need" requirement (or 'gateway' as it is sometimes referred to), the pathway to consent as a discretionary activity under Resource Management (National Environmental Standards for Freshwater) Regulations 2020, clause 45D is not open to the Proposal.

[194] Regulation 45D only applies to setbacks from a "natural inland wetland." If the Coastal Lagoons and the Langridge wetlands are not natural inland wetlands, then Regulation 45D does not apply.

[195] The Panel considers it should proceed on the basis that all the adjacent wetlands are "natural inland wetlands" because the legal and factual picture is too opaque to conclude they are not "natural inland wetlands".

[196] Therefore, we have assessed the activities on the basis that Regulation 45D applies.

Regulation 45D and its components

[197] It is worthwhile to set out Regulation 45D of the NES-FW, Subpart 1, as follows:

> **45D Discretionary activities**
>
> (1) Vegetation clearance within, or within a 10m setback from, a natural inland wetland is a discretionary activity if it is for the purpose of the extraction of minerals and ancillary activities.
>
> (2) Earthworks or land disturbance within, or within a 10m setback from, a natural inland wetland is a discretionary activity if it is for the purpose of the extraction of minerals and ancillary activities.
>
> (3) Earthworks or land disturbance outside a 10m, but within a 100 m, setback from a natural inland wetland is a discretionary activity if it—
>
> (a) is for the purpose of the extraction of minerals and ancillary activities; and

(b) results, or is likely to result, in the complete or partial drainage of all or part of the wetland.

(4) The taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland is a discretionary activity if—

(a) the activity is for the purpose of the extraction of minerals and ancillary activities; and

(b) there is a hydrological connection between the taking, use, damming, or diversion and the wetland; and

(c) the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland.

(5) The discharge of water into water within, or within a 100 m setback from, a natural inland wetland is a discretionary activity if—

(a) the discharge is for the purpose of the extraction of minerals and ancillary activities; and

(b) there is a hydrological connection between the discharge and the wetland; and

(c) the discharge will enter the wetland; and

(d) the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.

(6) A resource consent for a discretionary activity under this regulation must not be granted unless the consent authority has first—

(a) satisfied itself that the extraction of the minerals will provide significant national or regional benefits; and

(b) satisfied itself that there is a functional need for the extraction of minerals and ancillary activities in that location; and

(c) applied the effects management hierarchy.

(7) In relation to the extraction of coal and ancillary activities, no person may apply for a consent to carry out any activity under subclauses (1) to (5) unless the activity

> is for the purpose of the extraction of coal or ancillary activities as part of operating or extending a coal mine that was lawfully established before 5 January 2023.
>
> (8) At the close of 31 December 2030, the extraction of coal (other than coking coal) is excluded from the purposes for which consent may be obtained under this regulation.

[198] Regulation 45D catches five listed activities, and of those, the first two only relate to activities within a 10 m setback of a "natural inland wetland". The Proposal does not seek consent for activities within a 10 m setback; therefore, those two activity classes do not apply.

[199] The remaining three activities in subclauses (3)-(5) apply to the activity. In particular:

(a) The Proposal is for earthworks and land disturbance within 100 m of the Coastal Lagoons and the Langridge wetlands to extract minerals and undertake ancillary activities. But for the successful operation of the hydrology system in the Proposal the activities would result in complete or partial drainage of those wetlands (Reg 45D(3) applies).

(b) There are components of the Proposal involving the taking, use and diversion of groundwater within the 100 m setback for the purpose of subclause (4), where hydrological connections between the wetland and groundwater system are disturbed with the potential for changes in water level ranges even though the aim is to minimise the change (Reg 45D(4) applies).

(c) The Proposal's hydrological system discharges water into water within the 100 m setback and through groundwater systems with a hydrological connection so that water will enter the wetland and is designed to achieve that outcome (Reg 45D(5) applies).

[200] Regulation 45D(6) precludes granting consent to activities governed by the regulation as a discretionary activity unless three prerequisites are met.

[201] The parties principally debated whether Regulation 45(6)(b) was met. That is, whether there is *a functional need for the extraction of minerals and ancillary activities in that location*.

[202] Except for the evidence by Mr Colin Robertson and Ms Jill Bradley, there was no substantial contest that the Proposal provides significant national or regional benefits under Regulation 45D(6)(a). We address the economic benefits elsewhere and are satisfied that the Proposal will provide significant regional benefits.

[203] No party challenged that the Proposal applying the Offered Conditions of consent would not meet the effects management hierarchy under Regulation 45D6(c) except the debate on the occupancy issue. For the reasons given in assessing the effects of the activity, we are satisfied that we have applied the effects management hierarchy.

[204] 'Functional need' is defined in NES-FW, Regulation 3 as follows:

> **Functional need** has the meaning given by the National Policy Statement for Freshwater Management.

[205] "Functional need" is defined in Subpart 3 of the National Policy Statement for Freshwater Management 2020 (*NPSFM*), clause 3.21, as follows:

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

[206] That NPSFM definition is the same as the National Planning Standards in November 2019.

The parties' positions on 'functional need.'

[207] The Applicant argued that the Proposal had a functional need to be within the 100 m setback using Mr Miller as the key witness because he oversaw the mine design's development through a type of charrette process.

[208] On the other hand, Dr Durand, the reporting planner for the West Coast Regional Council, initially considered none of the activities in the 100 m setback met the functional need requirement and hence, the Proposal should be declined. The legal submissions from the Director-General of Conservation supported his initial analysis. The CRRG also argued that the "functional need" test was unmet.

[209] Ms McKenzie, TiGa's planner, in her primary statement of evidence at [52], considered the "functional need" requirement was met by a straightforward analysis that the requisite minerals were found in the 100 m setback envelope. Ms McKenzie stated:

> Mineral extraction, by nature, has a functional need to locate where the targeted minerals are located, and demonstrating that the resource exists in the location proposed to be mined is sufficient to demonstrate a functional need in that location. The evidence of Mr Berry confirms that the company has completed a JORC compliant resource consent within the application area. The minerals are found within 100 m of the wetland, and Mr Miller's evidence demonstrates at paragraph 51 a clear functional need to extract minerals and carry out those ancillary activities immediately required within that environment. The hydrological evidence of Mr Rekker also confirms the functional need for the water management activities (ancillary activities) to locate within 100 m of the wetland due to the geometry of the mine panels, i.e. Ponds 3 and 4 which must be downstream of the mine area to catch the water flows. In my view, the relevant context to have a discussion about appropriateness of the activity operating within 100 m of a wetland is not within the functional need part of this test, but within the effects management hierarchy test – i.e. has the Applicant, despite the functional need to be within this environment, avoided effects in the first instance, and if not, applied the cascading hierarchy. This hierarchy concludes with avoidance, if compensation isn't appropriate.
>
> [the emphasis was within the evidence]

[210] Therefore, Ms McKenzie contended that the presence of winnable material, which the mining activity aimed at, was sufficient to meet the *functional need* test. As shown later, some *extra-statutory*[36] material from MfE supports that view.

[211] Dr Durand, in his section 42A report, addressed the question similarly narrowly but reached the opposite conclusion. He approached the question of "functional need" as if the question turned on the presence or absence of winnable minerals inside the 100 m setback even though "functional need" as defined does not refer to that matter.

[212] Dr Durand considered that if winnable material could be obtained outside the 100 m envelope, then it could not be said that the mining activity can *only* be located within that envelope as required by the "functional need" definition. Following that logic, Dr Durand said that because there was demonstrably winnable material outside the 100 m envelope, the "functional need" test could not be satisfied. Again, Dr Durand refined his position in a supplementary statement.

[36] This term means in this context outside the four corners of the NES-FW as secondary legislation.

[213] Following a similar approach to Dr Durand's argument in his section 42A report, the CRRG said at [21]:

> The application therefore, fails the functional need test, as the NZ Petroleum and Minerals recommendation report demonstrates there are other mineral sand deposits on the Barrytown Flats covered by the Applicant's mining permit. There are also other mineral and deposits elsewhere on the West Coast (some of which Westland Mineral Sands is pursuing). Alternative locations can be identified that are not within 100 m of a natural inland wetland. Therefore, under regulation 45D(6) of the National Environmental Standards for Freshwater, consent cannot be granted.

[214] Therefore, the CRRG argued one must consider the potential for extractable minerals beyond the Site when assessing whether the activity can *only* be located within that envelope.

[215] The Director-General of Conservation, through Ms Warnock, only made legal submissions on why the "functional need" test was not met. Ms Warnock did so by arguing against the competing positions framed above. The submissions involved a detailed legal argument with a conclusion buttressing the opinion expressed by Dr Durand in his section 42A report.

[216] We emphasise the purely legal nature of the Director-General of Conservation's argument viewed through the lens of the competing arguments above because the Panel saw the question assessment as a mixed question of law and fact encompassing consideration of the characteristics of the Proposal in its entirety and not simply based on the presence and distribution of extractable minerals on the Site or nearby. The assessment required a decision-maker to have a good appreciation of all the expert evidence about the mine's design.

[217] At [62] Ms Warnock stated:

> The three limbs of reg 45D(6) are disjunctive. This test is described as a 'gateway' test, meaning once the test has been satisfied, the activity can be considered under s 104. Reg 45D(6)(b) requires the consent authority to satisfy itself that there is a functional need for the extraction of minerals and ancillary activities in that location. 'Satisfied itself' is indicative of a robust assessment or an adequate degree of certainty.

[218] At [65], Ms Warnock stated:

> 'Functional need' is defined in opposition to 'operational need' in the Planning Standards:
>
> "Operational need" 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.

[219] At [76] supporting Dr Durand's assessment, Ms Warnock stated:

(a) Kate McKenzie's proposition appears tautological. Reg 45D(6) is concerned with the extraction of minerals.79 The extraction of minerals always takes place where the minerals are deposited because it is not possible to extract minerals unless they are there. Mining permits under the CMA are only granted if the Minister is satisfied that, 'the permit applicant has identified and delineated at least an indicated mineable mineral resource or exploitable mineral deposit.' If this interpretation was accepted, there would never be a proposal to mine crown minerals that failed reg 45D(6)(b) and the text would become redundant.

(b) It is important to test the converse argument. Does the meaning adopted by Dr Durand inevitably frustrate a consenting pathway? This does not appear to be the case. Dr Durand has set out factual considerations that would result in a mining proposal satisfying the functional need test to mine within 100 meters of wetlands. Accordingly, if Dr Durand's interpretation was accepted there would be some mining proposals (albeit not this one) that met the test.

(c) If there are two ways to interpret a legislative provision and one interpretation renders the provision meaningless, then the other interpretation is to be preferred.

(d) Kate McKenzie's proposition does not accord with the drafting history set out above and the acknowledgement by MfE that 'functional need' sets a high test.

(e) The ratio of *Poutama Kaitiaki Charitable Trust and D & T Pascoe v Taranaki Regional Council* supports Dr Durand's analysis in paragraphs [153]-[154] of the s 42A Report. The High Court found that the particular or relevant (wider) environment also had to be considered, not just the chosen location. So, there are two (spatial) considerations: if the *location* is near to wetlands, can this activity *only occur* in this particular (or relevant) *environment* that you are concerned with (i.e. the Barrytown Flats adjacent to the Canoe Creek wetlands)? And that requires a 'context and fact

> specific inquiry'... [that considers] 'alternatives'.85 If not, it needs to take place somewhere else that is not near to wetlands. This multi-layered approach aligns with Dr Durand's analysis but not with Kate McKensie's simple approach that focuses only on one aspect i.e. the location of minerals and ignores the wider environment. [Footnotes omitted]

[220] In a supplementary statement, Dr Durand renounced the analysis in his section 42A report that Ms Warnock relied on. Dr Durand distanced himself from Ms Warnock's analysis relying on his earlier assessment, saying under questioning that he disagreed with Ms Warnock's assessment as too narrow.

[221] Dr Durand, in his supplementary statement, shifted his focus somewhat from the issue of whether there were winnable minerals outside the 100 m setback and acknowledged that some components of the Proposal not associated with mining *per se* could meet the functional need test as they were inextricably linked to achieving the avoidance of effects on adjacent "inland natural wetlands" which was essential. That included the infiltration trenches that form an important part of the hydrological system. However, Dr Durand remained of the view that some design components, including the winning of materials within the 100 m envelope, could not meet the functional need test, and he included Pond 4 and pit mining within the 100 m envelope in that assessment.

[222] While Dr Durand said he was deconstructing these components of the mine design to also reflect the activity classes in Regulation 45D, he was actually allocating the design components in a less – on his approach- rigorous way because these components were themselves incorporated several discrete activity classes in Regulation 45D. That is one example of the flaws of attempting an unduly atomised assessment.

The Panel's textual and internal context analysis of Regulation 45D(6)(b) concerning 'functional need' and a consideration of the various arguments by the parties

[223] The first point we would make is that Ms Warnock's submission at [62] that the three limbs of Regulation 45D(6)(b) are disjunctive is incorrect. The three limbs have a relationship with each other because they must be individually and collectively satisfied for there to be jurisdiction to use the discretionary activity pathway. The limbs would be disjunctive if they were separated by an either/or and hence were truly mutually exclusive alternatives and individually sufficient.

[224] We consider that Ms Warnock has confused the term 'disjunctive' with 'discrete'.

[225] The first two limbs of Regulation 45D require the decision-maker, before approving a discretionary activity, to be persuaded to the degree of being *satisfied* that the specified requirements are met. We agree with Ms Warnock that this requires us to be adequately convinced that the requirements are met. The phrase connotes through that decisional verb – as the Supreme Court described "satisfied" in another context [37] - a requirement for rigour by the Panel. The phrase also indicates the assessment exercise is an intensely factual inquiry and may not be a straightforward 'jurisdictional fact' assessment.[38]

[226] The third limb requires the decision-maker to apply the "effects management hierarchy" as described in NPS FM. That can be done by approving or refusing all or part of the consent or setting parameters for the activity through conditions.

[227] The first two jurisdictional pre-requisites in regulation 45D(6) aim to limit the qualifying cohort of mineral extraction and ancillary activities that benefit from the discretionary activity pathway by directing attention to two qualities of the Proposal:

(a) The scope of the benefits; and

(b) The nature and degree of the Proposal's need to be in that location.

[228] The third limb functions to ensure that any mineral extraction and ancillary activities meeting the first two limbs are managed according to the effects management hierarchy.

[229] The term "functional need" points to a need that arises from the requisite elements of a mining system to make the mine functional.

[230] Operational need in the Planning Standards is defined in this way:

> **Operational need** 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.

[231] As noted, Ms Warnock suggested that terms "functional need" and "operational need" are defined deliberately *in opposition* to each other such that there was a clear distinction

[37] *Discount Brands Ltd v Westfield (New Zealand) Ltd* [2005] NZSC 17, [2005] 2 NZLR 597.
[38] We use that term in the Administrative Law sense as facts that must be established to confer jurisdiction.

between the two. By that, we understood Ms Warnock to mean that technical, logistical or operational characteristics of a proposal required to extract minerals within the 100 m envelope could never be considered in assessing the requirement for functional need. Indeed, at [67], Ms Warnock made that point as follows:

> Counsel for the Applicant relies upon Stephen Miller's evidence to justify the functional need for mining within 100 meters of wetlands. But Mr Miller's analysis falls squarely within the definition of operational need – i.e. premised on technical, logistical, or operational choices and in particular, profit maximisation.

[232] We disagree. We do not consider that the term "functional need" in Regulation 45D is to be interpreted in opposition to the term "operational need" found in the Planning Standards in the way Ms Warnock suggested.

[233] It is helpful as part of the semantic assessment of Regulation 45D(6)(b) to consider the differences between the two terms ("operational need" and "functional need") because we accept the two types of need are differentiated for a purpose. However, we consider it an unsound leap of logic to say that the absence of use of the words "technical, logistical or operational characteristics" in the definition of "functional need" means that "functional need" must exclude those characteristics or constraints from the assessment of "functional need" simply because those words are not used in the definition of "functional need" but are in the "operational need". Worse "operational need" is not defined in the NES-FW and so Ms Warnock argues that terms defined elsewhere govern the meaning of "functional need".

[234] The definition of "functional need" does not attempt, like "operational need", to relate the need to a particular cause such as technical, logistical, or operational causes. The definition of "functional need" focuses attention on the strength of the need as it relates to the functioning of the Proposal.

[235] In other words, the key difference between the two definitions lies in the framing of the subordinate clause commencing with *because*. In the case of "operational need", the definition refers to characteristics or constraints by type. In the case of "'functional need", the reference is not to the characteristics, but to the activity's ability to *only occur* in that environment.

[236] For completeness, the definition of functional need treats the "proposal" and "activity" as alternatives in the main clause so that either the Proposal or the defined activities may have the characteristics for there to be a "functional need" allowing an integrated assessment that will often be necessary for a complex facility.

[237] The word "only" in the definition of *functional need* is not an adjective but is an adverb modifying the verb "occur". The use of the modal "can" in front of "only" is significant and suggests the phrase's purpose is to require the Applicant to demonstrate that the activity or proposal traverses, locates or operates in that particular environment as an inevitable but undesirable outcome of that location's characteristics and constraints.

[238] Therefore, the distinguishing feature between "functional need" and "operational need" is that the former may arise when the Applicant demonstrates that the need is an inevitable if undesirable result of the Proposal. Whereas "operational need" can arise due to technical, logical, operational characteristics or constraints irrespective of whether or not the needs are, in a practical sense inevitable.

[239] The question then becomes: "What can contribute to the conclusion that extraction of minerals and ancillary activities within 100 m of a wetland are inevitably required in that particular environment"?

[240] It is reasonable to assume the Executive, when making Regulation 45D, understood that mining proposals that are likely to benefit from the discretionary pathway because they are nationally or regionally significant will often be sizeable, complex mining operations with auxiliary components. The mines will be an engineered system conceived to practicably mine the winnable minerals in that location.

[241] The Panel's view is that a "functional need" arises when the mining system's design inevitably encroaches into the 100 m envelope for that mining system to operate practically. In such a case, the encroachment is practically unavoidable. That is not merely a "reasonably practicable" test dressed up in another way. It requires a higher level of need to be demonstrated.

[242] The imperatives the Applicant must address and trade-offs it must manage that inform a design that delivers an achievable mining platform can all contribute to meeting the "functional need' standard. These can include logistical, technical, and operational

characteristics as long as they are collectively sufficient to achieve the requisite standard. Mr Miller for TiGa explained that well and the water management system shows the complexity of the design.

[243] We disagree with Ms Warnock's criticism of a "tautology" concerning Ms McKenzie's contention that the presence of winnable minerals in the 100 m setback could justify a functional need. A tautology is a claim that must always be true on its own terms or by virtue of its logical form. It is not true all mining proposals aim to mine minerals that are found adjacent to a wetland. Therefore, Ms McKenzie was not making a claim that logically meant all mines have a "functional need" because all mines need access to minerals near a wetland. For completeness, we disagree with Ms McKenzie that the presence of the winnable materials is sufficient in every case to create a functional need.

[244] when questioned, Ms Warnock, echoing Dr Durand's initial assessment, said any mineral availability – even a sliver - beyond the 100 m setback disqualified us from finding there is a "functional need" within the setback. We find that to be a rather unreasonable interpretation. There is no literature we were made aware of that shows that the mischief that was being addressed in the 2022 amendments to NES-FW was the inability of miners to obtain minerals found only in wetland setbacks.

[245] We find that minerals within the 100 m setback can contribute to a "functional need" for mining in that location. That will depend on the constraints on available minerals and the viability of mining without encroaching into the 100 m setback as part of the assessment of the Proposal.[39]

[246] We do not accept the Coastal Road Resilience Group's contention that when assessing the mineral resource constraints, we should consider the potential presence of minerals in other locations on the Barrytown Flats because of TiGa's broader mining permits. We must consider whether there is a "functional need" *in that location* under Regulation 45D(6)(b), i.e., at the Site. That does not entitle us to consider - or worse, speculate - about available alternative potential mining sites in the general locality of the proposed mine.

[247] Finally, under questioning, Dr Durand briefly mentioned an effects-based assessment of "functional need" that we did not consider helpful or meaningful since the aim of the

[39] That is also consistent with the Ministry for the Environment entitled "Essential Freshwater 2022 - Amendments to the NES-F and NPSFM: Section 32 Report" at section 4.3.0 page 29 quoted later.

"functional need" requirement is not to address the effects of mining extraction or ancillary activities but instead to limit the activities that would qualify to use the pathway under Regulation 45D. Effects are addressed by the third pre-requisite.

External context, including published materials by the Minister for the Environment

[248] The parties relied on various extraneous contextual materials to support their interpretations. For completeness, we have set out the relevant components of those materials. We consider this extraneous contextual material to support our textual and internal contextual analysis and does not tend to support the arguments we heard that the "functional need" test was not met.

[249] The first document is the section 32 report published by the Ministry for the Environment entitled "Essential Freshwater 2022 - Amendments to the NES-F and NPSFM: Section 32 Report". Concerning quarrying and mining and the functional need gateway test, the section 32 report said in section 4.3.0, page 29, the following:

> **Gateway tests and application of the effects management hierarchy**
>
> The proposed new purposes (eg, urban development) provided with a consent pathway will be subject to the same framework and requirements as the current pathways under the regulations (eg, for specified infrastructure). This involves a series of gateway tests that must be met before consent can be accepted for consideration by the consent authority. The consideration of the consent is then undertaken through the lens of the effects management hierarchy, including the offsetting and compensation requirements, to ensure that there is no net loss (and preferably a net gain) of wetland extent and values.
>
> The consent pathways for quarrying and mining recognise that these activities are constrained to the locations of the resource, and that these locations may be at times within, or within the 100-metre setback of (as set out in the NES-F), a natural inland wetland. The consent pathways require that applications demonstrate a functional need as a gateway test for the expansion of an existing, or for new quarrying or mining activities. The functional need gateway test will be applied at the site scale. The other gateway test of significant regional or national benefit will ensure that only appropriate activities are considered and, may be granted on a case-by-case basis.

[250] The Ministry for the Environment published a proposal for changes to wetland regulations entitled "Report, recommendations and summary of submissions: Managing our wetlands: Proposed changes to wetlands regulations".[40]

[251] In summarising the Proposal, the document states:

> **Proposal**
>
> Consent pathways were proposed for quarrying; clean, managed, and landfills; mining; and 'plan-enabled' urban development. Submitters were asked whether a discretionary activity status24 was appropriate. It was proposed that these new activities be subject to the existing gateway tests already provided for specified infrastructure in the NPS-FM, which include the following requirements:
>
> (a) the activity must be of significant national or regional benefit
> (b) there must be a functional need for that activity in that location
> (c) adverse effects must be managed through the effects management hierarchy, which requires initial consideration of how to avoid adverse effects where practicable, then how to minimise, remedy, offset and compensate, in that order.
>
> Applications for a resource consent would have to demonstrate to the council how each sequential step of the effects management hierarchy (set out in the NPS-FM) would be applied, before the consent could be granted, with requisite offsetting under the effects management hierarchy to ensure no further loss of natural inland wetland extent or values.

[252] In discussing the "functional need gateway test", notably as it relates to mining and quarrying said the following:

> **Functional need gateway test**
>
> Anecdotal evidence from councils reveals that the functional need gateway test is having the desired effect. Councils report consent applications for specified infrastructure have subsequently been modified to specifically avoid natural inland wetlands, whereas prior to this they would have been overlooked and/or in-filled.

[40] Ministry for the Environment. 2022. *Essential Freshwater Amendments: Report recommendations and summary of submissions: Managing our wetlands: Proposed changes to the wetlands regulations*. Wellington: Ministry for the Environment.

> The functional need test is a critical aspect of balancing land use activity with the protection of natural inland wetlands. Without the test, we consider that the policy may no longer be consistent with section 5 or 6 of the RMA. Requiring an activity to be undertaken elsewhere, if it can be done so, is consistent with the RMA definition of sustainable management and ensures that natural inland wetlands are only disturbed where an activity must locate or operate in a natural inland wetland area.
>
> The National Planning Standards definition of functional need as currently applied as a gateway test for specified infrastructure is:
>
> > Functional need 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.
>
> We consider that there is a clear need for specified infrastructure, quarries and mines to locate and operate in particular environments. We therefore do not agree with submitters who proposed that the test be altered, or removed, for all consent pathways and consider that the functional need test should be retained for specified infrastructure and applied to quarrying and mining (see recommendations 14 and 28). [Footnotes omitted]

[253] Following that analysis under Recommendation 28 the authors recommended the following:

> Apply the same provisions to mineral mining as in the NPS-FM at 3.22(b)(i), including the gateway test of national or regional benefit in 3.22(b)(ii) and functional need in (iii); and the effects management hierarchy as per 3.22(b)(iv).

[254] Ms Warnock referred to us the Ministry for the Environment "21 Definitions Standard - Recommendations on Submissions Report for the first set of National Planning Standards. Wellington: Ministry for the Environment".[41]

[255] The relevant passages from the discussion on functional and operational needs in section 3.4.3 are as follows:

> Functional need is often a key consideration when an activity can only locate within the coastal marine area (such as a port) and we consider it appropriate to retain the strict requirement that the activity can only locate within that environment. However, we

[41] This document may be cited as: Ministry for the Environment. 2019. 21 Definitions Standard - Recommendations on Submissions Report for the first set of National Planning Standards. Wellington: Ministry for the Environment.

recognise that there can be good reasons why an activity should be enabled to occur in a location even when the activity can occur elsewhere or the activity must locate there for technical reasons. For example, this is often applicable to linear infrastructure that often has to traverse identified earthquake fault lines or flood hazard areas or has a valid reason to locate in the coastal marine area as in the oil companies' example above.

We consider that the term' operational need' can be used to cover situations where there are valid reasons why an activity should be enabled to occur in a particular location. We recommend including the term' operational need' in the Definitions Standard for those provisions where this is the desired approach.

[256] Dr Durand referred in his supplementary 42A report to the following Cabinet Minutes:

(a) Cabinet Paper "Essential Freshwater 2022 Amendments - seeking final agreement on wetland, technical, and stock exclusion amendments" (November 2022)

(b) Cabinet Minute ENV-22-MIN-0051 "Essential Freshwater 2022 Amendments - Wetland, Technical, and Stock Exclusion Amendments"- Cabinet Environment, Energy and Climate Committee

[257] The relevant text we referred to was the following:

16. I now seek Cabinet's final agreement to the policy decisions outlined in this paper and authorisation to recommend the amended regulations to the Governor-General in Council for approval.

19. The wetland provisions provide consent pathways to undertake the following activities: vegetation clearance; earthworks or land disturbance; and the discharge, take, use, damming, and diversion of water, in, or near to, natural inland wetlands for certain purposes.

20. Without a consent pathway, these activities are either non-complying or prohibited. This has had a wider than anticipated effect, particularly on activities required to support the Government's goals in respect of housing supply and infrastructure upgrades. I therefore propose to provide additional consent pathways for:

20.1 quarrying activities

20.2 landfills and dean fill areas

20.3 the extraction of minerals and ancillary activities, and

20.4 urban development on land identified for development in operative provisions of a regional or district plan.

21. The additional consent pathways will be subject to the existing gateway tests, including the offsetting requirements, in the NPS-FM.

22. These gateway tests address impacts that arise from activities for the purposes currently provided, eg constructing specified infrastructure, to ensure that

22.1 the activity is of significant national or regional benefit

22.2 there is a 'functional need' for the activity to occur in **that location**, and

22.3 the impacts of that activity are managed, through application of the 'effects management hierarchy', which requires that first, the impact is avoided where practicable, then minimised, remedied, offset, or compensation provided, in that order.

24. Through feedback, I now consider that additional activities are likely to be required to enable extraction to occur, eg to install machinery required for extraction or to provide access to extraction sites.

25. I therefore propose that the quarrying and mining consent pathways should provide for the full scope of activities required to undertake or support extraction of aggregate and minerals.

[258] And the Cabinet Minute relevantly at [12] said:

[12] noted that these gateway tests address impacts arising from activities for the purposes currently provided for, for example constructing specified infrastructure, to ensure that:

12.1 the activity is of significant national or regional benefit;

12.2 there is a functional need for the activity to occur in that location;

12.3 the impacts of that activity are managed, through application of the 'effects management hierarchy', which requires that first, the impact is

avoided where practicable, then minimised, remedied, offset, or compensated, in that order.

The Panel's assessment of whether the 'functional need' requirement is met.

[259] The totality of the Applicant's evidence satisfies the Panel that there is a functional need for the extraction of minerals and ancillary activities forming the Proposal within the 100 m setback envelope from the Coastal Lagoons and Langridge wetlands.

[260] Below, we set out some reasons why the evidence persuaded us that there is a functional need.

[261] The recoverable mineral envelope in *that location* is the area within the Site bounded by the Coastal Lagoons to the west, the Site boundary to the north and natural inland wetlands on that boundary and the proposed bund separating the Site from State Highway 6 to the east.

[262] Therefore, the winnable mineral apron is small in that location. Further, the mining method must involve a complex water management system to ensure:

a) Minimal change in surface water levels in Collins Creek that feeds the Coastal Lagoons.

b) Minimal changes in water levels of all the surrounding natural inland wetlands that are potentially impacted by changes in hydrology from land disturbance by the mining activity resulting from the underlying geological condition of sand saturated by groundwater. That impact may even occur from land disturbance outside the 100 m envelope, given the characteristics of groundwater hydrology on the Site.

[263] A major component of the Proposal's water management system is the infiltration trenches that must be located within the 100 m envelope to operate effectively. Further, other elements, including Pond 4, need to be sufficiently close and 'armed' to enable an effective response to changes in the groundwater monitoring piezometers and to all changes from mining by discharging water directly to the Coastal Lagoons or through the infiltration trench system.

[264] Continuing the military metaphor above, the Proposal's water management system is a 'front line' management system within a hydrologically dynamic theatre of mining action, given that complex groundwater and surface water systems interact with natural features, including inland natural wetlands. WCRC's hydrology expert closely analysed and supported the efficacy of that water management system.

[265] There was no detailed evidence that these elements of the Proposal's water management system would not effectively manage the mining operation in a hydrologically appropriate manner, given the characteristics and constraints of the existing environment.

[266] All the arguments we heard on "functional need" (except Dr Durand's supplementary statement in part) ignored the undisputed evidence of the need for these water management measures to perform effectively.

[267] As noted earlier, Dr Durand, in his supplementary statement, addressed these matters but in a way that attempted to isolate elements of the system based on his assessment of how the activities could be disaggregated and then assessed for the "functional need" without expert support and on the basis he considered alternative or substituting methods of water management were possible. For example, where Pond 4 was located. That assessment was unconvincing to us and against WCRC's hydrology assessment of the workability of the system as an integrated unit. An integrated system cannot be treated as a 'pick and mix' without completely understanding the design and its underlying imperatives. We do not consider that a planner is well placed to hypothesise about the workability of alternatives and the costs and benefits associated with changes to an engineered design. The Proposal should be assessed as an integrated system that is authorised by the definition of "functional need". The risk of an atomised activity by activity analysis is to lose sight of how the design responds to various needs to deliver a viable mining platform.

[268] We were also impressed by the very small apron of minerals available to mine. The strandlines are a limited resource wholly contained within a small apron, including under and around the wetlands. We can readily see from the evidence why it is necessary to maximise the mineable area within the 100 m setback to achieve a viable mine. As noted, even if mining did not occur in the setback but beyond it the "water management system" elements of the Proposal are critical within the setback. There are compelling operational,

logistical and management needs that are met by authorising mining in that location as part of the Proposal.

Section 3 – Grey District Council Consent

[269] The application to GDC seeks land use consent for a Site on Barrytown Flats, State Highway 6, approximately 9 km south of the Punakaiki Township and 36 km north of Greymouth, to establish and operate a mineral sand mine in an area of roughly 64 ha over 12 years, including the construction of associated infrastructure, such as a processing plant and associated facilities of an area of about 2.0 ha up to 15 m in height and for a minimum average of 50 truck movements per day.

Consents required and consent category - Grey District Plan

[270] It was common ground that land use consent is required from the GDC's Grey District Plan (GDP) as follows:

Rule	**Reason**	**Activity Status**
19.7.8(iii)	Buildings (15 m) exceed the 10m height limit by Rule 19.7.8(i)(a).	Discretionary
19.7.12(iii)	The volume of diesel proposed to be stored on Site (40,000 L) exceeds the 5,000 L limit in Appendix 3 of the GDP	Discretionary
9.7.13(iii)	Car parking (49 spaces) does not meet the minimum numbers required under Rule 24.2.1, being 2 spaces per 100 m^2 gross floor area for industrial buildings equating to 74 spaces required. The proposed car park will not be laid out in accordance with Rule 24.2.3, that specifies minimum parking space dimensions. The proposed access design does not comply with Rule 24.3.1, that includes diagrams that vehicle crossings must comply with. The proposed vehicle movements (390 per day) onto a Strategic Route exceed the maximum (100 per day) outlined in Rule 24.	Discretionary
19.7.16(iii)	The Non-Rural Activity will breach the maximum standards specified in Rule 19.7.16(i) for floor area, vehicle movements and noise.	Discretionary

Consent required and consent category - Te Tai o Poutini Plan

[271] The Te Tai O Poutini Proposed Plan (TTPP) was publicly notified on 14 July 2022. Mr Geddes advised that a number of the TTPP rules have immediate legal effect, and so consent is required under it as follows:

Rule	**Reason**	**Activity Status**
ECO-R2 ECO-R5	Clearance of indigenous vegetation in the coastal environment	Restricted Discretionary
NC-R3	Clearance of indigenous vegetation and earthworks within riparian margins.	Discretionary
NC-R4	Buildings and structures within riparian margins.	Discretionary

[272] Mr Geddes considered that consent was also required under rule SASM-R7 for mineral extraction activities in the Pounamu Management Area. Ms McKenzie disagreed, stating that the Site was not within a Site of Significance to Māori and the Pounamu Management Area related not to historical heritage but to recognition of Te Runanga o Ngai Tahu's ownership of Pounamu as provided by the Pounamu Vesting Act arising from the Ngai Tahu Treaty Claims Settlement Act.

[273] We accept Ms McKenzie's advice and find that consent is not required under rule SASM-R7. We observe that this has little material effect given Te Rūnanga o Ngāti Waewae's written support for the Applicant's applications.

Overall consent category

[274] Under the 'bundling principle', the Applicant's proposal is to be assessed as a discretionary activity.

Effects assessment

<u>The existing environment and permitted baseline</u>

[275] When forming an opinion for the purposes of section 104(1)(a) of the RMA, we may disregard an adverse effect of an activity on the environment if a national environmental

standard or a plan permits an activity with that effect.[42] We had regard to such effects where it is reasonable to do so.

Māori cultural values and interests

[276] The Site is located within the rohe of Te Rūnanga o Ngāti Waewae. Canoe Creek is identified in the Regional Land and Water Plan as having waahi taonga, cultural materials and traditional campsite cultural values.

[277] Te Rūnanga o Ngāti Waewae submitted in support of the TiGa applications. The submission highlighted that TiGa had adopted mitigation measures to address the concerns of Ngāti Waewae. Specifically, Ngāti Waewae had requested that TiGa avoid over-reliance on the transfer of water from Canoe Creek into the Collins Creek and Deverys Creek catchments, resulting in the mixing of waters, and confirmation of the effects of the mine operation on receiving environments.[43]

[278] The Site is located within the Pounamu Management Overlay in the Proposed Te Tai o Poutini Plan. The ownership of pounamu is vested in Te Runanga o Ngai Tahu by the Pounamu Vesting Act 1997. Mr Miller for TiGa confirmed that the Mining Unit Plant (MUP) separates out the ore sand from oversize material which is left in the mining void.[44] Accordingly, we accept the advice of Ms McKenzie that the proposal will not involve the extraction of pounamu which will be returned to the mine void with other oversized material.[45]

[279] The Ngai Tahu Claims Settlement Act 1998 acknowledges the association of Ngai Tahu with taonga species.[46] Taonga bird species potentially affected by the proposal include Kōau (Black Shag), Kororā (Blue Penguin), Kōtuku (White Heron), Mātā (Fernbird), Matuku moana (Pacific Reef Heron), Pārera (Grey Duck), Pīhoihoi (New Zealand Pipit), Tara (Caspian Tern and White Fronted Tern), and Tītī (Tāiko / Westland Petrel). Taonga plant species potentially affected by the proposal or proposed as mitigation planting

[42] Section 104(2) of the RMA.
[43] SOE Jens Rekker, paragraph 87.
[44] SOE Stephen Miller, paragraph 44.
[45] TiGa Resource Consent Application, Assessment of Environmental Effects, paragraph 5.69.
[46] Ngai Tahu Claims Settlement Act 1998, s 288.

include Harakeke (Flax), Kahikatea (White Pine), Karamū (Coprosma), Raupō (Bulrush), Tarata (Lemonwood), Tī rākau/Tī Kōuka (Cabbage Tree), and Wīwī (Rushes).[47]

[280] Overall, Mr Bramley was of the opinion that any adverse effects on threatened or at-risk bird species, including the taonga species of significance to Ngai Tahu, using Canoe Creek Lagoon, Rusty Pond and surrounding vegetation, or making use of the pasture and bare soil within the MDA, can be managed so that they were either avoided, or were very low.[48] The use of taonga plant species is proposed for visual screening of the mine operation and mitigation planting.[49]

[281] At the hearing Francois Tumahai, Chairman of Ngāti Waewae, briefly outlined their support for the proposal, noting in particular the employment opportunities that would be provided which would greatly assist with retaining Ngāti Waewae whānau and rangatahi in the district.

[282] While the application site has no known historical sites of features, we note that TiGa has offered a standard koiwi discovery protocol consent condition.

Finding

[283] In light of Ngāti Waewae's support for the proposal and the mitigation of adverse effects on taonga species of significance to Ngai Tahu, we find that potential adverse effects on Māori cultural values will be no more than minor.

Traffic and road safety

[284] The mining activity will involve the haulage of HMC along SH6. The Grey District Plan classifies SH6 as a Strategic Route, which is defined as: "*roads and motorways which form part of a network of national strategic importance, which are a significant element in the national economy, for which a high level of user service must be provided at all times and are a significant element in the regional economy*."[50]

[285] For the haulage of HMC, up to 50 truck movements a day are anticipated, comprising 25 arriving at the Site and 25 leaving the Site. At the commencement of the hearing, the

[47] Ngai Tahu Claims Settlement Act 1998, Schedule 97.
[48] SOE Gary Bramley, paragraph 18.
[49] Katherine McKenzie, Reply Statement, Annexure 3 Landscape Mitigation Planting Plans.
[50] Supplementary Statement of Katherine McKenzie (Reply), 19 March 2024, paragraph 30.

Applicant had yet to decide if the HMC would be hauled north to Westport or south towards Greymouth. However, during the hearing, they advised that the HMC would be hauled south towards Greymouth either to a rail siding site located at Rapahoe or Stillwater. From there the HMC would most likely be taken by rail to the Port of Timaru for export. Ms McKenzie confirmed the selection of this southern route[51].

[286] The selection of the southern HMC haulage route greatly assisted our consideration of traffic and road safety issues because many submitters were justifiably concerned about the traffic safety risks that would occur should the HMC be trucked north towards Westport over a tortuous section of SH6.

[287] The Applicant has also proposed that there be no haulage of HMC from the Site on Sundays so as to provide some relief to roadside residents. We find that to be appropriate. However, Mr Fuller advised that the removal of Sunday trucking will extend the overall timeframe for trucking by approximately 14%. That means that the five-to-seven-year mining timeframe originally proposed by the Applicant would necessarily be extended to six to eight years[52]. We are satisfied that this is a reasonable trade-off.

[288] Evidence for the Applicant on traffic matters was provided by Nicholas Fuller. He noted that SH6 was identified as a Strategic Route in the GDP. It accommodated two-way traffic flow and had a speed limit of 100 km/h in the vicinity of the mine site. Mr Fuller advised that the existing traffic volumes on SH6 were in the order of 1,156 vehicles per day and 96 vehicles per hour at peak times.

[289] As we detail later in this decision, in order to avoid potential adverse effects on the Westland Petrel, the Applicant has proposed that truck movements will not occur during the hours of darkness, which are to be taken as the period from 30 minutes after sunset to 30 minutes before sunrise. Consequently, the shortest day for trucking is ten hours, which leads to a maximum of five truck movements per hour on average at that time. We understand that the level of truck movements will be readily accommodated on SH6 with no loss of network efficiency because Mr Fuller had previously concluded that up to 24

[51] Supplementary Statement of Katherine McKenzie (Reply), 19 March 2024, paragraph 29(a).
[52] Supplementary Statement of Nicholas Peter Fuller, 19 March 2024, paragraph 6.

additional vehicles per hour would be a low volume that would not lead to any notable effects on the efficient operation of SH6[53].

[290] As well as the HMC haulage trucks, we also need to consider the arrival and departure of workers to the Site. Initially, it was envisaged that the Site's shift workers would primarily travel to the Site using their own vehicles. In that regard, the shift roster for staff that is now proposed[54] is:

(a) WCP processing plant:

(i) 19 staff working a dayshift from 7:00 am to 7:00 pm; and

(ii) 8 staff working a night shift from 7:00 pm to 7:00 am.

(b) Mine: 18 staff working from 7:00 am to 5:00 pm.

[291] Importantly, the Applicant has committed to requiring the staff residing either to the south or north of the Site to travel to and from the Site in a 'transport service' (which we understand to be a company mini-bus) during the hours of darkness[55]. At worst, that would involve up to four mini-buses arriving at the Site prior to 7 am. We do not understand that to be an issue in terms of the capacity of SH6 or risk to other road users.

[292] As is routine for these types of projects involving heavy vehicle movements, the Applicant has proposed a Transport Management Plan (TMP), which will be subject to certification by the GDC. The TMP will contain what we consider to be robust requirements, including, amongst other things:

(a) Hours of operation, including no nighttime trucking and avoiding Barrytown School bus travel times between 8:00 am to 9:00 am and 2.45 pm to 4.00 pm[56];

[53] SOE Fuller, paragraph 27. His view was based on 24 vehicles per hour because at that stage TiGa's mini-bus proposal had not been formalised.
[54] Supplementary Statement of Nicholas Peter Fuller, 7 March 2024, paragraph 5.
[55] Proffered Condition 15.3 requires TiGa to provide passenger transport for the shift workers. If there are less than 5 staff who arrive at Site from either direction on any given shift, a passenger transport service is not required, provided that all staff arriving from that direction arrive and leave in the same vehicle.
[56] Condition 15.7. We heard from the Board of Trustees who were concerned about the possible interaction of haulage trucks with the school bus.

(b) Truck movements would be limited to no more than three movements per hour between 5:00 am and 7:00 am[57];

(c) Reinforcement of the Road Code (such as interactions with cyclists and school buses);

(d) Identification of locations where additional care is required because there is likely to be higher numbers of pedestrians and cyclists and a tight road geometry;

(e) Communication between truck drivers to alert each other to road hazards and the presence of cyclists and pedestrians;

(f) Consideration of areas where air brakes should be avoided in order to avoid annoying roadside residents;

(g) Reporting of pavement defects and interactions with wildlife; and

(h) Circumstances where the TMP must be reviewed to ensure that it remains fit for purpose.

[293] Some submitters, including representatives of the CRRG, raised the issue of the Greymouth High School bus. The High School did not submit on the Proposal, but Marie Elder[58] advised us that the High School bus leaves Greymouth, drives north along Barrytown Flats, collects students at Punakaiki, turns south and collects students on the way back to Greymouth[59]. In the afternoon, the bus leaves Greymouth, drives north, drops off students, arrives in Punakaiki and drops off the last students[60]. There is no need for HMC haulage restrictions when the bus is empty or when it is north of the Site. Based on Ms Elder's information and estimated travel times between the various locations, we see no need to amend Condition 15.7 setting HMC haulage restrictions, noting that between 7.30 am and 8.00 am when the High School bus is heading to Greymouth, there would only be one or two HMC trucks heading in the same direction and needing to pass the stationary bus as it picked up pupils[61].

[57] Condition 15.2.
[58] A supplementary note to the panel around a transport question asked on 20 March 2024, Marie Elder, for CRRG, 20 March 2024.
[59] The bus has pupils in it when south of Site from 7.25am to 8.25am.
[60] Bus has pupils south of Site 3.10 to 3.40pm.
[61] Condition 15.1 limits truck movements to five per hour, or two to three in each direction.

[294] Some submitters understandably expressed concern about other heavy vehicles that might access the Site from time to time. Mr Fuller advised that it would entail one fuel delivery every two weeks and one sewage truck every three weeks to pump out the proposed sewage holding tanks[62]. We do not consider that a low level of additional heavy vehicle movements necessitates the need for additional restrictions or conditions of consent.

[295] In terms of access to the Site from SH6, Mr Fuller advised that a concept site access arrangement has been designed to accommodate traffic turning to and from the Site. It includes a right-turn bay to accommodate traffic waiting to enter the Site, as well as a left-turn deceleration lane. That access configuration has been agreed upon with NZTA as acceptable, and we are satisfied that it will provide safe and efficient access to and from the Site.[63]

[296] At the hearing, some submitters[64] expressed concerns regarding the danger that the HMC trucks would pose to cyclists and pedestrians. Mr Fuller advised that NZTA had already undertaken works to provide safe pedestrian and cycling facilities where there is an elevated demand for those modes. He considered that the remainder of the SH6 was arguably not conducive to walking and cycling. Having driven SH6 from the mine site to Greymouth several times, we concur with that view. In particular, we agree with Suzanne Hill[65] that "*there is an extremely dangerous section of SH6 to the north of the Grey River bridge outside Greymouth. It is dangerous in both directions with steep cliffs, bluffs, no road shoulders, blind corners and narrow over-bridges.*"

[297] In that regard, we note that the West Coast Regional Land Transport Plan 2021 – 2031 states[66] there is ongoing concern about the movement of vulnerable road users, particularly cyclists, along the region's State Highways, particularly as they travel within a high-speed environment. It states there are sections "... *that are not fit for purpose for cyclists*".

[298] Pedestrian and cyclist road safety matters were peer-reviewed by Mat Collins[67]. His focus was on the stretch between the SH6 / Golden Sands Road intersection and Rapahoe,

[62] Supplementary Statement of Nicholas Peter Fuller, 7 March 2024, paragraph 9.
[63] EIC Fuller, paragraph 7.
[64] Including Susanne Hill, Christopher Cromley, Andrew Beaumont, Lisa Johson, James Bradley, David Morre and Trevor Hayes.
[65] EIC Hills, 'Cycling the Coast', 6 February 2024, paragraph 19.
[66] Page 10.
[67] Associate Transport Planner at Abley Limited.

where the geometry of SH6 is particularly challenging. The main area of concern involves the HMC haulage trucks. Mr Collins advised that there were currently around 90 to 130 heavy vehicle movements per day on the proposed HMC haulage route.

[299] Unsurprisingly, Mr Collins considered that the existing environment of SH6 created an inherent risk for pedestrians and cyclists because:

(a) There was limited forward visibility in some locations due to vertical and horizontal geometry and vegetation;

(b) There was limited or no sealed or gravel hard shoulder in some locations, which, combined with the limited forward visibility, could encourage some drivers to pass cyclists dangerously;

(c) Noise from the surf could limit pedestrians' and cyclists' ability to hear approaching traffic and

(d) Some submitters experienced "near miss" encounters with vehicles while walking or cycling along SH6.

[300] Tellingly, Mr Collins stated,[68] "*I consider myself to be a relatively confident cyclist; however, having driven the route, I would not be comfortable with cycling in this type of environment.*" Mr Collin's opinion mirrors our own.

[301] Mr Collins considered that static and/or active warning signage and markings at eight 'pinch points' would mitigate some effects of the Applicant's truck movements on cyclists in those locations. He recommended a consent condition requiring the Applicant to investigate and implement signage and/or markings in those locations in consultation with NZTA.

[302] Mr Fuller did not consider static or active warning signage and markings appropriate[69]. Having considered the conflicting evidence, we find that it would be inappropriate to impose such a requirement on the Applicant because:

(a) The Applicant has agreed to there being no HMC haulage on Sundays.

[68] SOE Collins, paragraph 17.
[69] Supplementary Statement of Nicholas Peter Fuller, 7 March 2024, paragraphs 22 to 28.

(b) Any signage would remedy an existing road safety issue rather than mitigate the effects of the HMC haulage trucks. The mitigation of existing road safety issues on State Highways is the responsibility of NZTA.[70]

(c) Static signage would be unlikely to lead to enduring safety improvements because as cycle and pedestrian volumes on SH6 are low, truck drivers would not typically encounter cyclists or pedestrians, and so the drivers would become desensitised to the signage.

(d) The Applicant's proposed truck driver radio communication will be more effective than active warning signs (triggered by an actual cyclist on the road) as it allows truck drivers in both directions to be aware of the cyclists on the whole of the route.

(e) The truck driver radio communication includes ensuring northbound trucks pull over and wait at the passing bay north of Nine Mile Creek for southbound trucks to clear the tight road geometry section of SH6 from Twelve Mile Bluff to the south side of Ten Mile Creek.

[303] Mr Collins concluded that the Applicant's proposal would negatively affect cyclists, given the existing constraints and pinch points along the corridor[71]. However, he did not consider that warranted the application being declined. His reasons were[72]:

(a) Truck drivers are professionals, and the TMP would ensure they were educated about the risks and constraints of the haulage route.

(b) Amendments to the TMP would increase the accountability of both the consent holder and truck drivers, resulting in greater care and empathy for other road users and adherence to the road rules.

(c) Warning signage and markings would improve driver and cyclist awareness at the eight key 'pinch points' and would result in a minor improvement compared to the existing environment.

[70] In an email from NZTA to Mr Geddes (dated 23 February 2024) NZTA advised that hey had been installing signage having been "in the network when funding is available in areas where widening cannot occur". Attachment 1 to Mr Fuller's 7 March 2024 Statement.
[71] SOE Collins, paragraph 13.
[72] SOE Collins, paragraph 48.

[304] Having carefully considered the evidence, we are satisfied that the effects of the Applicant's proposal on the efficient operation of SH6 will be no more than minor.

[305] We acknowledge an existing high level of risk to the safety of pedestrians and cyclists who choose to use the section of SH6 between the proposed mine site and Greymouth. However, we do not consider that the maximum of five additional HMC haulage truck movements per hour six days a week, coupled with the daily morning and evening mini-bus movements for shift workers, will exacerbate that risk to such a degree that would warrant consent being declined. In saying that, we are mindful of the statement in the RLTP that sections of SH6 are currently "*...not fit for purpose for cyclists*". We also agree with Ms Booker[73] that it is not the Applicant's responsibility to resolve existing concerns for cyclist safety on SH6.

[306] While not being determinative, we observe that NZTA is the Road Controlling Authority for SH6, and they have not raised any concerns concerning the safety or efficiency effects of the proposal on their road network.

[307] In overall terms, we are satisfied that the combination of proposed consent conditions and the implementation of the TMP will reduce the level of additional risk posed by the Applicant's maximum five additional truck movements per hour to the extent practicable for pedestrians and cyclists who choose to venture onto SH6.

Finding

[308] In light of our preceding assessment, we find that the likely adverse effects of the Applicant's proposal on the safe and efficient operation of SH6 are not of a scale that would warrant the consent application being declined.

Landscape character, natural character and visual amenity

[309] Effects on landscape character, natural character and visual amenity were matters of contention between the parties, with numerous opposing submitters raising concerns about the effects on landscape and visual amenity.

[73] Reply Submissions, paragraph 56.

Effects on landscape character, natural character and visual amenity

[310] The TiGa application was supported by an assessment of the potential landscape and visual effects arising from the Applicant's Proposal prepared by Mrs Crawford in accordance with the concepts and principles outlined within *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines*. This assessment was revised in July 2023 to include further project detail and visualisations.[74] The revised assessment was peer reviewed for GDC by Mr Girvan, who prepared a further addendum to assess landscape and visual effects issues raised by submitters.

[311] The landform of the Barrytown Flats is wider and more open in comparison to the coastal landscape to the north and south and includes the 17-kilometre stretch of coastline from the Punakaiki River in the north to Seventeen Mile Bluff in the south. This narrow coastal plain is located between the high and steep forested hills of the Paparoa Ranges and the Barrytown Hills to the east of SH6 and Pakiroa Beach and the Tasman Sea to the west.[75] The coastal plain to the west of SH6 is characterised by pasture, with smaller remnant stands of vegetation and swampland.[76]

[312] Landscape and conservation features on the coastal plain are set out in the plan provided by the CRRG.

[313] The Site is bordered to the east by SH6 and to the west by Canoe Creek Lagoon, Pakiroa Beach and the Tasman Sea. There is a gradual change in height of approximately 23 metres from SH6 to the coast. Remnant sand ridges from old shorelines run in a north to south direction across the site, and there are constructed drainage channels and small farm ponds. The site has been modified through humping and hollowing of pasture to improve drainage and is currently used to support dairy operations and graze cattle.[77]

[314] Landscape features on the site include the deeply incised Collins Creek running along the southern boundary of the site, and the northern drain. Collins Creek flows into Canoe Creek Lagoon at the bottom of the site which contains areas of peripheral marsh habitat. The flow of the creeks is impeded at the coast by a northward longshore drift which causes

[74] Barrytown Mineral Sands Mining Project (2023) *Landscape and Visual Assessment of Effects*.
[75] Ibid, Section 4.2.
[76] Ibid, Section 4.2
[77] Ibid, Section 4.3

the creeks to be displaced parallel to the coast, with creek mouths being closed by narrow shingle ridges.[78]

[315] The landcover of the site is dominated by exotic pasture species with the addition of sedges following drainage channels. There are isolated pockets of native vegetation, including flax planted around a feed pad, and three kahikatea trees. The riparian margin on the southern boundary of the site alongside Collins Creek, contains species such as ferns, rata, kahikatea, ngaio, harakeke, kiekie, mingimingi and tī kouka. Canoe Creek Lagoon has species such as flax, sedge and rush along its edges. The shoreline itself is sparsely vegetated and includes oioi, shore bindweed, muehlenbeckia, flax and Raupō.[79]

[316] The issues raised by submitters that are relevant to landscape character, natural character and visual amenity are summarised in an addendum prepared by Mr Girvan[80] and include:

a) Landscape character effects, encompassing effects on relevant amenity values, aesthetic values, aesthetic coherence, and natural beauty.
b) Adverse effects on the natural character of the coastal environment including the natural and wilderness values of Pakiroa Beach.
c) Visual effects from adjoining dwellings, Pakiroa Beach, SH6, and parts of the Paparoa and Croesus Tracks. Concerns include effects on scenery and scenic values including visual pollution and night-time lighting effects.
d) Appropriateness and effectiveness of the proposed roadside bund as mitigation.
e) Effectiveness of Rehabilitation.

[317] These issues were addressed by Mrs Crawford and Mr Girvan, who issued a Joint Witness Statement that outlines the following matters of agreement between the witnesses:

a) The entire site is in the coastal environment.
b) The site is not an outstanding natural feature or landscape. Adverse effects on outstanding natural features or landscapes beyond the site will be low (less than minor).
c) The site is not an area of Outstanding Natural Character.
d) The MDA does not contain high natural character. Beyond the MDA, parts of the site have higher natural character, including Canoe Creek Lagoon and Canoe Creek.

[78] Ibid, Section 4.3
[79] Ibid, Section 4.3.
[80] Barrytown Mineral Sands Mining Project: Landscape Peer Review Addendum – Submissions

e) The nature and level of landscape character and visual effects which result from the project during operation and following project completion are largely agreed as per Figures 2 and 3 of Mrs Crawford's statement of evidence.

f) There are adverse effects on landform and natural character which will occur during the mining operation. While Mrs Crawford and Mr Girvan agree that these effects are not significant, the level at which these effects occur is slightly different in the opinion of each expert.

g) In the long term, following completion of the Proposal, Mrs Crawford and Mr Girvan agree that there is potential for low positive (beneficial) effects on natural character.

[318] The potential adverse visual effects of the mining operation will be mitigated by the adoption of setbacks from all landscape features and neighbouring properties, the use of recessive colours for buildings, construction of bunds, and through implementation of a comprehensive landscape mitigation planting plan. Following cessation of mining there will be further wetland planting around the clean-water ponds secured by covenant.

Finding

[319] We find that the potential adverse effects on landscape character, natural character, and visual amenity will be no more than minor.

Historic heritage

[320] The AEE assessed the effects of the mining operation on historic heritage and concluded that there were no recorded archaeological sites within the MDA.[81] The recorded archaeological sites within the vicinity of the Site are well removed from the MDA.[82] The adoption of an Accidental Discovery Protocol is proposed as a condition of consent to avoid adverse effects on unknown archaeological sites within the MDA.

[321] Mr Freeman for the Langridge Family referred us to a Significant Natural Areas report[83] and to a map from 1916 as evidence that the Canoe Creek lagoon had been partially modified by early 20th Century gold sluicing, and that Rusty Pond was created through

[81] TiGa Assessment of Environmental Effects, Section 5.32 and Attachment C.
[82] TiGa Attachment C – Archaeological Site Records.
[83] Grey District Significant Natural Area assessment. (2006). Punakaiki Ecological District, PUN-W034. Boffa Miskell.

mining. We note for completeness that historic heritage associated with 20th Century gold mining is located beyond the Site and is not impacted by the mining operation.

Finding

[322] We find that potential adverse effects on historic heritage will be no more than minor.

Noise and vibration

[323] The proposed mining activity will produce construction and operational noise. This was understandably a matter of concern to submitters, especially those who reside close to the site or SH6[84]. John Farren provided evidence of noise for the Applicant. He advised that the existing daytime noise environment at the site was dominated by traffic noise from SH6 and surf noise. That was evident to us during our site visits. When vehicle numbers decreased at night, surf noise became the dominant source.

[324] The Applicant has offered to prepare a Noise Management Plan (NMP) to be certified by the GDC, which we find appropriate and routine for a proposal of this magnitude.

[325] Mr Farren modelled noise emissions associated with the proposed mining activities and HMC processing operations based on measurements of similar mining equipment around New Zealand, including an operating mineral sand mine near Westport[85]. He assumed a conservative worst case with all mining plant and equipment operating at the same time at the closest practical points to existing dwellings. In practice, actual noise levels would be lower than those modelling results because mobile mining machinery would generally operate inside the mining void, and the 7 m to 9 m high pit wall would act as a noise barrier. The proposed 4.5 m high Eastern Bund would also be an effective noise barrier for mining activities.[86]

[326] We note that to minimise noise emissions, particularly at night when there will be no mining and no heavy vehicle movements, the Applicant has proposed enclosing the HMC processing plant in a building and has positioned that building as far as practical from noise-sensitive locations.

[84] Including the Langridge submitters, Rosemary Mirza, Bevan Chignell, the Barrytown School Board of Trustees and Shelly Lock.
[85] The Westland Mineral Sands what operation.
[86] SOE Farren, paragraphs 13 to 17.

[327] Mr Farren observed that noise on public roads is exempt from compliance with the GDP permitted activity noise limits[87]. However, he assessed that HMC haulage truck movements between 5 am and 7 am would result in a just perceptible change in the noise level of 3dB. Later in the day, the relative increase in noise from the HMC haulage trucks would reduce, with a corresponding diminishing noise effect. Significantly, Mr Fuller advised[88] that the Applicant has now proposed that there will be no haulage of HMC on Sundays[89] , which will mitigate the impacts of road noise from the proposal.

[328] Mr Farren advised that once operational, the proposal would comfortably comply with the permitted activity noise levels within the proposed TTPP, which reflected the current best practice noise criteria set out in New Zealand Standard NZS 6802:20081 and the World Health Organisation published guidance. The mining and HMC processing activities were also predicted to comply with the GDP daytime and night-time permitted activity noise limits of 55 and 45 dB $LA_{10,}$ respectively, except on Sundays when a 45 dB LA_{10} daytime limit applied[90].

[329] While forming the various bunds, ponds and HMC buildings, we understand that the applicable noise limits in NZS 6803:1999 Acoustics – Construction Noise will likely be comfortably complied with[91].

[330] Regarding effects on wildlife, Mr Farren advised that, depending on the surf activity at the time, surf noise will be in the order of 55 dB LAeq or greater within approximately 200 m of the mean high-water line, which would act to mask noise from the mining activities.

[331] In overall terms, Mr Farren concluded that noise effects would be less than minor.

[332] Mr Farren's noise assessment was peer-reviewed by Darran Humpheson. He concluded that, based on the magnitude of noise predicted by Mr Farren and the Applicant's suite of proposed controls (namely the offered consent conditions and NMP), in overall terms, noise effects would be reasonable and no more than minor[92]. In particular, regarding Sunday noise, he advised Mr Geddes that provided noise levels remained in the order of

[87] Daytime (0700-2200): 55 dB LAeq (15 min) and Night-time (2200-0700): 45 dB LAeq (15 min) and 75 dB LAFma.
[88] Supplementary Statement of Nicholas Peter Fuller, 19 March 2024, paragraph 5.
[89] Condition 12.3.
[90] SOE Farren, paragraphs 30 and 31.
[91] AEE Attachment H, Acoustic Assessment, Summary.
[92] Consultant's Advice Note dated 15 November 2023.

50 dB, then those effects would also be no more than minor. He considered that the Sunday 45 dB LA_{10} noise limit contained in the GDP was very quiet and inappropriate given that it would be frequently exceeded by wind and other natural sounds[93].

[333] Mr Farren and Mr Humpheson agreed that the predicted noise levels from the mining operation would have no adverse effects on livestock. Effects on avifauna in adjacent wetland habitats near the coast will be mitigated by the naturally noisy environment dominated by the sound of surf.

[334] Regarding the effect of the haulage trucks causing nuisance vibration for residents along SH6, Mr Humpheson advised that general road traffic vibration is not perceptible at distances greater than 20 m from the active carriageway, even with minor defects in the road surface. It was improbable that minor building damage, such as cracking of plaster linings, would occur due to vibration caused by vehicles. That accords with our experience with State Highway upgrading consent applications in other regions.

Finding

[335] Based on the evidence, we find that the potential adverse effects of noise and vibration are no more than minor and do not weigh against a grant of consent.

Dust

[336] We address the issue of dust in section 4.2.7 of this decision.

General terrestrial ecology

[337] We discuss the Westland Petrel and the Little Blue Penguin (Kororā) in subsequent sections of this decision because those two bird species were of particular concern to the hearing participants. We discuss potential hydrological effects on the relevant surface water bodies in the WCRC section of this decision.

[338] The proposed mining site is located on privately owned farmland that has been 'humped and hollowed'. We understand it to be common ground that the terrestrial ecological values of the MDA are low to negligible. The site contains three kahikatea trees and some planted harakeke/flaxes beside an old feed pad and around some farm drains. Given the highly

[93] GDC Section 42A Report, paragraphs 191 and 192.

modified nature of the vegetation within the Site and the lack of suitable lizard habitat within the MDA, the presence of lizards is highly unlikely. However, the adjacent Canoe Creek Lagoon and its margins have high ecological value, particularly for avifauna.

[339] To the north and west, the site is bordered by an area identified in the Draft Proposed Te Tai o Poutini District Plan as a SNA (Site PUN-W034)[94]. However, that draft SNA will not be directly affected by the Applicant's Proposal.

[340] Fourteen species of conservation concern have been recorded at the site[95], including South Island pied oystercatcher, variable oystercatcher, red-billed and/or black-billed gull, black shag, and little shag[96]. Many of the birds present have been recorded once or a few times, suggesting they are visitors rather than residents. None are likely to rely on the grazed pasture habitat within the MDA, but several may visit for feeding, loafing, or nesting. Dr Bramley advised that species using the existing pasture for feeding, loafing or nesting (which could include gulls, banded dotterel, pied stilt, oystercatchers, white-faced herons, paradise shelducks, New Zealand pipit and the like) might be affected by the removal of a small proportion of pasture habitat for at least the length of time it takes to replace the vegetation, and perhaps longer depending on their tolerance to disturbance and the proximity of the mining activities. However, all of those species are relatively hardy to human activities and would be unlikely to be affected to even a minor degree.

[341] To avoid adverse effects on avifauna inhabiting Canoe Creek Lagoon and its margins, the Applicant has proposed a 20 m setback (buffer) from mining activities and a conservative 100 m buffer during the August to December bird breeding season. With these buffers in place, Dr Bramley considered that habitat displacement due to mining activities would affect only a very small subset of the bird species present and, even then, only a small number of individual birds. He concluded that the proposed mitigation in the form of spatial separation (buffers), seasonal avoidance (bird breeding season) and riparian planting to reduce visual cues, combined with the location of the mining activities below the existing ground level, would result in potential adverse effects that were "low."[97]

[94] Described in Schedule 4 of the TTPP as "Punakaiki Lagoon and Coastal Wetland sequence. A lagoon and series of small lakes bordered by flax wetlands and coastal forest. Significant vegetation and ecosystem sequence.
[95] By way of a combination of seasonal bird surveys with acoustic recorders and five-minute bird counts, walk through surveys and incidental observations to identify species using the habitats adjoining the Site on six occasions.
[96] Dr Bramley was confident that no Australasian bittern have been recorded in any of the Site surveys to date.
[97] SOE Bramley, paragraph 119.

[342] The GDC's ecology peer reviewer, Mike Harding, had a different opinion. He thought it was unclear whether the presence or visibility of machinery, vehicles and people would discourage birds from using adjacent habitats or disturb birds in those habitats. Mr Harding noted that some bird species were tolerant of such disturbance while others were not. Species likely to be intolerant of disturbance included fernbird, bittern and the grey duck[98].

[343] Mr Harding recommended a minimum 100 m buffer from all adjoining habitats (which we understood to include the northern drain, Canoe Creek Lagoon and the coastal margin between that lagoon and Canoe Creek) to apply 365 days of the year, to avoid adverse effects on avifauna[99]. In the Summary in Section 1 of this decision, we discussed how Mr Harding's opinion evolved when he gave oral evidence.

[344] We consider that a 100 m setback would be unduly onerous and unjustified. Outside of the breeding season, any birds disturbed by mining activity have ample nearby suitable habitat to relocate to. We find the Applicant's proposed 100 m buffer during the five-month-long bird breeding season to be suitably cautionary, acknowledging that during the breeding season, the displacement of any birds could lead to mortality of their chicks.

[345] The Applicant intends to encourage birds to nest away from planned activities in the pasture areas to be mined. The Applicant has proposed that in the unlikely event that a nest of a threatened or at-risk bird species is detected within an area to be mined (noting that only 8ha of the site will be mined at any one time, leaving over 100ha intact), the nest must be protected by establishing, physically marking and maintaining a 50 m buffer between the nest and any mining works to minimise the risk of nest abandonment[100]. The Applicant will also establish a ring of traps and/or bait stations targeting rats and mustelids around the property's perimeter and Canoe Creek Lagoon[101].

[346] In overall terms, Dr Bramley thought that any adverse effects on threatened or at-risk bird species using Canoe Creek Lagoon, Rusty Pond and surrounding vegetation, or making use of the pasture and bare soil within the MDA, could be managed so that they were either avoided or were very low. The management (or mitigation) actions included not

[98] Supplementary Statement of Mike Harding on behalf of Perspective Consulting/Grey District Council Terrestrial Ecology. Dated: 18 March 2024. Paragraph 33.
[99] Ibid paragraph 38 and 39.
[100] Condition 18.2
[101] Condition 18.4.

mining or trucking at night, physical separation (buffers) between important bird habitats and the MDA, timing of mining activities works to avoid the August to December bird breeding season, landscape and riparian planting to act as a buffer between the MDA and the Canoe Creek Lagoon and Collins Creek in particular, pest control, and monitoring to inform the ongoing refinement of those management actions (such as the location of the buffers) [102].

[347] We note that the Applicant will transform the Clean Water Facility into a wetland upon the cessation of mining, as indicated in Schedule 6 of the offered conditions. This 'new' 2.95ha wetland will be subject to a covenant and provide a permanent contiguous link between SNA PUN-W034 and Rusty Pond to the north and Canoe Creek Lagoon. In our view that would go quite some way to compensating for (or remedying) any temporary displacement of birds from Canoe Creek Lagoon and its margins during the mining operation.

[348] The Applicant has proffered conditions[103] requiring the preparation and certification of an Avian Management Plan (AMP). Dr Bramley prepared numerous iterations of a Draft Avian Management Plan for our benefit. The AMP includes a description of the Site and surrounding avian habitats, a description of the threatened and at-risk birds likely to be present in those habitats and which species require specific management, a description of the management and mitigation measures that are required to be implemented to avoid effects on these species monitoring of habitats and species, protection of nesting birds or species that are directly in the path of mining operations, monitoring decision making and consultation about management interventions. We find the draft AMP to be comprehensive and fit for purpose.

[349] The Applicant will also furnish an annual bird management report the GDC, Te Runanga o Ngāti Waewae, Department of Conservation, the West Coast Penguin Trust, Paparoa Wildlife Trust, the Community Liaison Group and NZTA. The report will cover a wide range of avian monitoring and management matters[104]. That will enable the effectiveness of the proposed mitigation measures to be evaluated as mining occurs.

[102] EIC Bramley, paragraph18.
[103] Conditions 18.12 and 18.13.
[104] Condition 18.15.

[350] Having carefully considered the evidence on avian matters, we are satisfied that the Applicant has adequately quantified the habitats and bird species that might potentially be affected by the proposed mining activities. We are also satisfied that the mitigation, monitoring and reporting measures proposed (as summarised in our discussion above) are both comprehensive and robust. We agree with Dr Bramley that, in combination, those measures will result in no more than low (or minor) adverse effects on avifauna. If adverse effects do occur on that highly mobile fauna, they will be transitory and reversible.

Finding

[351] On the evidence, we are satisfied that subject to the extensive mitigation measures proposed by the Applicant, potential adverse effects on terrestrial ecology (namely avifauna and noting we address the Westland Petrel and Little Blue Penguin elsewhere) are no more than minor and do not weigh against a grant of consent.

Lighting and the Westland Petrel

[352] We received helpful and informative evidence on the Westland Petrel (*Procellaria westlandica* or Tāiko) from several expert witnesses[105] and lay submitters[106]. It was common ground that the Westland Petrel is a naturally rare and endangered seabird species that is endemic to New Zealand. It is known to breed at only one location in the world in the foothills behind the Barrytown flats near Punakaiki. The NZ Classification System's most recent assessment (2021) classified Westland Petrel as "At Risk, Naturally Uncommon" ("naturally uncommon" means that the species is already naturally rare). Research published by the Ministry for Primary Industries in October 2023 showed that the current level of Westland Petrel mortality (as by-catch in fisheries) is already above the threshold of population sustainability, meaning that any additional loss (from whatever cause) is considered a population level adverse effect[107].

[353] We received a copy of an informative 2017 article by Susan Waugh and Kerry-Jane Wilson titled "Threats and Threat Status of the Westland Petrel *Procellaria Westlandica"*. That article stated that there were numerous threats to the Westland Petrel, including those posed by storms and resulting erosion of the ground upon which the breeding colony resides,

[105] Dr Bramley (for TiGa), Dr Susan Waugh (on behalf of the West Coast Road Resilience Group), Kate Simister (on behalf of the Director-General of Conservation), and Bruce Stuart-Monteath.
[106] Including Anne Inwood, Suzanne Hills, Marie Elder, Michael Spruce and Trevor Hayes.
[107] SOE Simister, paragraphs 12 to 20.

predation by pigs and vagrant dogs, trampling and grazing of the breeding ground by goats, human harvesting of the birds, entrapment of the birds in trees and power lines, pathogens in the soil in which the birds burrow, fisheries by-catch and groundings (or fallout) caused by the bird's attraction to artificial lights at night.

[354] It is the last of these risks that is of relevance to us. The article stated that predation by pigs and dogs was the most pervasive and potentially destructive threat that the authors had documented. Fishing mortality threats were considered high risk. Conversely, the article stated that being attracted to lights at night was assessed as low risk.

[355] At a national level, the species is absolutely protected under the Wildlife Act 1953 and was identified as a taonga in the Ngai Tahu Claims Settlement Act 1998. It is evident that potential adverse effects on the Westland Petrel should be avoided to the fullest extent practicable.

[356] The Applicant's site is located 3.6 km south of the Westland Petrel breeding colony and is situated under a flight path for the birds as they travel to and from the colony. Westland Petrels are nocturnal on land and do not fly between the sea and the colony during daylight hours. They congregate in large groups before sunset, ready to take flight. They do not always fly in a direct path between the sea and the colony and tend to follow the coastline when flying to and from the colony depending on the direction of the wind.

[357] Westland Petrels are heavy birds with large wingspans of up to 1.2 m. If they become artificially grounded (a phenomenon commonly referred to as 'fallout' or 'grounding'), they struggle to regain flight because they cannot take off from a flat surface. A reasonable percentage of birds grounded each year are found dead or die later from injuries caused by colliding with the ground, buildings, or cars, with the remainder requiring assistance to re-take flight[108]. The majority of groundings involve fledging juveniles and occur between October and February.

[358] The Applicant's proposal poses two potential risks to the Westland Petrel. The first is the risk of grounded birds being run over on SH6 by vehicles associated with the mining operation. We consider that risk has been avoided to the extent practicable by the Applicant deciding to haul the HMC south towards Greymouth (and hence not past the

[108] EIC Simister, paragraphs 22.

bird's breeding colony), avoiding HMC haulage during the hours of darkness, and the proposed use of mini-vans to transport the mining shift workers to and from the site.

[359] In that regard, the Applicant has agreed to amend the mining shift times from 6 am to 6 pm to 7am to 7pm, resulting in no vehicle movements during the hours of darkness between October and February. There will only be two to eight vehicle movements to and from the mine site during the hours of darkness between March and September. Consequently, there will be no vehicle movements to or from the site in the hours of darkness during the high-risk period for groundings and very few vehicle movements during the hours of darkness at other times of the year.

[360] The second and potentially more significant risk is associated with artificial lighting, albeit we understand from Waugh and Wilson 2017 that risk is low compared to other threats to the birds. The disorientation caused by the Westland Petrel's attraction to artificial lights can force them to become grounded as they fly to and from the breeding colony. The birds are known to be more sensitive to short wavelengths in blue and green light.

[361] The Applicant has acknowledged the risk that artificial lights at the mine site could pose to the Westland Petrel. They have consequently developed a lighting plan intended to avoid the adverse effects of artificial lighting on the birds. Dr Bramley[109] summarised the essence of the lighting plan:

(a) The WCP will operate 24 hours a day but will be fully enclosed within a building that has no windows, but it will have personal access doors and roller doors;

(b) All exterior lighting will be selected, designed, and installed following the Australian Government's National Light Pollution Guidelines for Wildlife January 2020. In particular, all fixed lighting will use luminaires of 2000K and be directed downward, shielded to avoid light spill outside of GDP permitted activity limits (2.0 lux spill horizontal and vertical of light onto any adjoining property), operate primarily in the yellow or orange spectrum, and be filtered to reduce blue and violet wavelengths;

(c) Exterior fixed lights will be present on the WCP building, the administration building and the car parking area. The exterior lights will only be used during the hours of darkness when maintenance of equipment supporting the WCP plant is required,

[109] Supplementary Evidence Statement of Gary Bramley, 8 March 2024, paragraphs 10 to 13.

which cannot be deferred until daylight, or when staff are moving between buildings or to and from their parked cars. The external lights will be activated by motion sensors or push buttons[110] with short-duration timers to minimise light spill, and

(d) If the Mine Water Facility (Ponds 3 and 4 and associated holding tanks) adjacent to the WCP or equipment in the mining void (such as pumps) require maintenance which cannot be deferred until the morning, vehicles towing or carrying mobile light sets to the desired location will provide lighting where and when needed. The mobile lighting would only be used in the hours of darkness if the situation is urgent and cannot wait until daylight. All mobile lights would deploy the same type of equipment and approach as for the fixed external lighting. Vehicles will only use headlights that are 'dipped'.

[362] There was some contention as to whether or not the Australian Government's National Light Pollution Guidelines for Wildlife January 2020 were fit for purpose at this site. As noted by Ms Booker in Reply, in her first statement of evidence, Ms Simister[111] stated that any artificial lighting associated with the mining proposal must follow those Guidelines. She also referred to Westland Petrel being included in the CMSWA and is listed as having an "unfavourable" conservation status. Relevantly, the CMSWA endorsed the Wildlife Light Pollution guidelines in February 2020.

[363] Dr Bramley advised that Australian Guidelines and principles were recently applied at the Westland Mineral Sands' 9-mile sand mining site (south of Westport).

[364] We have no evidential basis for concluding that the Australian Guidelines are unfit for purpose.

[365] A lighting plan prepared by IHC Mining was attached to Dr Bramley's 7 March 2024 Supplementary Evidence. In a memorandum[112] attached as Appendix 4 to Ms McKenzie's reply evidence, Tom Lawson advised that he had prepared the lighting plan with input

[110] Push buttons are considered superior to motion sensor lights which may be nuisance tripped by wildlife or other movements.
[111] EIC Simister, paragraph 14.
[112] Titled "Responses on Lighting Plan Queries".

from David Pollock[113], Kevin Price[114], Dr Bramley, and Gordon Skinner[115]. Having read the lighting plan, we are satisfied it incorporates the elements outlined by Dr Bramley. We note that following the construction of the WCP and associated infrastructure, a lighting expert will independently audit the site to ensure compliance with the lighting plan, and any deficiencies in the installed lighting will need to be rectified.

[366] The IHC lighting plan noted that to meet Occupational Health and Safety safe working protocols, lighting may be used during periods of low light, such as overcast daylight hours. However, it was noted that when mining was conducted at full pit depth, it would be substantially below the natural ground level, shielding the lit area from the surrounding environment. Importantly, the mining pit will only be operated during daylight hours. We are satisfied that this aspect of the Proposal does not pose a risk to the Westland Petrel.

[367] We note that counsel for the Director-General of Conservation submitted that it was unclear whether the lighting plan would be consistent with the health and safety requirements for the mine and the Australian Guidelines. She suggested that conditions relating to the lighting plan would be *ultra vires*. In response, we note that Tom Lawson's 18 March 2024 Memorandum concludes with the statement that "As a team, we are confident that lighting can be accommodated on-site and will meet both health and safety requirements and the lighting guidelines for Wildlife (i.e. National Light Pollution Guidelines for Wildlife dated May 2023), as has been done for other sites previously. That is demonstrated in the site layout provided." In the absence of any qualified evidence to the contrary, we accept Mr Lawson's evidence on that matter.

[368] At this point, we wish to emphasise that the Applicant's site will not be the only source of artificial lighting in the area. Many houses and farm buildings are located along SH6 in proximity to the mine site, and there are no controls on the artificial lighting associated with those buildings. Between 30 and 50 other vehicles use SH6 during the hours of darkness in the most at-risk period of October to February[116].

[113] Project Manager who reviewed the lighting design in relation to operational activities of the plant.
[114] Kevin Price (Engenuity Solutions) - a senior electrical Engineer, who specialises in electrical system design and lighting.
[115] Senior Designer who modified the lighting layout drawing.
[116] Supplementary Statement of Nicholas Peter Fuller,07 March 2024. Table 1 (derived from the evidence of Kate Simister).

[369] As noted by Ms Booker[117] in Reply, lighting controls on existing farming activities on the site are unrestricted. For example, the landowner could switch on the artificial lights of the existing milking shed within the hours of darkness and have outdoor lighting associated with garages, the farm shed and their residential housing. Residential subdivision could occur as a controlled activity (with a lot size of 1ha), and small-scale mining activities can also occur in the rural areas of the Barrytown flats with unrestricted lighting.

[370] In other words, in terms of the risk posed by artificial lighting, the existing environment is by no means risk-free.

[371] Dr Bramley has prepared an Avian Management Plan (AMP) that addresses a range of relevant matters. The AMP will be subject to certification from the GDC. The AMP contains a procedure to address interactions[118] (which include a sighting) with Westland Petrel on site. The occurrence of one interaction (which includes a sighting or interaction on a wildlife camera[119]) will prompt a review of the AMP. Two interactions within four weeks of each other, or a grounding, will result in mining operations being suspended at the site during the hours of darkness until the AMP has been reviewed and any actions necessary to protect Westland Petrel incorporated into the mining operations[120]. Dr Bramley also advised that the Applicant will seek a Wildlife Act Authority (or Wildlife Permit) so that it can rescue any Westland Petrel birds that happen to ground in the mine site and convey those birds to the Department of Conservation.

[372] We find that to be a suitable cautionary approach.

[373] The AMP also requires that between November and January each year, a weekly report setting out the number and nature of any Westland Petrel interactions at the Site is to be prepared by an ecologist and provided to the GDC, Te Runanga o Ngāti Waewae, Paparoa Wildlife Trust, the Community Liaison Group, West Coast Penguin Trust, and the Buller/Kawatiri Department of Conservation office in Westport. Between October and February, that report is to be provided monthly.

---

[117] Paragraph 18.
[118] An interaction is defined in the AMP as the presence of a bird or birds within close proximity to the mining infrastructure, including buildings, vehicles and plant where they are or could be put at risk
[119] Wildlife cameras will be installed around the processing plant, access road and the lagoon to detect Westland Petrel (and Korora) should they be present on the Site.
[120] Supplementary Evidence Statement of Gary Bramley, 8 March 2024, paragraph 9.

[374] In addition, an Annual Bird Management Report is to be prepared covering a wide range of matters, including the number, dates and location of any near misses or camera records of interactions with Westland Petrel, any grounded Westland Petrel, any birds found dead at the Site; the management undertaken and the outcome for any grounded and rescued Westland Petrel; and the autopsy outcomes for any dead Westland Petrel.

[375] We are satisfied that the reporting requirements are comprehensive and appropriate.

[376] Finally, some submitters suggested that the Applicant should be undertaking monitoring of the Westland Petrel breeding colony. We are not persuaded that this is necessary given that the Applicant has sought to avoid adverse effects on the Westland Petrel and given that the Department of Conservation already undertakes such monitoring. Importantly, we agree with Ms Booker that management and monitoring of the species is outside of the Applicant's control. Nevertheless, Dr Bramley advised that the Applicant proposes to address monitoring at the breeding colony via a programme of work developed to achieve the goals of the Memorandum of Understanding with Ngāti Waewae outside of the consent process[121]. We find that to be appropriate given that Westland Petrel is defined as a taonga in the Ngai Tahu Claims Settlement Act.

Finding

[377] We are satisfied that potential adverse effects on the Westland Petrel will be avoided to the fullest extent that is rationally justified, allowing for uncertainties.

Little Blue Penguin

[378] The Little Blue Penguin (*Eudyptula minor* or kororā.) was also a bird of concern to submitters[122].

[379] The Little Blue Penguin occurs throughout New Zealand and is thought to have a large but declining population. Dr Bramley advised that during surveys of the Site, no Little Blue Penguin burrows or potential burrows had been detected within the MDA, but he acknowledged that Little Blue Penguins are present in low numbers in the Pakiroa and Barrytown beach area.

[121] Supplementary Evidence Statement of Gary Neil Bramley, 8 March 2024, paragraph 18.
[122] Including Inga Perkins, Michael Hill, Melissa McCluskie and Marie Elder.

[380] Relevantly, Inger Perkins[123] considered it unlikely that burrows themselves would be disturbed by any mining activity and from the West Coast Penguin Trust's evidence to the hearing we understand that penguin burrows would not be found in areas actively grazed by cattle as any burrows would be collapsed by cattle trampling.

[381] The main threats to Little Blue Penguins while on land are predators (including dogs, stoats, cats and rats), road mortality, habitat loss and human disturbance. Little Blue Penguins are active onshore at all times of the year, with the breeding season being the most active period. However, as the penguins are nocturnal when on land, the Applicant's proposals only to undertake mining and trucking during daylight hours and avoid shift changes during the hours of darkness will prevent the potential for road mortality and reduce the potential for disturbance at the mining site.

[382] However, suitable nesting habitat for Little Blue Penguin is present between the adjacent beach and the MDA. It is also possible that Little Blue Penguin's might visit Canoe Creek Lagoon, or that they may cross the farm to habitats further inland, although we understand that is unlikely.

[383] Consequently, the Applicant has proposed some mitigations relating to the Little Blue Penguin. In particular, the proposed consent conditions and the AMP provide for the following:

(a) Annual monitoring of Pakiroa Beach, Canoe Creek Lagoon, Collins Creek, Canoe Creek, and suitable vegetation within 500 m of the MDA area using a conservation dog. The first survey is to be conducted at least 20 working days prior to mining commencing;

(b) Installing ten trail cameras along the coastal edge of the site between Canoe Creek and Deverys Creek Lagoon to detect penguins entering the coastal vegetation from the sea and surrounding areas. The footage will be reviewed by an independent ecologist, be retained for a period of six months and provided to Department of Conservation on request;

(c) Quarterly footprint surveys and searches for dead penguins;

[123] Manager of the West Coast Penguin Trust.

(d) Maintaining any existing penguin access ways that are discovered between the adjacent beach and the MDA;

(e) Establishing a ring of traps and/or bait stations targeting rats and mustelids around the perimeter of the site and Canoe Creek Lagoon prior to mining commencing;

(f) The prohibition of dogs on site (except for conservation dogs used in the penguin surveys);

(g) Replacement of any directly affected burrows with two artificial burrows/nest boxes placed in the vegetated coastal foreshore habitat associated with any identified accessways; and

(h) The development of a specific Penguin Management Plan by a suitably qualified and experienced ecologist if Little Blue Penguin are subsequently found within the mine site.

[384] The Annual Bird Management Report discussed above will also address the Little Blue Penguin and the result of the above monitoring.

[385] If the pre-mining survey does detect penguins within 500 m of the MDA, but not within the MDA and provided no access tracks are detected beyond the coastal margin, a penguin fence will be erected along the length of the Canoe Creek Lagoon boundary, from Collins Creek to the northern boundary of the site, on the landward side of the riparian planting. This will preclude Little Blue Penguins from entering the mining area[124]. The integrity of the fence is to be certified by a suitably qualified ecologist and the certification is to be provided to the GDC before mining commences.

[386] In light of the fact that no Little Blue Penguins have been discovered at the proposed mining site to date and it being common ground that they are unlikely to have burrows in the currently farmed MDA, we find the above measures to be a suitably cautionary mitigation approach.

[124] Some submitters including Fiona McDonald endorsed the benefits of penguin fences.

Finding

[387] On the evidence we are satisfied that potential adverse effects on the Little Blue Penguin (Kororā) are likely to be no more than minor at worst.

Natural hazards

[388] Submitters raised the issue of natural hazards, namely coastal erosion and inundation and flooding from adjacent surface water bodies. We address the risk to the mining void in the section of this decision that addresses the consents required from the WCRC.

[389] Evidence on coastal hazards was provided for the Applicant by Gary Tear. He noted that the coastal environment comprises a Mixed Sand Gravel Beach (MSGB) and its associated lagoon system behind a continuous gravel berm at the top of the beach, constituting a natural barrier to wave action and inundation. Mr Tear advised that these types of barrier beaches, in their natural state, were resilient coastal forms able to gradually shift landward in response to rising sea-level and wave action while retaining their integrity. Consequently, the existing protection from wave action for the hinterland behind the MSGB will continue, even as climate-induced Sea-Level Rise (SLR) accelerates.

[390] The conservatively estimated combined erosion rate due to the ongoing existing coastal erosion and SLR was estimated at 2 m/year. The MDA is around 250 m inland from the high-water tide mark on the beach with a 20 m setback from the edge of Canoe Creek Lagoon. Therefore, at the estimated conservative[125] rate of combined erosion, it would take in excess of 100 years for the sea to reach the MDA.

[391] Regarding coastal inundation, Mr Tear advised that the risk of inundation for the 2130 planning horizon applies to both the existing and reinstated topography. Land would be reinstated at or above the existing level at the relevant western end of the Site, so there would be no increased risk of coastal inundation.

[392] For completeness, we note that the mining operation cannot impact coastal processes because the MDA is well clear of the dynamic coastal area.[126]

[125] The 2m/year estimate is for a more erodible sandy beach not a gravel beach.
[126] This issue was raised by several submitters.

[393] Mr Geddes advised that part of the site is subject to coastal hazard overlays[127] in the TTPP. However, only some water treatment ponds and mining panels (with no new buildings) are in the existing and draft TTPP Coastal Hazard Alert Areas. He did not consider those activities to be at risk from coastal hazards and observed that the TTPP only controls buildings in the Coastal Hazard Alert Area.[128]

[394] Regarding the inundation of the mining void from surface water flooding from Collins Creek or Canoe Creek, we note that the land will be contoured or bunded to preclude overland flow traversing into the open mining void. Even if that did happen, the mining void would simply fill up with water which would then be pumped out.

Finding

[395] Based on the evidence, we find that the risks posed by natural hazards do not weigh against a grant of consent.

Contaminated land

[396] Mr Geddes advised[129] that while the WCRC identifies the entire Site as a contaminated site, the WCRC has clarified that they have updated their contaminated site register and confirmed the contamination is located on a neighbouring site. He noted a technical issue preventing the WCRC from updating their maps. Mr Geddes concluded on that basis that contaminated land is irrelevant to the Applicant's application. We accept that advice.

Pit wall stability

[397] As we have outlined earlier, the mining void (or mining pit) will be up to 9 m deep below the existing ground level and around 7 m deep when each panel is initially opened at the western end of the MDA. We therefore need to consider the stability of the resulting pit wall. The issue of potential concern is whether a collapse of the pit wall could lead to the displacement of the ground between the pit and adjacent surface water bodies such that those surface water bodies are breached and flow into the mining void.

[127] Coastal Alert Hazard and Coastal Setback. The Coastal Tsunami Hazard is located on the beach front of the Site well west of the application area.
[128] GDC Section 42A Report, paragraphs 176 to 177.
[129] GDC Section 42A Report, paragraph 174.

[398] We acknowledge that there are also potential health and safety issues for the mine operators should a pit wall collapse. However, Mr Berry advised that the Applicant would comply with the Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016, which includes identifying hazards and risk assessment and preparing principal hazard management plans. That being the case we do not assess that particular matter any further.

[399] Evidence on pit wall stability was provided for the Applicant by Cameron Wylie. He considered[130] that the geotechnical aspects of the proposal were relatively simple, with topsoil and barren overburden overlying mineralised sands which overlay a basement stratum comprising dense sand and gravel. Mr Wylie noted that backfilling of the mining void would be continuous, with tailings being placed using hydraulic methods; followed by overburden and topsoil placed by earthworks machinery. Backfilling the pit with tailings and overburden would effectively buttress the advancing pit wall.

[400] Mr Wylie undertook a stability analysis using generally accepted limit equilibrium methods which produce a Factor of Safety[131] (FoS) against failure, and Finite Element Methods[132] (FEM) which produce an estimate of the deformation in the ground behind the pit wall. He assessed the displacement that would be expected to occur during an earthquake[133] before the mining void was backfilled (or buttressed). For the seismic cases where the factor of safety (FoS) was less than < 1 FEM, the assessed ground displacement was less than 0.05 m at a distance of between 12 m to 20 m beyond the crest of the mining void. That level of displacement would not be visible to the naked eye. Mr Wylie concluded there was a very low likelihood that any surface water bodies would be impacted.[134]

[401] Once the mining voids was buttressed with tailings only (conservatively not allowing for the placing of overburden and top soil) the FoS improved and no ground deformation in the pit wall or ground displacement was expected.

---

[130] Summary Statement, Cameron Wylie.
[131] The limit equilibrium FoS balances forces resisting failure against forces driving failure. A FoS=1 is a slope in balance. Typical acceptable FoS in NZ may range from < 1 under earthquake (short term, extreme conditions) to 1.5 for residential development.
[132] Finite element methods provide an indication of how the slope may deform due to excavation.
[133] Earthquake loads comprising peak ground acceleration (pga) were been assessed in accordance with AS/NZS 1170:2016 Structural Design Actions and MBIE Earthquake Geotechnical Engineering Practice (Module 1; Nov 2021).
[134] SOE Wylie, paragraphs 29 to 37.

[402] Mr Wyle considered the proposed infiltration trenches and infiltration bores would not adversely influence the pit wall stability because his modelling already assumed groundwater levels 1 m below the ground surface and the proposed infiltration mitigation would not significantly raise those levels.

[403] He concluded that the risk of uncontrolled pit wall collapse was very low and remedial measures would be immediately available to rectify any collapse should it occur. He also noted that the Applicant's proposed conditions of consent included pit wall monitoring and additional investigations of in-situ ground conditions as Panels 1 to 4 were progressively mined and the resultant data would be used to confirm the geotechnical model used to assess the risks of pit wall collapse. Those updated assessments would be included in an annual geotechnical review.

[404] Some submitters were concerned about the risk of a M8 earthquake arising from the Alpine Fault and the risk of coastal inundation.

[405] Mr Wylie considered the risk of such an extreme earthquake occurring during the relatively short life of the mine was low[135], and if it did occur it would only result in the pit wall slumping into the mine void, with no significant toe run-out. In effect the wall would "sit down" into the pit. If this occurred when Panels 5 to 9 were just being opened, the indicative displacement at the 20 m boundary would reduce the ground level by around 0.25 m. That would cause the Canoe Creek lagoon to spill over into the mine void, but sediment entrainment out of the lagoon would not be expected as the gradient of the induced discharge channel would be too low.

[406] That would result in short-term adverse effects for the fish and birds residing in the lagoon until it filled again, but similar effects can arise naturally now should the lagoon be breached by the sea during storm conditions (as has occurred in the past[136]), with the subsequent dewatering of the lagoon.

[407] Regarding coastal inundation or erosion reaching the mining void, as we discussed earlier, that is unlikely to occur.

[135] The likelihood of a M8 Alpine Fault earthquake impacting the Site within in any one-year period is 0.001%.
[136] At the time of our hearing the nearby Deverys Lagoon had recently been breached by the sea.

[408] We received a JWS[137] touching on the above matters dated 5 March 2024. The JWS confirmed that the proposed mining operation would result in the placement of processed tailings as backfill along the edge of any newly opened panel no later than six weeks following the commencement of excavation. Therefore, the period of pit wall exposure to potential deformation at any specific time was short. The JWS also confirmed that infiltration trenches were not inconsistent with the groundwater pressures applied in the slope stability assessments undertaken by Mr Wylie, meaning the proposed groundwater recharge system could be installed and managed in a manner consistent with the need to maintain pit wall stability.

[409] We received no qualified expert evidence that was contrary to the evidence of Mr Wylie and the contents of the JWS.

Finding

[410] On the evidence, we find that the issue of pit wall stability does not weigh against a grant of consent.

Tourism

[411] The potential effects of mining on tourism were a matter of concern for submitters. Specific issues raised by submitters include adverse effects on:

a) The value of West Coast tourism and its marketing, particularly the branding of West Coast tourism as 'Untamed Natural Wilderness' and the NZ 100% pure NZ marketing branding.
b) People using the Paparoa track from Blackball to Punakaiki and the Truman Track in the Paparoa National Park.
c) The coast road (SH6) as an iconic coastal drive.
d) The landscape as viewed from SH6.
e) The significant government investment made in the Dolomite Point redevelopment at Punakaiki.
f) Accommodation businesses by increased traffic and noise.
g) Effects on the wagon tour business that uses the Barrytown beach.[138]

[137] Joint Witness Statement – Hydraulic Factors Influencing Geotechnical Assessment. Jens Rekker, Cam Wylie and GDC/WCRC peer review expert Brett Sinclair.
[138] Grey District Council, Officer's Report, paragraph 122.

[412] Lee Harris for CRRG raised concerns over the effects of the mining operation on nature-based tourism, visitor accommodation between Rapahoe and Punakaiki, and on tourism employees "jumping ship" to work for the TiGa operation. Mr Harris highlighted at the hearing the visual impact of mining, effects of truck haulage on visitor accommodation near SH6, and potential effects on road safety for tourists. Overall, Mr Harris was of the opinion that the mining operation would have a net detrimental effect on the tourism economy of the West Coast.

[413] Mr Volk for CRRG, drawing on his experience in managing tourism related business on the West Coast, expressed concern over the effects of the mining operation on Central Government investment in tourism infrastructure including the Dolomite Point Visitor Centre and on the Untamed Natural Wilderness brand. A northern HMC haulage route and the potential safety risk of increased truck movements past Dolomite Point and through Punakaiki was a focus of concern. However, with TiGa's decision to haul the HMC south towards Greymouth, that is no longer a relevant concern.

[414] Sophia Allan owns and operates Golden Sands Horse and Wagon Tours on Pakiroa Beach. The business relies on the natural and quiet environment of the lagoons and beach front directly adjacent to the proposed mine site, and on the low volume of heavy vehicles on the road as they travel up the Main Road and then down Burkes Rd to the Beach.

[415] Development West Coast (DWC) in its role as the Economic Development Agency and Regional Tourism Organisation for the West Coast submitted in support of the application. DWC saw no adverse impact on the visitor experience or the reputation of the region from the mining operation. Heath Milne for DWC, in response to questions from the Panel, discussed the success of the Untamed Natural Wilderness brand in promoting the West Coast, and the evolution of the brand to encompass cultural heritage and history, including mining history.

[416] The economic evidence of Mr Ballingall for TiGa concluded that the mining works would not have a material impact on the decisions of domestic and international tourists to visit the West Coast and that a drop in tourism activity of a scale that could be attributed to the proposed mining operation is highly unlikely.[139] Mr Ballingall's opinion on the economic

[139] TiGa, Attachment R: Economic Assessment by Sense Partners, paragraph 26; and EIC of John Ballingall, paragraph 72.

effects of tourism were informed by Mrs Crawford's evidence on the effects of the mining operation on landscape character and visual effects.[140]

[417] Mr Ballingall concluded that the mining operation is unlikely to draw workers away from the tourism sector, as mining jobs are largely specialised and require specific skills.[141] Mr Heath in his economic peer review for GDC concurred that any impact on tourism is likely to be minor and significantly outweighed by the economic contributions of the proposed mining operation.[142]

[418] Mrs Crawford assessed the visual effects of the mining operation from a range of public viewpoints. The visual effects of mining from public viewpoints will vary depending on the location of mining and distance from the site. Mrs Crawford concluded that the Proposal will have a low adverse (less than minor) visual effect on the users of SH6 and the Pakiroa Beach foreshore. For users of SH6 views are for a short duration and seen at speed (in a 100 km/hr zone).[143] The establishment of a bund on the frontage of SH6 with mitigation planting and the central stockpile bund will progressively screen mining activity from view.[144] The views towards the site from Pakiroa Beach vary but are greatest from the boulder bank at the south-western coastal edge of the site. Wetland and coastal mitigation planting will reduce the visual effects of mining activity.[145]

[419] The visual effects of the Proposal for walkers on the Paparoa Track was raised by submitters. The site is a minimum distance of 8.4 km from the Paparoa Track with the coastal plain being part of the overall view. Mrs Crawford concludes that the Site and mining activity will be difficult to discern at that distance.[146]

[420] We concur with Ms McKenzie and Mr Ballingall that the mining operation will not have a material impact on tourism. The site is located on a coastal highway that extends for approximately 102 km from Greymouth to Westport and the mining operation will be screened from SH6 by bunds and mitigation planting. The selection of the southern haulage route ensures that there are no effects on tourism infrastructure and visitor

[140] John Ballingall, Rebuttal of Layperson Evidence, paragraph 22.
[141] John Ballingall, Rebuttal of Layperson Evidence, paragraph 26.
[142] Property Economics, Economic Assessment Peer Review, p 7.
[143] TiGa Attachment N: Landscape Assessment, Section 10.2.
[144] TiGa Attachment N: Landscape Assessment, Section 10.2.
[145] TiGa Attachment N: Landscape Assessment, Section 10.2.
[146] TiGa Attachment N: Landscape Assessment, Section 10.2.

accommodation to the north of the site. The visual effects of mining when viewed from Pakiroa Beach will be reduced by planting along the coastal lagoon frontage and the open coast.

[421] We accept Mr Ballingall's assessment that the mining operation will not draw workers away from the tourism sector.

Finding

[422] We find that potential adverse effects on tourism will be no more than minor.

Economic benefits

[423] The Panel must be satisfied under NES-FW, Regulation 45D(6)(a) that the extraction of minerals proposed by the application will provide significant national or regional benefits.

[424] TiGa provided evidence from Mr Ballingall, an economist with Sense Partners Limited. Mr Ballingall prepared his evidence to assess whether Regulation 45D(6)(a) was met. He concluded the requirement was met under his economic assessment. In approaching that question, he considered the contribution that the Proposal would make to the following metrics:

(a) Contribution to regional exports.

(b) Contribution to regional GDP.

(c) Contribution to spending on intermediate inputs.

(d) Contribution to national taxes and royalties.

(e) Regional Employment effects.

(f) Contribution to regional wages and incomes.

[425] Mr Ballingall also made an opportunity cost assessment to provide a net economic assessment. He assessed the Proposal as an alternative to productive land use for a 10–12-year period. Unsurprisingly, the economic contribution to the West Coast region from the Proposal far outweighs the opportunity cost from lost primary production within the Site.

[426] Mr Ballingall made an economic assessment of the likely impact of the activity on tourism as we noted in the previous section of this decision.

[427] International tourism is attracted to the West Coast for various reasons, including its 'wild nature' qualities. It is difficult to predict the behaviour of tourists in response to individual projects. Our working assumption is that unless the activity materially alters the natural experiential qualities of the region generally (or even in Barrytown), then any effects on tourism are speculative. Our analysis of effects demonstrates that these experiential impacts are unlikely to be compromised by the Proposal. Adverse perceptions of mining as an activity by international visitors seemed speculative and irrelevant. Accordingly, we do not see this mining proposal as diminishing international tourism.

[428] Mr Milne for the West Coast Economic Development Agency called "Development West Coast" did not consider the Proposal would impact international tourism.

[429] A summary of Mr Ballingall's conclusions on the benefits is set out below.

(a) Export revenue of $63.0 million per year once fully operational or $274.4 million over the 5 years of establishment and operations of the mine under the current resource consent application.

(b) This would boost the Grey District's exports by around 37.8% per year and the West Coast region's exports by around 7.1%.

(c) Directly generating around $33.7 million of additional GDP per year once fully operational, or around $146.1 million over the life of the mine.

(d) This would lift the Grey District's GDP by 3.8% and the West Coast region's GDP by 1.5%.

(e) Spending on goods and services as inputs to production of around $27.4 million per year, much of which will go to local businesses.

(f) Direct employment of 57 full time equivalent jobs, and a further 80 indirect jobs supported elsewhere in the economy. This would see employment in the Grey District increase by 2.0% and employment in the West Coast region rise by 0.9%.

(g) The 57 new direct jobs will generate $6.6 million per year of additional wages in the region, at an average of around $116,000 per job compared to the regional median wage of $53,730.

(h) Government royalties, business tax and employees' income taxes of around $33.0 million over the mine's lifetime.

(i) Mr Ballingall's economic assessment was peer-reviewed by the Council's expert, Mr Heath from Property Economics. His conclusions largely align with those of Mr Ballingall.

[430] Mr Milne from Development West Coast gave a PowerPoint presentation to the Panel. He presented as a compelling witness with a deep understanding of the West Coast community and the economic interactions and impacts of various activities in the region. He produced graphs of the impact of mining in the Barrytown area that demonstrated economic lifts and drops directly correlated to historical mining activity in the Grey District. Development West Coast supports the opportunity to obtain high-value jobs and economic diversification from new mining activities such as those provided by the Proposal.

[431] Jill Bradley lives on Coast Road south of Motukiekie Beach and has an enduring interest in the natural environment of the West Coast. Ms Bradley has many qualifications, some related to teaching and has had a varied career. Ms Bradley provided a detailed assessment of the deficiencies of TiGa's economic analysis as a layperson, assisted by consultation with expert economists we did not hear from. The central thesis of her evidence is that the potential benefits from employment are unverified assertions by the Applicant that feed into the economists' assumptions. Further, the analysis fails to consider opportunity and social costs, which a proper Treasury-based analysis would require. The latter criticism arises because Ms Bradley contended that the economic report supporting the Proposal claimed to rely on a Treasury cost-benefit analysis. In addition, Ms Bradley argued that the West Coast economy was robust and that any diversion of employment when a region is in a full employment state is not an economic benefit.

[432] Mr Colin Robertson, a submitter in opposition to the application, made similar arguments and an argument about foreign ownership of TiGa. While an economist, Mr Robertson

presented his evidence as a lay witness and hence did not take upon himself the obligations of the Code for Expert Witnesses.

[433] A resource consent application can cause both negative and positive effects. These are often referred to as beneficial and negative externalities. The Panel considers that Regulation 45D(6)(a) requires the Panel to consider whether the beneficial externalities of the Proposal are significant at either a national or regional scale. These benefits are not confined to economic benefits and, for large-scale projects, can include transportation efficiencies from extensive transport infrastructure and other social benefits. In this case, the beneficial externalities are primarily economic and economic-related social consequences that arise from the Proposal.

[434] We accept that mining is an unwelcome intrusion for many people in Barrytown and that environmental and social costs are associated with the activity. However, in assessing benefits, we do not consider those matters to determine whether Regulation 45D(6)(a) is met. Instead, these are evaluated as part of the broader effects assessment under RMA, s 104.

[435] We agree with Mr Ballingall and Mr Heath that the Proposal will provide significant regional benefits to the West Coast.

Finding

[436] We find that the Proposal has significant regional benefits for the West Coast region.

Site rehabilitation

[437] It is intended that the Site will be used for farming once mining activities are completed. Mr Miller outlined the proposed rehabilitation process, the details of which will be contained in a Rehabilitation Management Plan. He advised that the final landform and land use has been discussed and agreed with the farm owner. The outcome will be a final landform having a similar contour and profile ("humping and hollowing") to that which existed prior to mining.

[438] In order to minimise the active mining area, the Applicant has proposed to undertake progressive rehabilitation as part of the short-term mining cycle, as opposed to rehabilitating the entire Site at the end of the project. This will involve the sequential

placement of mine tailings and waste from the WCP behind the active mining area, followed by the replacement of overburden and the spreading of topsoil stripped from in front of the mining path directly over the shaped area. The topsoil will be immediately sown in rye grass, returning the land to pasture. This progressive approach will maintain a maximum mine pit area of 3.5ha.

[439] Weed control, fertilisation and land management will occur on the rehabilitated pasture.

[440] Topsoil, overburden and mineralised sand from the initial mining void (Panel 1) and the water treatment ponds will be stockpiled and used in the eastern bund and ore stockpiles. These stockpiles and bunds will be capped with topsoil and temporarily rehabilitated with rye grass and straw before being recovered and processed at the end of mining. The final mine closure works will involve rehabilitation of the clean and dirty water ponds, followed by progressive work along the eastern edge of the MDA to marry up existing land contours with the post mine area contours.

[441] Once mining ceases, the WCP processing plant and all associated equipment will be de-commissioned and removed from the site, except for the HMC storage shed that will be used for farming. The constructed wetland in Pond 4 in the northwest of the site will also be retained. That constructed wetland will be protected in perpetuity by a covenant in favour of GDC, which is to be registered on the Titles for the Site[147]. The area that that covenant will cover is shown on the Planting Covenant Area Plan that forms Schedule 6 to the offered conditions. We find that to be appropriate.

[442] If the mine ceases operations for any reason for a period of more than 3 months, all disturbed areas will be rehabilitated within 6 months of that cessation.

Finding

[443] We are satisfied that the site will be appropriately rehabilitated in a progressive manner as mining is carried out over the site.

Bond

[444] It is relatively routine for a bond to be imposed on a consent holder for large-scale projects of this nature. The Applicant has offered a bond in favour of the WCRC and GDC jointly

[147] Condition 19.11.

"to secure compliance by the Consent Holder with all the conditions of these consents, including the completion of all final mine closure activities required by these consents and to avoid, remedy or mitigate any adverse effects on the environment arising as a result of the exercise of these consents."

[445] We understand why a bond is necessary to deal with site remediation if the consent holder should abandon the site for any reason prior to the final mine closure occurring. However, at our 20 March 2024 hearing, we queried how a bond could "secure compliance by the Consent Holder with all the conditions of these consents" given that those conditions included matters such as monitoring and reporting, which if not undertaken, would be subject to normal enforcement responses available to the councils under the RMA.

[446] In Reply Ms Booker advised that the offered bond conditions had been amended to remove reference to conditions of consent and focus on closure activities which was the purpose of requiring the bond. We find that to be appropriate.

Finding

[447] We are satisfied that a bond is appropriate and also with the final wording of conditions 4.1 to 4.13 offered by Ms Booker in Reply, subject to some minor clarifying amendments.

Overall findings on effects

[448] Our overall finding on effects is that subject to the imposition of robust conditions of consent, the potential adverse effects of the proposal are likely to be no more than minor and any residual adverse effects do not weigh against a grant of consent.

National Environment Standards and other regulations

[449] We discuss relevant national environment standards and other regulations pertaining to the consents required from the WCRC in the section of this decision that addresses the consents required from the WCRC. Mr Geddes advised that the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 does not apply as the site is not listed as a HAIL site. We heard no evidence to the contrary.

National Policy Statements

[450] In the section of this decision that addresses the consents required from the WCRC, we discuss the National Policy Statement for Freshwater Management 2020 (NPSFM). The other national policy statements that are relevant to our consideration of the Applicant's proposal are:

(a) National Policy Statement for Indigenous Biodiversity 2023.

(b) New Zealand Coastal Policy Statement 2012.

National Policy Statement for Indigenous Biodiversity 2023

[451] The National Policy Statement for Indigenous Biodiversity 2023 (*NPS-IB*) came into effect on 7 July 2023.

[452] The objective of the NPS-IB is to maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity. The NPS-IB sets out 17 Policies, of which eight are ecological matters relevant to the Applicant's proposal (Policies 3, 4, 6 - 8 and 13 - 15). The evidence of Dr Bramley provides a comprehensive assessment of the proposal against the policies of the NPS-IB.

[453] CRRG argued that the precautionary principle (Policy 3) applied to potential effects on all indigenous biodiversity. We do not consider that a 'precautionary approach' is warranted because the potential adverse effects of the proposal are neither little understood nor significantly adverse. The evidence is that the proposed hydrological and ecological mitigation will protect the full range and extent of ecosystems and habitats used or occupied by indigenous biodiversity.

[454] The management of indigenous biodiversity to promote resilience to the effects of climate change is addressed by Policy 4. The evidence of Dr Bramley is that the revegetation of the constructed wetland around the clean water ponds, and riparian planting of sections of Collins Creek and the Northern Drain, will increase the extent and integrity of indigenous communities and improve ecological resilience to climate change.

[455] The NPS-IB requires the identification and protection of significant indigenous vegetation and habitats of indigenous fauna and the maintenance of indigenous biodiversity outside

of significant natural areas (Policies 6 – 8). The proposed Te Tai o Poutini Plan (TTPP) identifies the Deverys coastal lagoon north-west of the site as a Significant Natural Area (SNA 'PUN-W034').[148] The evidence is that the proposed hydrological and ecological mitigation including wetland planting around the clean-water ponds following cessation of mining will protect the indigenous biodiversity of PUN-W034 and maintain indigenous biodiversity outside this SNA.

[456] Policies 13 and 14 promote the restoration of indigenous biodiversity and increased indigenous vegetation cover. The ecological and landscape evidence demonstrates that the Applicant's Proposal protects and restores indigenous vegetation and habitats of indigenous fauna within the Northern Drain, Collins Creek, and Canoe Creek Lagoon. Following cessation of mining there will be further restoration of indigenous vegetation and habitat for indigenous fauna around the clean-water ponds secured by covenant.

[457] Policy 15 requires the identification and management of areas outside SNAs that support specified highly mobile fauna to maintain their populations across their natural range. Overall, Dr Bramley was of the opinion that any adverse effects on threatened or at-risk bird species using Canoe Creek Lagoon, Rusty Pond and surrounding vegetation, or making use of the pasture and bare soil within the MDA, can be managed so that they were either avoided, or were very low.

[458] We find that having regard to the objective and policies of the NPS-IB does not weigh against a grant of consent.

<u>New Zealand Coastal Policy Statement 2010</u>

[459] The New Zealand Coastal Policy Statement 2010 is relevant because at least part of the MDA resides within the coastal environment.[149]

[460] We consider that the proposal is consistent with the objectives of the NZCPS that are relevant to the consents required from the GDC. The proposal sustains the ecosystems

[148] Site PUN-W034 is described in Schedule 4 of the TTPP as "Punakaiki Lagoon and Coastal Wetland sequence. A lagoon and series of small lakes bordered by flax wetlands and coastal forest. Significant vegetation and ecosystem sequence.
[149] Paragraph 4.4 of the AEE states that the site is within the Coastal Environment overlay contained in the proposed Te Tai o Poutini Plan.

of the coastal environment (Objective 1), preserves natural character and landscape values (Objective 2), and Te Rūnanga o Ngāti Waewae support the proposal (Objective 3).

[461] Submitters raised the issue of natural hazards, namely coastal erosion and inundation and flooding from adjacent surface water bodies. On the evidence provided for the Applicant by Mr Tear we find that the risks posed by natural hazards are managed (Objective 5).

[462] Overall, we conclude that the protection of the values of the coastal environment does not preclude the Applicant's Proposal. In our opinion, the constraints and characteristics influencing TiGa's mine design to achieve a viable mining operation create a "functional need" to operate within the coastal environment (Objective 6).

[463] Turning to the NZCPS policies, Te Rūnanga o Ngāti Waewae support the proposal (Policy 2). We do not consider that a 'precautionary approach' is warranted because the potential adverse effects of the proposal are neither little understood nor significantly adverse (Policy 3).

[464] The Proposal will yield significant regional economic benefits and the MDA is well set back from the coastal marine area and other water bodies (Policy 6). The evidence is that the proposed hydrological and ecological mitigation will protect the indigenous biodiversity of the potentially affected water bodies (Policy 11). The natural character and landscape attributes of the surface water bodies will be enhanced (or restored) by the proposed wetland and riparian planting (Policies 13, 14 and 15).

[465] We find that having regard to the objectives and policies of the NZCPS does not weigh against a grant of consent.

Regional Policy Statement

[466] The West Coast Regional Policy Statement (*RPS*) was made operative in July 2020. It has not been updated to give effect to the NPS-IB and Mr Geddes informed us there is no Proposed RPS.

[467] The West Coast Regional Policy Statement (*WCRPS*) was addressed by Ms McKenzie and Mr Geddes.

[468] In terms of the WCRPS objectives, we agree with Ms McKenzie that the WCRPS seeks to provide for resilient and sustainable communities (Objective 4.1), enable economic use and employment opportunities in a sustainable manner (Objective 4.2), and recognises the contribution of resource use to the local economy (Objective 5.1). We also agree that the objectives of the WCRPS demonstrate an overarching intent to enable activities, provided that the adverse effects of the activities are avoided, remedied, or mitigated. In that regard we find that the proposal is consistent with that intent.

[469] Dr Bramley assessed the WCRPS in relation to the objectives and policies of Section 7 Ecosystems and Indigenous Biological Diversity. We agree with Dr Bramley that the proposal is consistent with Objectives 7.1-7.4 that promote the identification and protection of areas of significant indigenous vegetation and habitats of indigenous fauna, sustainable development in significant natural areas, and the maintenance of the region's terrestrial and freshwater indigenous biodiversity. Dr Bramley confirmed that the Proposal has been designed in a way that does not give rise to the effects identified in Policy 7.2, the effects management hierarchy has been applied to the activity (Policy 7.3), and the Proposal maintains indigenous biological diversity, ecosystems, and habitats (Policy 7.8).

[470] Objective 7A.1 and Policy 7A.2 promote the protection of the natural character of the region's wetlands, rivers and their margins, and Objective 9.1 seeks to preserve the natural character of the coastal environment. Mrs Crawford confirmed that the proposed mitigation and rehabilitation measures protect the natural character of the wetlands, water bodies and their margins on the Site. Mrs Crawford and Mr Girvan agreed that the effects of the Applicant's proposal on the natural character of the coastal environment are not significant, and in the long term, following project completion, there is potential for beneficial effects on natural character.

[471] Dr Bramley confirmed that the Proposal is consistent with Objective 9.1 and Policy 9.1 which require the protection of indigenous biodiversity within the coastal environment. Objective 9.2 and Policy 9.3 provide for development in the coastal environment which has a technical, functional, or operational requirement to be located within the coastal environment. In our opinion, the constraints and characteristics influencing TiGa's mine design to achieve a viable mining operation create a "functional need" to operate within the coastal environment.

[472] We find that having regard to the objectives and policies of the WCRPS does not weigh against a grant of consent.

Regional Coastal Plan

[473] The TiGa mine site is not located in the CMA but is located in the coastal environment. Mr Geddes advised that the RCP was approved in 2000 and has not been updated to give effect to the NZCPS. He considered it to be out of date and recommended that little weight should be given to its provisions. We agree.

[474] Mr Geddes also advised that a PRCP was notified in 2016, but it was put on hold in 2020 and has not progressed to hearings. We consequently afford little weight to that document.

The Grey District Plan

[475] The Grey District Plan (GDP was made operative in February 2005 and remains the operative district plan for the Grey District. The Site is located within the Rural Environmental Area as defined by the GDP and mining is classified as a Non-Rural Activity.

[476] The GDP was addressed by Ms McKenzie and Mr Geddes. Ms McKenzie advised us that the GDP has an enabling policy framework that seeks to provide for activities subject to avoiding, remedying, or mitigating the adverse effects of such activities.

[477] The Rural Environmental Area covers every part of the Grey District outside of the townships. The objectives and policies of the Rural Environmental Area seek to manage resources in the rural environment in a manner that enables people and communities to carry out a variety of activities while ensuring that the resource base is sustainable for future generations, maintaining the life supporting capacity and healthy functioning of ecosystems, and retaining the character of the rural environment.

[478] Ms McKenzie and Mr Geddes concluded that the proposal is generally consistent with the objectives and policies of the GDP, with differences of opinion between the experts on objectives and policies that provide for indigenous vegetation and fauna, the natural character of the coastal environment and cyclist and pedestrian safety.

[479] Objective 5.3.1 and Policies 5.4.3 and 5.4.4 seek to protect and enhance areas of significant indigenous vegetation and habitats of indigenous fauna. In that regard, we concur with Ms McKenzie that the hydrological and ecological evidence demonstrates that the Applicant's Proposal protects and enhances indigenous vegetation and habitats of indigenous fauna within the Northern Drain, Collins Creek, and Canoe Creek Lagoon and protects in part the limited indigenous vegetation that exists within the Site. Following cessation of mining there will be further enhancement of indigenous vegetation and habitat for indigenous fauna around the clean-water ponds secured by covenant.

[480] Objective 7.3 and Policy 7.3 seek to preserve the natural character of the coastal environment and to protect unmodified areas from the adverse effects of development. Mrs Crawford and Mr Girvan agree that the effects of the Applicant's Proposal on the natural character of the coastal environment are not significant, and in the long term, following project completion, there is potential for beneficial effects on natural character.

[481] Objective 12.3 and Policy 12.4.1 promote the safe and efficient operation of transport infrastructure in a manner that avoids adverse effects, including adverse effects on vehicle and pedestrian safety. Mr Fuller has assessed the effects of the Applicant's proposal and concludes overall that there are no more than minor effects on pedestrian and cyclist safety. The Panel is satisfied that the combination of proposed consent conditions and the implementation of the TMP will reduce the level of additional risk posed by the Applicant's maximum five additional truck movements per hour to the extent practicable for pedestrians and cyclists who choose to venture onto SH6.

[482] We find that having regard to the objectives and policies of the GDP does not weigh against a grant of consent.

Te Tai o Poutini Plan

[483] The proposed Te Tai o Poutini Plan (*TTPP*) was notified in July 2022. The TTPP is the combined Proposed District Plan for the Buller, Grey and Westland District Councils.

[484] The entirety of the site is located in the TTPP's Special Purpose: Mineral Extraction Zone (MINZ). The site is also subject to the following overlays:

a) Coastal Environment

b) Pounamu Management overlays

c) Coastal Tsunami Hazard (on the site, but west of the application area)

d) Coastal Hazard Alert

e) Coastal Setback

[485] An assessment of the Proposal for consistency with the objectives and policies of the TTPP was included with the application (Attachment V).

[486] The Mineral Extraction Strategic Objectives (MIN-01, MIN-02, MIN-06) provide for the use, development, and extraction of mineral resources, while minimising the adverse effects of mineral extraction on Poutini Ngāi Tahu cultural resources and taonga; areas of significant indigenous vegetation, significant indigenous fauna habitat and protected native fauna; waterways and waterbodies; the coastal environment; and the wellbeing of people and communities. We find that the extraction of HMC is enabled within the Mineral Extraction Zone.

[487] The Natural Environment Strategic Objectives (NENV-01, NENV-02, NENV-04) recognise and protect natural character, landscapes and features, ecosystems, and indigenous biodiversity, ensure that the rights, interests, and values of Poutini Ngai Tahu to natural environment areas and features are protected, and identify areas where development can be sustainably managed. The landscape and ecological evidence propose mitigation measures to protect natural character, landscapes, ecosystems, and indigenous biodiversity, Te Rūnanga o Ngāti Waewae support the proposal, and the Site is identified as an area where mineral extraction can be sustainably managed.

[488] The Poutini Ngāi Tahu Strategic Objectives (POU-02 and POU 04) supports the exercise of cultural rights, interests and kaitiakitanga, and recognises the special relationship of Poutini Ngāi Tahu with te taiao, taonga and wāhi tapu. The Poutini Ngāi Tahu Strategic Policies (POU-P7, POU-P8, and POU-P9) provide for the active participation by Poutini Ngāi Tahu in the sustainable management of West Coast/Te Tai o Poutini resources and recognises their role as kaitiaki and specialists in tikanga. Poutini Ngāi Tahu are best placed to convey their relationship with their ancestral lands, water, sites, wāhi tapu and other taonga. Te Rūnanga o Ngāti Waewae support the Proposal.

[489] The Transport Objectives (TRN-01, TRN-03, TRN-05) and Policies (TRN-P1 - TRN-P4, TRN-P9) recognise and provide for the role land transport infrastructure plays in supporting communities; enables the accessibility, safety and connectivity of land transport infrastructure and considers the amenity of all transport users, including pedestrians and cyclists; and ensures the provision of safe and efficient parking, loading, and access. The Applicant's Integrated Transport Assessment confirms that the effects on the region's transport network are less than minor, and adverse effects have been avoided through the creation of an upgraded access, provision for on-site parking and consent conditions managing the peak vehicle movement rates for heavy vehicles. The Panel is satisfied that the combination of proposed consent conditions and the implementation of the TMP will reduce the level of additional risk posed by the Applicant's maximum five additional truck movements per hour to the extent practicable for pedestrians and cyclists who choose to venture onto SH6.

[490] The Natural Hazard Objectives (NH-02, NH-04 - NH-05) and Policies (NH-P1, NH-P2 – NH-P4, NH-P12) seek to reduce the risk to life, property, and the environment from natural hazards, recognise and protect natural features that minimise the impacts of hazards including wetlands and dunes, and to recognise and provide for the effects of climate change and its influence on the frequency and severity of natural hazards. Submitters raised the issue of natural hazards, namely coastal erosion and inundation and flooding from adjacent surface water bodies. On the evidence provided for the Applicant by Mr Tear we find that the risks posed by natural hazards are managed appropriately.

[491] The Ecosystems and Indigenous Biodiversity Objectives (ECO-01, ECO-02, ECO-04) and Policies (ECO-P2, ECO-P6 - ECO-P8, ECO-P10) seek to identify and protect areas of significant indigenous vegetation and habitats of indigenous fauna, provide for appropriate development within areas of significant indigenous vegetation and habitats of indigenous fauna where the values of the area can be maintained or enhanced, and to maintain the range and diversity of ecosystems and indigenous species. We concur with Ms McKenzie that the hydrological and ecological evidence demonstrates that the Applicant's Proposal protects and enhances indigenous vegetation and habitats of indigenous fauna within the Northern Drain, Collins Creek, and Canoe Creek Lagoon. Following cessation of mining there will be further enhancement of indigenous vegetation and habitat for indigenous fauna around the clean-water ponds secured by a covenant.

[492] The Natural Character and Margins of Waterbodies Objectives (NC-01 – NC03) and Policies (NC-P1 – NCP4) seek to preserve the natural character of rivers and wetlands and their margins, recognise and provide for the relationship of Poutini Ngāi Tahu and their traditions, values and interests, and to provide for activities which have a functional need to locate in the margins of rivers and wetlands. The landscape and ecological evidence propose mitigation measures to protect the natural character of rivers, wetlands and their margins, Te Rūnanga o Ngāti Waewae support the proposal, and there is a functional need for the location of the mining operation.

[493] The Coastal Environment Objectives (CE-01 – CE03) and Policy CE-P2 seek to preserve the natural character, landscapes, and biodiversity of the coastal environment, recognise and provide for the relationship of Poutini Ngāi Tahu and their traditions, values and interests and enable the exercise of tino rangatiratanga and kaitiakitanga, and to provide for activities which have a functional need to locate in the coastal environment. The landscape and ecological evidence propose mitigation measures to protect natural character, landscapes and biodiversity, Te Rūnanga o Ngāti Waewae support the Proposal, and there is a functional need for the location of the mining operation in the coastal environment.

[494] The Earthworks Objective EW-01 and Policies EW-P2 and EW-P3 provide for earthworks to facilitate development while ensuring that their adverse effects on the surrounding environment are avoided or mitigated. As with any proposal that involves large scale earthworks, it is necessary to employ mitigation measures intended to avoid, or at least minimise, erosion in and around the earthwork areas. Mr Ridely prepared an Erosion and Sediment Control Plan (ESCP) that addresses both the construction and operational stages of the Applicant's Proposal. We have reviewed that document and find it to be comprehensive, appropriate, and consistent with other ESCP's that we have viewed for other projects involving significant earthworks.

[495] The Light Objectives (LIGHT 01- 02) and Policies (LIGHT P1- P3) provide for outdoor lighting while minimising potential adverse effects on the health and safety of people, the safe operation of the transport network, views of the night sky, the habitats and ecosystems of nocturnal native fauna and the species themselves. The Applicant has acknowledged the risk that artificial lights at the mine site could pose to the Westland Petrel. They have

consequently developed a lighting plan intended to avoid the adverse effects of artificial lighting on the Westland Petrel.

[496] The Noise Objectives (NOISE-01, NOISE-03) and Policies (NOISE P1, NOISE P4) seek to protect the health and well-being of people and communities from significant levels of noise. The proposed mining activity will produce construction and operational noise. This was understandably a matter of concern to submitters, especially those who reside close to the site or to SH6. Evidence on noise was provided for the Applicant by Mr Farren. The Applicant has offered to prepare a Noise Management Plan (NMP) to be certified by the GDC, which we find to be appropriate and routine for proposal of this magnitude.

[497] We find that having regard to the objectives and policies of the TTPP does not weigh against a grant of consent.

Section 104(1)(c) other matters

[498] Relevant to the consents required from the GDC, no relevant other matters were brought to our attention.

Part 2 matters

[499] We are aware of the case law which outlines that if the lower order statutory instruments appropriately deal with Part 2 matters, then no further assessment of Part 2 matters is required. Consequently, it is arguable that there is no need to separately assess RMA Part 2 matters in light of our previous assessment of the statutory instruments. However, we do so now in a reasonably concise manner for the sake of completeness.

[500] We are satisfied that the Applicant's proposed landscape and riparian planting, buffer areas (including a 100 m buffer from Canoe Creek lagoon during the August to December bird breeding season) will preserve the natural character of the MDA residing within the coastal environment, including the margins of Canoe Creek Lagoon, Collins and Canoe Creeks. Those mitigation measures will also protect those natural resources from inappropriate use and development (s6(a)). While the Te Tai o Poutini Plan establishes a SNA to the north of the site, there are no outstanding natural features or landscapes within the site (s6(b)). The proposed riparian planting and buffer zones will protect any significant habitat of indigenous avifauna in Canoe Creek Lagoon. We note no significant indigenous vegetation areas within the site (s6(c)). The proposal will not affect public access to and along the

coastal marine area or Canoe Creek[150] (s6d). The support of Te Rūnanga o Ngāti Waewae for the proposal satisfies us that the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga has been recognised and provided for (s6(e)). There is no historic heritage or protected customary rights affected by the proposal (ss6(f) and (g)). We are satisfied that the significant risks of significant natural hazards (earthquakes and coastal inundation) can be suitably managed should those hazards impact on the operational mining pit (s6(h)).

[501] The support of Te Rūnanga o Ngāti Waewae for the proposal satisfies us that kaitiakitanga and the ethic of stewardship have had particular regard to (ss7(a) and (aa)). The mining of the mineral sands and the production of HMC represents and efficient use of that natural resource (s7(b)) and the efficient end use of energy (electrical power) (s7(ba)). The site to be mined has little, if any, amenity value. We are satisfied that the proposed landscape and riparian planting, together with compliance with GDP noise limits and the avoidance of nuisance off-site dust emissions, will maintain amenity values for adjoining properties. The proposed planting and the eventual use in perpetuity of the Clean Water Facility as a wetland will enhance the amenity values of the site (s7(d)). The Applicant's proposed riparian planting, buffer areas (including a 100 m buffer from Canoe Creek lagoon during the August to December bird breeding season) has appropriate regard to the intrinsic values of those ecosystems (s7d)) and will maintain and enhance the quality of those environments (s7(f)). The mineral sands within the site are a finite natural resource insofar as the site itself is concerned, but not in the context of the wider Barrytown Flats area. The mining of the site is not an inappropriate use of that natural resource (s7(g)). Section s7(h) is not relevant with regard to the land use consents required from GDC. We have regard to the effects of climate change insofar as that might affect sea levels and the risk of coastal inundation of the site (s7(i)). Section 7(j) is not relevant.

[502] The support of Te Rūnanga o Ngāti Waewae' for the proposal satisfies us that the Applicant has appropriately taken into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

[503] In overall terms we find that a consideration of Part 2 matters does not weigh against a grant of consent.

[150] Collins Creek and the Northern Drain are on private property and there is no right of public access to them.

Consent duration and lapsing

[504] As we noted previously, the Applicant considers that mining will take approximately 5 - 7 years to complete to full site rehabilitation. However, the Applicant has sought a 12-year consent term, to allow for contingencies and to provide operational certainty given the level of financial investment required in the proposed sand mineral mine. We find that should consent be granted, a 12-year duration as sought is not unreasonable.

[505] The Applicant has not sought an extended lapse period and so we find there would be no need to deviate from the normal lapse period of five years after the date of commencement of the consent, as specified in s 125 of the RMA.

Consent conditions

[506] We were provided with numerous iterations of recommended conditions by the Applicant and the two reporting officers. For the areas of contention that remained at the end of the hearing that we have not previously discussed in previous sections of this decision we find:

(a) We do not consider it appropriate to 'approve' the various draft management plans that were provided to us as was suggested by Mr Geddes. Instead, it is appropriate that those plans are certified by the councils, with input from external consultants if necessary. We understand that any external consultancy costs would be recoverable from the Applicant. Having said that, we are satisfied that the draft management plans that we have received are fit for purpose.

(b) For the reasons outlined above in relation to the management plans, we do not consider it necessary to require the establishment of an expert advisory panel.

(c) We agree with Mr Geddes that it is reasonable for the 'lay person' members of the Community Liaison group to be compensated for the time they spend reading materials and attending meetings. During the hearing on 20 March 2024 we noted that any such condition could however not be imposed by us as it would be a form of financial contribution. In Reply[151] Ms Booker advised that Condition 11.1 had been amended to include a requirement for the consent holder to provide a voluntary contribution to a local community group or charity, to be decided by attendees of

[151] Paragraph 107(b).

each meeting (in lieu of paying individual attendees). We find that to be a suitable response.

(d) It would be unduly onerous to require there to be no external lighting on the site, as was recommended by Mr Geddes. We are satisfied that the conditions[152] addressing that lighting are sufficient to ensure that any exacerbation of the existing risk of Westland Petrels grounding as a result of their attraction to artificial lighting is avoided to the extent practicable.

(e) In light of the preceding finding, we do not agree with Mr Geddes that the suite of lighting conditions developed by the Applicant should be deleted. We agree with Ms McKenzie that doing so would frustrate the exercise of the consent.

(f) We find that three monthly noise monitoring should only be required for the first 12 months of mining, because once the mining pit and the HMC plant are operational the noise emissions will be relatively consistent for the duration of the consent.

(g) In light of the threats to the Westland Petrel identified in Waugh and Wilson 2017, we are satisfied that there should be no overhead wiring (which we assume to be power lines) on the site as was recommended by Mr Geddes. We amended condition 7.1 accordingly.

(h) It would be unduly onerous to require mining activity to stop if a vehicle associated with the activity causes a fatality or serious injury, regardless of whether or not the driver was at fault. Any such incidents would be covered by usual Health and Safety procedures, including Work Safe and their associated legislation. Also, the Applicant is already required to review the TMP and implement the changes within 10 working days of a serious or fatal incident occurring; and

(i) Annual monitoring of the truck drivers to ensure they are complying with the requirements of the Transport Management Plan is not necessary because conditions require that complaints about driver behaviour are recorded, investigated, and fed back to the drivers. Importantly, the Applicant proposes that the trucking fleet will

[152] Conditions 16.1 to 16.7 and in particular condition 16.2 that lists nine separate requirements that any external lighting must comply with.

be required to be equipped with a GPS monitoring system. That will enable complaints to be investigated efficiently and effectively and will provide an important tool for monitoring compliance with the transport conditions of consent. We also fail to understand how any annual monitoring would be practically implemented.

[507] Over and above the matters outlined above and in previous sections of this decision, we have made amendments to the final suite of conditions that accompanied Ms Booker's Reply submissions in order to clarify their intent, remove subjective terms, and use consistent terminology. These amendments are shown in 'track changes' format in Appendix 1 attached to this decision. We also attach a 'clean' version of the conditions. We direct the GDC to provide both versions of the conditions to the Applicant and submitters. The 'track changes' version should be circulated in PDF format.

[508] Given the amendments we have made to the conditions, combined with their complexity, it is conceivable that they may now contain minor errors or omissions. Accordingly, should the Applicant or the GDC identify any minor mistakes or defects in the attached conditions, then we are prepared to issue a revised schedule of amended conditions under s133A of the RMA correcting any such matters. Consequently, any minor mistakes or defects in the amended conditions should be brought to our attention prior to the end of the 20-working day period specified in section 133A of the RMA.

Determination

[509] We grant the consents required from the GDC under the Grey District Plan as follows:

Rule	**Reason**	**Activity Status**
19.7.8(iii)	Buildings (15 m) exceed the 10m height limit in by Rule 19.7.8(i)(a).	Discretionary
19.7.12(iii)	The volume of diesel proposed to be stored on site (40,000 L) exceeds the 5,000 L limit in in Appendix 3 of the GDP	Discretionary
9.7.13(iii)	Car parking (49 spaces) does not meet minimum numbers required under Rule 24.2.1, being 2 spaces per 100 m^2 gross floor area for industrial buildings equating to 74 spaces required. The proposed car-park will not be laid out in accordance with Rule 24.2.3 that species minimum parking space dimensions.	Discretionary

Rule	Reason	Activity Status
	The proposed access design does not comply with Rule 24.3.1 that includes diagrams that vehicle crossings must comply with. The proposed vehicle movements (390 per day) onto a Strategic Route exceed the maximum (100 per day) outlined in Rule 24.	
19.7.16(iii)	The Non-Rural Activity, will breach the maximum standards specified in Rule 19.7.16(i) for floor area, vehicle movements and noise.	Discretionary

[510] We grant consents required from the GDC under the Te Tai O Poutini Proposed Plan as follows:

Rule	Reason	Activity Status
ECO-R2 ECO-R5	Clearance of indigenous vegetation in the coastal environment	Restricted Discretionary
NC-R3	Clearance of indigenous vegetation and earthworks within riparian margins.	Discretionary
NC-R4	Buildings and structures within riparian margins.	Discretionary

[511] Our reasons are detailed in the body of this decision, but in summary they include:

(a) Subject to the imposition of robust conditions of consent, the potential adverse effects of the proposal are likely to be no more than minor, and any residual adverse effects do not weigh against a grant of consent; and

(b) Granting consent for the proposal subject to those conditions would not be inconsistent with the relevant statutory instruments.

Section 4 – West Coast Regional Council Consents

[512] The application to WCRC seeks a range of consents for a Site on Barrytown Flats, State Highway 6, approximately 9km south of the Punakaiki Township and 36km north of Greymouth, to establish and operate a mineral sand mine in an area of roughly 63 ha over 12 years, including the taking of ground and surface water and the discharge of contaminants to land, water and air.

Consents required and consent category

[513] We understand it was common ground that resource consents are required under the WCRC Regional Land and Water Plan (LWP) as follows:

Rule	Purpose	Activity Status
16	To use land for earthworks and vegetation clearance within 10m of a riparian margin.	Discretionary
16	To use land for earthworks within 50m of the Coastal Marine Area.	Discretionary
16	To use land for earthworks exceeding 5000m^3 per annum.	Discretionary
55	To take and use of surface water from Canoe Creek for the purposes of mineral sand mining.	Restricted Discretionary
56	To take and use groundwater for the purposes of mineral sand mining and processing, pit dewatering and well-point pumping.	Restricted Discretionary
71	To discharge water including contaminants (dewatering water, treated mine, process and stormwater) to land where it may enter water.	Discretionary
71	To discharge ionizing radiation into water.	Discretionary
91	To discharge water including contaminants (dewatering water, treated mine, process and stormwater) to water in Collins Creek, the Northern Boundary Drain and Canoe Creek.	Discretionary
91	To discharge ionizing radiation into land	Discretionary

[514] Dr Durand considered that consents were required under the WCRC Regional Air Quality Plan (*AQP*) as follows:

Rule	Purpose	Activity Status
16	To discharge unanticipated dust emissions from stockpiling and mining activities	Discretionary
16	To discharge ionising radiation from an industrial or trade premises into air	Discretionary

[515] Dr Durand considered that consent was required under Rule 16 of the AQP for the discharge of combustion emissions, including of greenhouse gases, from operational machinery. Counsel for the Director-General of Conservation advocated that consent was required for the discharge of GHG from the proposal because those emissions were "dangerous" and on that basis the AQP permitted activity rules did not apply to them.

[516] Counsel for the Applicant agreed that s104E RMA had been repealed and greenhouse gas emissions (*GHG*) were no longer barred from our consideration. However, counsel submitted that the previous statutory bar on consent authorities considering GHG commenced on 2 March 2004, some three years after the AQP became operative. Counsel observed that the AQP specifically addressed greenhouse gases in its Chapter 9 and it took a permissive approach to GHG by way of AQP permitted activity Rules 3 and 5. Counsel submitted that because Ms McKenzie had assessed the Applicant's GHG emissions as complying with the AQP permitted activity rules, no consent was required under Rule 16.

[517] We accept counsel for the Applicant's submissions and find that consent for the emission of GHG is not required.

[518] In particular we are not persuaded that the GHG emissions likely to be generated by the proposal are "dangerous". If that were to be the case then the entire fleet of heavy vehicles in NZ would fall into that same category and that is a fanciful proposition in our view. We find that the Applicant's proposed GHG emissions are permitted under AQP Rules 3 and 5.

[519] Having said that, we note that Ms Warnock for the Director-General argued that Rule 5 of the AQP does not permit dangerous emissions. Further, in the AQP the plan notes that the terms "dangerous" is not defined (alongside "offensive" and "objectionable") because of the need to take account of case law and precedent as it develops.[153]

[520] Following from that Ms Warnock pointed out that the Supreme Court has found in *Smith v. Fonterra Co-operative Group Limited*[154] that any - even minimal - contribution to GHG's is dangerous.

[521] We addressed this interpretation question using the method described in Section 2. The terms "dangerous, offensive and objectionable' are notoriously difficult to define as the case law shows. It is an intensely factual assessment. The AQP by abjuring a definition is simply acknowledging that point.

[522] It is quite another matter to suggest that the AQP intended to exclude as dangerous GHG emissions when the Plan recognises that these are important emissions under "Global

[153] West Coast Air Quality Plan 2001, [10.2], p 54.
[154] *Smith v. Fonterra Co-operative Group Limited* [2024] NZSC 5, p 5.

Issues' but the AQP's scheme is to not impose regulatory controls. One cannot ignore that wider policy setting of the AQP even allowing for a somewhat ambulatory definition of "dangerous" to allow for circumstances as they arise [155]as part of a purposive assessment.[156]

[523] Making a mining activity that creates GHG emissions fall into an innominate class without policy guidance for assessment does not seem to be a plausible tool employed by the AQP for determining mining applications that have to be located where the minerals exist.

[524] We consider it unreasonable to interpret the AQP as now excluding GHG emissions from the permitted air discharges of a mining activity.

[525] We pointed out to Ms Warnock that the Director-General's interpretation leaves us in a position where there is almost no policy context to assess what is a routine emission from an activity. The AQP cannot have contemplated placing decision-makers in that situation.

[526] Ms Warnock's response to that is that it is a situation that decision-makers also find themselves in Australia citing *Gloucester Resources v. Minister for Planning* and we must do the best we can without policy guidance.[157]

[527] The *Gloucester Resources* is entirely different type of case not related to the interpretation of an air quality plan controlling emissions from a mining activity. Rather, it concerned whether a large coal mine produced product that would inevitably generate GHG emissions that would substantially compromise carbon zero targets and the relevance of that under NSW and Federal legislation. In conclusion, we were not persuaded by Ms Warnock's submissions that Rule 5 of the AQP does not permit GHG emissions.

[528] We understand that the Applicant did not disagree with the need for consents for the discharge of ionising radiation to land, water and air.

[529] Consequently, we find that under the 'bundling principle', the consents required under the WCRC regional plans are to be assessed as a discretionary activity.

[530] Dr Durand considered consent was required under Regulation 45D of the NES-FW to:

[155] Legislation Act, s 11.
[156] For that approach in another context see *Yemshaw v. London Borough of Hounslow* [2011] UKSC 3
[157] *Gloucester Resources v. Minister for Planning* [2019] NSWLEC 7.

(a) Use land for earthworks and land disturbance within a 100 m setback from a natural inland wetland;

(b) Take and use water within a 100 m setback from, a natural inland wetland; and

(c) Discharge water into water within a 100 m setback from a natural inland wetland.

[531] As we discussed earlier in this decision, this was a matter of contention at the hearing. We have earlier addressed the "functional need" issue.

Effects assessment

[532] We now assess the actual and potential effects on the environment of the proposed activities.

Existing environment and permitted baseline

[533] As we noted earlier, when forming an opinion for the purposes of subsection 104(1)(a) of the RMA we may disregard an adverse effect of the activity on the environment if a national environmental standard or a plan permits an activity with that effect.[158] In order to undertake a fulsome assessment of the potential adverse effects of the proposal we have elected not to disregard any effects of the proposed activity under s104(2) of the RMA.

Māori cultural values and interests

[534] We discussed Māori cultural value and interests earlier in this decision in terms of the consents required from the GDC. We adopt those findings here as they are equally relevant to the assessment of the consents required from the WCRC.

Effects on surface water bodies

[535] There are several surface water bodies located in close proximity to the Mining Disturbance Area (MDA). These include (from north to south) Deverys Lagoon, Rusty Pond, Northern Drain, Canoe Creek Lagoon[159], Collins Creek, Canoe Creek and springs

[158] Section 104(2) of the RMA.
[159] At times participants referred to this lagoon as Collins Creek lagoon.

in George and Gladys Langridge's property to the south of the MDA. Potential adverse effects on these waterbodies were of concern to many submitters we heard from[160].

[536] From the evidence of the Applicant's witnesses Stephen Millar and Jens Rekker, and contents of the AEE and the Water Management Plan[161], we understand the mining process 'water cycle' can be distinguished between 'contact water' and 'non-contact water'. For the benefit of readers, we now outline our understanding of that 'water cycle'.

[537] Non-contact water is water that has no contact with the immediate mining operation, and it primarily comprises clean stormwater runoff. The non-contact water will flow through drainage channels to the Clean Water Facility (CWF) located in the north-western corner of the site. The inflow will be initially to Pond 3 (the finishing pond) and thereafter to Pond 4 (the clean water pond). As we set out below, water from Pond 4 may flow into Collins Creek Lagoon and be used for the augmentation of the creeks.

[538] Pond 4 will be partially planted in wetland species at the commencement of mining. There will also be permanent planting on the western and northern edges of the CWF between Collins Creek Lagoon and Pond 4.

[539] Contact water will be treated as dirty water that has to be contained within the mine's water management system. That system is based on the Mine Water Facility (MWF) (Ponds 1 and 2) located to the immediate west of the Wet Concentrator Plant (WCP). The contact water system is reasonably complex:

(a) A MUP situated in the active mining void will pump the ore sand (a wet slurry) to the WCP via a pipeline;

(b) At the WCP the heavy mineral sands are separated from the lighter quartz sand waste, and the sand waste (also a wet slurry) will be pumped back to the rear of the mining void as part of the rehabilitation process;

(c) Water (inflowing groundwater and rainwater) ponding in the base of the mining void, along with stormwater collected from the area around the WCP, will be pumped to

[160] Including Susanne Hills, Nicola Calcott, Rianne Klempel, Sharon Langridge, Ros Williams, Robyn Langridge, George and Gladys Langridge, Dr Gamlen-Green, Don Kerr, Roseann Gamlen-Green, the Coast Road Resilience Group and Nicky Snoyink (RFBPS).
[161] Appendix I1 to the AEE.

Pond 1 (the 'dirty water pond). Pond 1 has a forebay where sediment settles out, aided by the use of flocculants and aeration;

(d) Excess water from the WCP process also discharges into Pond 1;

(e) Pond 1 water flows into Pond 2 (the 'clean water pond');

(f) Water from Pond 2 discharges into the central drain (which is lined with limestone to reduce water hardness) and the central drain discharges into Pond 3. Water from Pond 2 is also used in the WCP when necessary; and

(g) A cyclone 'may' be used to further treat water discharged from Pond 2.

[540] Water from Pond 3 flows into Pond 4 and the water in Pond 4 is utilised in the following hierarchical order:

(a) Firstly, recharging groundwater through a system of infiltration trenches and bores situated along the western, northern and southern MDA boundaries (we discuss the efficacy of this below);

(b) Discharging water that meets water quality 'thresholds' into Canoe Creek Lagoon by way of an overland flow path;

(c) In the event that the proposed infiltration trench system is insufficient to avoid surface water depletion, Pond 4 water will be used to directly augment surface water flows in Collins Creek or the Northern Drain, if it meets water quality standards;

(d) Discharging excess water which does not meet water quality standards to the Canoe Creek Infiltration Basin. Water discharged to this trench is expected to enter the shallow underlying groundwater system and flow through this system to Collins Creek[162]. If the capacity of the infiltration basin is exceeded, the overflow from the basin will be discharged by way of overland flow to the riverbed at the mouth of Canoe Creek.

[541] The WCP may require an initial water take from Canoe Creek. The point of take will be located adjacent to the existing farm access track near the coast. The maximum rate of take

[162] JWS Rekker and Sinclair, 6 March 2024.

will be 63 L/s. Additional water may be abstracted from time to time to top up the MCP. For streams with mean flows less than or equal to 5 m^3/s, guidance in the 'Proposed National Environmental Standard on Ecological Flows and Water Levels: Discussion Document" promulgated by MfE in 2008 is that allocation (the total rate of water abstracted) from watercourses like Canoe Creek should not exceed 30% of the mean annual low flow (MALF). The mean flow of Canoe Creek is around 3 m^3/s and so that guidance is applicable here[163]. The MALF of Canoe Creek downstream of SH6[164] is 630 L/s and so the allowable allocation would be 189 L/s, which is significantly greater than the Applicant's proposed rate of take. We therefore have no issue with this aspect of the proposal.

[542] The surface water bodies located in close proximity to the MDA can be potentially affected by the Applicant's proposal in two other ways:

(a) By loss of volume (the lagoons) or flow (the drain, creeks, and springs) caused by an induced drawdown of the local groundwater level resulting from groundwater flowing into the mining void; and

(b) By the discharge of mining process augmentation water into the surface water bodies.

[543] We address the first potential effect here and the second potential effect in the next section of this decision.

[544] The mining void (or mining pit) will be up to 9 m deep below ground level. The existing groundwater level in the MDA is very close to the ground surface, as evidenced by the farm being previously 'humped and hollowed' to drain the pasture. The mining void will act much like a groundwater well, causing a cone of depression in the surrounding groundwater as that groundwater flows into the mining void. As outlined above, ponding water accumulating in the base of the mining void will be pumped out.

[545] The issue here is that in an unconfined aquifer, the 'cone of depression' can cause the depletion of surface water resources (the creeks, lagoons, wetlands, and springs in the Langridge property to the south of the MDA) if the depressed groundwater level (the 'cone

[163] Section 2.5.3 of Attachment I to the AEE.
[164] Section 2.5.3 of Attachment I to the AEE.

of depression') reaches those resources. The Applicant's response is to use a series of infiltration trenches located around 20 m landwards from the respective edges of the mining voids. Those trenches will receive water from Pond 4, and in the words of Mr Rekker, create a 'groundwater curtain' (or localised mounding of the groundwater level) that will avoid the depletion of the surface water resources by preventing the 'cone of depression' reaching the surface water resource. We understand the key mechanism is to ensure the groundwater level in the vicinity of a trench is above the water level in the nearby surface water body[165].

[546] The need to use the infiltration trenches will be guided by groundwater level monitoring carried out in a network of piezometers (monitoring bores) around the MDA. A drop in groundwater levels near a mining void will result in the initiation of the relevant infiltration trenches.

[547] Mr Rekker advised that trial sections of infiltration trenches undertaken in September 2023 had shown that the unit acceptance rate into the shallow groundwater would be 2.9 m^3/s per metre of trench. That acceptance rate was consistent with the preliminary design rate indicated in the AEE and demonstrated the capacity of the ground to accept water at the rates envisaged by the Applicant[166]. The trials were fully described in a report that formed Appendix 2[167] to Mr Rekker's evidence.

[548] Another mitigation system will involve the installation of an injection bore array near the MCP, adjacent to Collins Creek, or along the Northern Boundary Drain. This system will aim to raise local groundwater levels or pressures, avoiding the spread of lowered groundwater levels or pressures beyond the MDA Site boundaries. In the words of Mr Rekker, this would also 'bolster' the flow of springs in George and Gladys Langridge's property and groundwater levels in harakeke wetlands between the Kahikatea Forest and Rusty's Lagoon. Mr Rekker advised that the capacity for a bore trial undertaken over 24 hours was 5L/s with a small above-ground injection pressure[168].

[165] JWS Rekker and Sinclair, 6 March 2024.
[166] SOE Rekker, paragraphs 91(a) and 126.
[167] TiGa Minerals & Metals Ltd Report No: Z22004-4-Rev0 Barrytown, Coates Block Hydrological Revision: Injection and Infiltration Trials, Conceptual & Groundwater Model Re-Model. KSL. DRAFT (17 November 2023).
[168] SOE Rekker, paragraphs 127 to 129.

[549] Mr Rekker advised that the infiltration trench system is focused on shallow groundwater level management, while the injection bore system has a deeper focus on the basal gravels beneath the mineral sands layers[169].

[550] A 6 March 2024 JWS[170] addressed the injection bore system. We consider that the key matters of agreement in that JWS were:

(a) The water injection trial represents a reasonable proof of concept with respect to the use of treated mine water to manage potential groundwater drawdown around the edges of the proposed mine;

(b) The injection pressure and flow rate applied in the pumped bore injection test were higher than what would be applied under operational mining conditions[171];

(c) A line of injection bores can be designed to generate overlapping groundwater mounding effects with separation distances of at least 32 m between bores, however the number of injection bores required and their spacing would be optimised through system testing during the early stages of the mining operation. In areas where the buffer zone is approximately 20 m wide, the injection bores would be installed close to the adjacent surface water body to minimise movement of injected water back toward the open pit; and

(d) That positioning would leave no room to install groundwater compliance monitoring wells between the injection bores and the surface water body, as was proposed in the Water Management, Monitoring and Mitigation Plan. Groundwater monitoring wells would be more appropriately positioned halfway between adjoining injection bores.

[551] From the evidence, it appears to us that the potential depletion of the lagoons only really becomes a significant issue when Panels 4 to 8 are mined, because Panels 1 to 3 are sufficiently distant from Canoe Creek Lagoon, which is the first lagoon to be potentially impacted as mining proceeds from south to north across the MDA. Monitoring of

[169] EIC Rekker, paragraph 130.
[170] Rekker and Sinclair.
[171] The test resulted in injection water uprising around the bore casing and a spring developed around 13 m from the bore.

groundwater responses to mining (using piezometers) to the south and west of Panels 1 to 3 will enable the infiltration trench methodology to be refined before Panel 4 is initiated.

[552] However, Collins Creek is proximate to Panel 1, and the Northern Drain is proximate to Panels 7, 8 and 10. Those surface waterbodies may also be affected by surface water depletion. Mr Rekker advised that test bores indicated that the margins and beds of Collins Creek and the Northern Drain were associated with a pronounced thickening of the clay-rich, low permeability overburden up to 3 m thick. That partially hydrologically isolated those waterbodies from the underlying groundwater system, reducing the potential for surface water depletion to occur. Nevertheless, if hourly flow monitoring of Collins Creek[172] identifies[173] that mining induced depletion is occurring, then the flow in Collins Creek would be augmented by water obtained from Pond 4.

[553] In that regard the Applicant proposes to maintain 90% of the MALF in Collins Creek. The MALF is 16 L/s and so the minimum flow during mining operations would be around 14 L/s. That approach is consistent with guidance for setting allowable minimum flows in streams with mean flows less than or equal to 5 m^3/s contained in the 'Proposed National Environmental Standard on Ecological Flows and Water Levels: Discussion Document".

[554] Mr Rekker considered[174] that the surface waterbody depletion "mitigation measures specified and indicated outcomes have a high probability of success in preventing loss of flow or decline in water levels, beyond natural variation, in any" of the potentially affected surface waterbodies. Professor Brian McGlynn[175] was less convinced and was of the opinion that "infiltration galleries or subsurface water injections could[176] be highly problematic" due to (as we understand his evidence) the high local groundwater levels making it hard to 'force' additional water into the ground.

[555] The WCRC engaged Brett Sinclair to peer review the hydrological aspects of the Applicant's proposal. His verbal advice to us was that the Applicant only needed to manage the groundwater system between the open mining voids and the nearest surface water body, considering that a backfilled void might not yet have become saturated[177]. He

[172] We understand the Northen Drain has no regular flow.
[173] By comparing flow upstream of the MDA to flow downstream of the MDA.
[174] Summary Statement, paragraph 10.
[175] An expert witness called by Robyn Langridge. Summary Statement paragraph 24.
[176] At the hearing he amended his written evidence from "would' to "could".
[177] Once saturated the backfilled void would preclude any 'cone of depression' impacting on the lagoons.

considered that the Applicant's proposed piezometer network was a reasonable way of monitoring groundwater levels. He also told us that it would not be all that difficult to maintain groundwater levels (or pressures) between the open mining voids and the adjacent surface water features. He was satisfied that the viability of the infiltration trenches had been tested in the Applicant's trials.

[556] Regarding the springs in the Langridge property to the south of the MDA, Mr Sinclair considered that provided groundwater levels (or pressures) between the mining voids and Collins Creek were maintained at or above the water level in Collins Creek at low to median flows, it was highly likely that there would be little to no impact on those spring flows.

[557] In conclusion, Mr Sinclair saw no reason why the Applicant's proposed hydrological mitigation methodology would not minimise any adverse effects on the surrounding surface water resources. We note that the 6 March 2024 JWS between himself and Mr Rekker concluded with "In summary, it is reasonably expected that a groundwater recharge system can be installed and managed in a manner consistent with preventing surface water and off-site groundwater resource depletion, either in terms of flows or water levels."

Finding

[558] On the available evidence from the qualified experts, we are satisfied that the Applicant's proposed hydrological mitigation methodology is sufficiently robust to avoid, with a reasonable level of certainty, any significant adverse effects on adjacent surface water resources.

Water quality discharge standards

[559] Potential adverse effects on the water quality in adjacent waterbodies was of concern to a number of submitters that we heard from[178].

[560] As we outlined in the previous section of this decision, the Applicant intends to discharge treated water from Pond 4 into Canoe Creek Lagoon and may discharge augmentation water from that pond into the Northern Drain, Collins Creek, or Canoe Creek. It is important that, consistent with Objective 2.1(1)(a) of the NPS-FM 2020, that in assessing

[178] Including Nicola Calcott, Rianne Klempel, Robyn Langridge, George and Gladys Langridge, Dr Gamlen-Green, Don Kerr, and the Coast Road Resilience Group.

the Applicant's proposal we prioritise the health and well-being of those waterbodies and their freshwater ecosystems[179].

[561] Mark Roper (a freshwater ecologist) advised us that the freshwater ecological values of the Northern Drain were 'low'. The section of Collins Creek adjoining the MDA has 'high' ecological value due to the presence of 'At Risk' (Declining) fish species. Canoe Creek has 'high' ecological value due to the presence of 'At Risk' (Declining) fish species and its higher quality and less modified habitat[180].

[562] Mr Rekker assessed the likely condition of the water that would be pumped from the mining void by modelling a mix of groundwater upwelled from the base of the void and groundwater entering the void from the pit walls[181]. The pumped water will undergo a variety of treatments before it eventually enters Pond 4. Consequently, we have focussed our attention on the Applicant's proposed discharge 'thresholds' for the Pond 4 water. This was addressed in the evidence of Dr Michael Fitzpatrick.

[563] Dr Fitzpatrick assessed the effects of those discharges by modelling treated groundwater (Pond 4 water) with the respective surface waters at their median baseline quality and median and MALF flow levels using conservative dilution ratios. The modelling showed that discharges at the stated ratios, with hardness and pH adjustments, of Pond 4 water to receiving waters would not result in exceedances of relevant metals and metalloids guidelines, which are designed to protect aquatic biota.

[564] Turning to nutrients[182], modelled average ammoniacal-nitrogen concentrations in the receiving waters placed them within either the NPS-FM (2020) A or B-bands and modelled nitrate nitrogen concentrations placed them within the NPS-FM (2020) A-band. Dr Fitzpatrick expected no effect on aquatic biota from those parameters. He advised that there was potential for a change in the dissolved reactive phosphorous (DRP) attribute state at the Collins Creek downstream monitoring site, from the B-band to the D-band, but he considered the treatment of the water pumped from the mining void or discharged from the MCP by way of combined settlement, flocculation and clarification, would result

[179] We understand that the water in Collins Creek and the Collins Creek Lagoon is not used as a source of potable water and so Objective 2.1(1)(b) is not relevant.
[180] Summary Statement, paragraph 4.
[181] Deeper groundwater was mixed with shallower groundwater in the ratio 80:20.
[182] We understand that excess nutrients could lead to the proliferation of nuisance periphyton in the creeks or eutrophication in the lagoons.

in the reduction of DRP concentrations such that either no change, or an improvement, would be realised[183].

[565] Finally, regarding suspended sediments (which have a direct bearing on visual clarity), Dr Fitzpatrick considered the Applicant's intent to control suspended solids and turbidity discharges through combined settlement, flocculation, and clarification, was standard mining practice that was able to achieve low turbidity values under day-to-day operating conditions. Consequently, he concluded that the proposed discharges should not result in elevation of receiving water turbidity values beyond the surface waterbodies' baseline ranges.

[566] For his part Mr Roper agreed with Dr Fitzpatrick and he concluded that adverse effects associated with altered water quality on aquatic biota were not expected[184].

[567] The Applicant's offered conditions of consent[185] set out thresholds (or standards) for metals, metalloids and non-metals. The discharge thresholds are based on either 90%ile or 95%ile[186] levels of protection for aquatic species which is appropriate. The metal and metalloid thresholds are derived from either USEPA or ANZECC guidelines, which we understand to be standard practice.

[568] However, it appears to us that the offered conditions apply the thresholds in the receiving waters at the in-stream monitoring sites shown in Schedule 8 of the conditions. While we appreciate that receiving water standards are usually measured in a waterbody after reasonable mixing has occurred[187], in this case for the 'thresholds' to be of practical use they need to apply to the actual discharge. That means that the 'thresholds' must be measured and applied at the outlet from Pond 4 as well as the receiving environment sites, whether that be the overland flow path to Canoe Creek Lagoon or a pumped outlet from Pond 4 if the pond water is to be used for the augmentation of flows in the Northern Drain, Collins Creek or Canoe Creek.

[183] EIC Fitzpatrick, paragraphs 31 to 34.
[184] Summary Statement, paragraph 8.
[185] Condition 25.2 containing Table A (metals and metalloids) and Table B (suspended solids and DRP).
[186] For arsenic, boron, cadmium, chromium, lead, manganese, nickel and zinc.
[187] Noting that Dr Fitzpatrick advised us it was better to monitor water quality in the creeks and not the lagoons.

[569] In that regard the Applicant's conditions required the discharges from Ponds 2 and 4 to be monitored for metals on a quarterly basis and for turbidity on a continuous basis[188]. We find that the conditions need to clearly state that direct discharges of Pond 4 water to the receiving surface water bodies can only occur if that quarterly and continuous monitoring shows that the Thresholds set out in Tables A and B in Condition 25.2 are not exceeded in the Pond 4 water.

[570] Finally, we note that Dr Fitzpatrick advised[189] that the proposed discharges to surface water would fulfil the requirements of RMA section 107(1)(d), most notably that they will not result in any conspicuous changes in colour or visual clarity and would not result in any significant adverse effects on aquatic life. We received no qualified evidence that contradicted Dr Fitzpatrick's advice to us.

Finding

[571] On the available evidence we are satisfied that the proposed water quality thresholds are sufficiently conservative so as to avoid any significant adverse effects on water quality in the receiving surface water bodies and their associated freshwater ecosystems, if they are applied to any discharge of Pond 4 water to surface waterbodies.

Effects on groundwater

[572] There are two aspects of potential adverse effects on groundwater that we need to address. These are firstly groundwater flows and secondly groundwater quality.

[573] As we have noted previously, the mining voids will be up to 9 m deep. Those voids will be 100 m wide and 300 m long. As such the voids will disrupt the natural groundwater flow because groundwater will flow into the void through the mine pit walls and possibly also upwell through the base of the void. This is an unavoidable effect and so we need to consider its significance.

[574] In that regard we observe that the majority of the MDA will not be actively mined at any one time and the unmined area will continue to convey groundwater from SH6 towards the coast. That is incontrovertible because there is at least 13 m to 10 m of fall between

[188] Condition 26.2.
[189] Summary Statement, paragraph 8.

the SH6 and the coast[190]. Groundwater that seeps into the open mining void will eventually be discharged either back into the groundwater around the periphery of the MDA or into adjacent surface water bodies. In response to our questions at the hearing, Mr Sinclair was of the opinion that, while during the mining operation the rate of groundwater flow towards the coast would change, groundwater would still flow through the site and report to the lagoons or the sea. We are therefore satisfised that effects on groundwater flows during mining will not be significant.

[575] Some submitters were concerned that the mining process would permanently disrupt groundwater flows. Professor McGlynn in particular was concerned that might occur. For example, he stated[191] "Mining will undoubtedly change the (hydrological) system" and "hydrological and ecological conditions in the area will be permanently altered and natural conditions and dynamics sacrificed."

[576] Mr Miller described the methodological placement of processed tailings in the wake of the actively mined void that will occur by way of a cyclone system followed by the placement of overburden, subsoil and soil materials that were previously separated and temporarily stockpiled in preparation for rehabilitation. We do not consider the scenario postulated by Professor McGlynn to be a plausible outcome, because the hydraulic head across the site will still cause groundwater to flow from SH6 to the coast through the rehabilitated mining voids.

[577] Turning to potential adverse effects on groundwater quality, we conclude that no such effects are likely to arise because the water that will be discharged back into the ground (by way of infiltration trenches or infiltration wells) will be the same groundwater abstracted from the parent aquifer, either from the base of the mining void or from the MCP discharge. The discharged groundwater will be treated and subject to conservative discharge thresholds (as outlined above).

[578] In terms of the tailings from the MCP deposited back into the mining void, at the hearing, Dr Fitzpatrick advised us that the tailings would be chemically stable as they would be saturated with groundwater. There would be no change to their composition from a

[190] Evident from the cross-sectional profiles in Appendix) of the AEE "Rehabilitation Management Plan".
[191] SOE McGlynn, paragraph 29.

geochemical point of view. We infer that it is unlikely that the deposited tailings could cause adverse effects on groundwater quality.

[579] Finally, there is the matter of potential saltwater intrusion into the fresh groundwater aquifer underlying the MDA. Mr Rekker advised that: given the high rainfall - high runoff setting of the Barrytown Flats, the presence of fresh groundwater right up to the coastline at depth, the significant slope on groundwater gradients into the Canoe Creek Lagoon, and the relatively modest pumping rates from the mining voids; there was a high degree of certainty that seawater intrusion would not result from the proposed mining activities. This low level of risk was confirmed by computer modelling[192]. We heard no qualified evidence to the contrary, so we accept Mr Rekker's advice.

[580] We conclude it is highly unlikely that there will be any degradation of the existing groundwater quality.

Finding

[581] On the available evidence we conclude that there will be no significant adverse effects on groundwater flows or groundwater quality, either in the short-term, during mining or after mining has ceased and the MDA has been rehabilitated.

Erosion and sediment control measures

[582] As with any proposal that involves large scale earthworks, it is necessary to employ mitigation measures intended to avoid, or at least minimise, erosion in and around the earthwork areas and the subsequent runoff of sediment laden stormwater into adjacent surface waterbodies. The mitigation measures are generally contained in an 'erosion and sediment control plan' that may or may not be subject to Council certification. There are industry standard practices for how this should occur, and many councils have developed guidelines to assist developers with this task.

[583] In this case, evidence on erosion and sediment control measures was provided by Graeme Ridley. Mr Ridely prepared an Erosion and Sediment Control Plan (ESCP) that addresses both the construction and operational stages of the Applicant's proposal. The ESCP applies the principles and practices documented in the "Erosion and Sediment Control

[192] SOE Rekker, paragraphs 37 and 38.

Guide for Land Disturbing Activities in the Auckland Region. June 2016, incorporating Amendment 2 (February 2020) (GD05 Guidelines)". We understand those guidelines to be widely accepted as being 'state of the art' in terms of erosion and sediment control.

[584] Mr Ridley advised that the ESCP will provide an overarching approach to water management on the Applicant's site and is based on the provision of a detailed Site Specific ESCP (SSESCP) prior to construction earthworks commencing. The SSESCP will include specific design details for the earthworks (including the MCP site, the water treatment ponds, the bunds and the access road) and will provide the WCRC with an opportunity for further input into the proposed erosion and sediment control methodologies. The SSESCP will be reviewed annually and submitted as part of the Applicant's Annual Work Programme, reflecting the water management measures proposed for construction and mining for the following 12 months[193].

[585] We note that conditions[194] proposed by the Applicant require the Annual Work Programme to be submitted to the "Consent Authorities" for certification. We understand that certification will be undertaken jointly by the GDC and the WCRC.

[586] Mr Ridely considered that because the Applicant has committed to having a maximum area open at any one time of 8.0ha (including bund establishment and road access), that would enable progressive stabilisation to be implemented as mining progressed across the MDA. He advised that would greatly reduce the risk of sediment generation and undesirable offsite turbid water discharges.

[587] Mr Ridely attached a copy of the proposed ESCP as Annexure A to his evidence[195]. We have reviewed that document and find it to be comprehensive, appropriate, and consistent with other ESCP's that we have viewed for other projects involving significant (multi-hectare) earthworks.

Finding

[588] We accept Mr Ridley's evidence on these matters and observe we received no qualified evidence to the contrary. We find that subject to compliance with the ESCP and SSESCP,

[193] Summary Statement, paragraphs 6 and 7.
[194] Condition 5.1
[195] Barrytown Mineral Sand Operation, Erosion and Sediment Control Plan, TiGa Minerals and Metals, Ridley Dunphy Environmental Limited, 17th January 2024, Final - Version D

the potential adverse effects associated with erosion and sediment laden runoff will be no more than minor.

Dust

[589] Several submitters were concerned about dust[196].

[590] The construction-related earthworks and operational mining activities can generate dust. If that dust is carried off-site by prevailing winds, then it has the potential to result in adverse nuisance and health effects for nearby residents and businesses. The management of dust is routinely part and parcel of erosion and sediment control measures. However, we address it separately here as dust was of particular concern to a number of submitters[197]. We do not deal with the potential radioactive nature of the dust because we discuss radiation related matters elsewhere in this decision.

[591] Mr Ridley addressed dust management. He advised that the stabilisation of earthworks for dust minimisation purposes at the Applicant's site intended achieving an 80% vegetative cover or non-erodible surface over exposed areas and that stabilisation would be progressively implemented. In his experience, dust management for earthwork activities was relatively easy to manage with the provision of an appropriate water supply and water application ability (such as a water cart). He noted the Applicant's site would largely be a "wet operation", and any further water application with water carts or sprinklers could easily be implemented[198].

[592] The Applicant has prepared[199] a Dust Management Plan (DMP)[200]. Table 4.1 of the DMP specifies dust mitigation measures relating to earthworks, stockpiles, unpaved surfaces (including haul roads and the area around the WCP), sealed surfaces, vehicle movements and material handling. Mr Ridley advised that while he was not the primary author of the DMP, he had reviewed its content and could confirm that the approach of having a DMP Plan with supporting consent conditions was an effective means of dust management and the DMP would achieve its intended outcomes if implemented[201].

[196] Including Anne Inwood, David Morre, Chris Cromey and Rosemary Mirza.
[197] Including Tammy Ward, Chris Cromey, Anne Inwood, David Moore and Rosemary Mirza.
[198] SOE Ridely, paragraphs 27 and 61.
[199] The author was John Berry.
[200] Attachment K to the AEE.
[201] SOE Ridley, paragraph 62.

[593] In response to our queries at the hearing, Mr Ridley provided further advice[202] on the DMP. He confirmed that the primary dust control measures for most earthwork operations was application of water and ensuring that the water was applied at a rate that minimised dust generation, and any subsequent dust discharges from the site. Other measures such as vehicle speed limitations and minimising drop heights were important considerations. Mr Ridley reemphasised the benefits of the progressive stabilisation of earthwork areas and the limit on open disturbed areas proposed by the Applicant, both of which he considered would assist significantly in minimising dust generation. Mr Ridley concluded that Table 4.1 of the DMP represented best practice measures.

[594] In regard to the matters addressed by Mr Ridley, we observe that vehicles must not exceed 15 km/hr on-site at all times to avoid dust generation[203] . If wind measured at the meteorological station on-site exceeds 20km/hr, the Applicant must limit activities that generate dust downwind of sensitive receptors identified in the DMP, conduct frequent visual inspections of exposed earthwork areas, and assess the need for additional controls such as increase water application rates[204]. We find that to be appropriate.

[595] The conditions[205] proposed by the Applicant require the preparation of a DMP to be certified by the Councils.

[596] Regarding dust monitoring, the DMP requires daily visual monitoring for dust and inspections of potentially dust-generating areas. The Applicant also intends to install four Dust Deposition Gauges on the site boundary. The Applicant's Offered Conditions[206] impose a dust deposition standard of $4g/m^2/30$ days above background levels, and if that standard is breached, a requirement to "investigate possible reasons for the breach and take all necessary steps to achieve compliance in the following 30-day period".

[597] We have no issue with the dust deposition standard of $4g/m^2/30$ days as we understand it to be the recommended trigger level for deposited solids in the Ministry for the Environments guideline "Good Practice for Assessing and Managing Dust*"* in November 2016. However, in appreciation of the dust modelling undertaken by submitter Chris Cromey, we consider that the conditions should require the number and location of the

[202] Technical Memorandum dated 7 February 2024.
[203] Condition 27.2.
[204] Condition 27.3.
[205] Condition 6.1 and 27.1
[206] Conditions 28.3 and 28.4

dust deposition gauges to be subject to specific certification by the Councils. That will be achieved by a requirement for the DMP to be certified by the Councils.

[598] We observe that the dust deposition conditions outlined above are in addition to a routine condition[207] that requires "no offensive or objectionable discharge of dust into air from the minerals extraction, processing and loading operations that results in an adverse effect beyond the legal boundary of the site". That condition will enable the Councils to undertake normal compliance and enforcement actions if off-site dust does create an adverse effect.

[599] Subject to the qualifications outlined above, we are satisfied with the overall robustness of the proposed dust management measures.

Finding

[600] On the evidence, we are satisfied that provided the Dust Management Plan is adhered to, the risk of off-site dust being a nuisance will be minimised to the extent practicable. If off-site dust discharges do occur, then conditions relating to the use of dust deposition gauges will enable any significant discharges to be identified and responded to.

Radiation

[601] Naturally occurring radioactive materials (NORMs) are materials that contain radioactive elements and emit ionizing radiation. NORMs are ubiquitous in the environment, including in the mineral sands that are proposed to be mined by the Applicant. Many NORMs are part of natural decay chains that start with radioactive Uranium or Thorium, which have extremely long half-lives and decay to other isotopes and eventually to a stable isotope of Lead[208].

[602] Processing operations may lead to a build-up of certain elements either in the product, by-product, or waste, which may increase concentrations of NORMs to a level that warrants controls to protect people and the environment from radiological hazards[209]. The issue for us to consider is whether or not that is likely to be the case here.

[207] Condition 28.1.
[208] Peer Review of Radiological Assessment conducted by IHC Mining titled, "Radioactivity of BJV Material Tested Project 2019, 4 December 2023, Michael Lechermann (Technical Lead Environmental Radioactivity) and Cris Ardouin (Technical Lead Radiation Safety), ESR.
[209] Summary Statement, 13 February 2024, Cris Ardouin.

Radioactivity levels

[603] For the Applicant, Mitch Ryan advised that a 2.5 tonne sample representing high-grade Barrytown ore was excavated in May 2022 at near surface depths and was delivered to IHC Mining in Queensland, Australia. That ore sample was calculated to contain an indicative specific radioactivity of 0.28 Bq/g *in-situ* (undisturbed, in-ground) based on Uranium and Thorium "U+Th" assay. The heavy mineral concentrate (HMC) was calculated to contain an indicative specific radioactivity of 0.66 Bq/g based on U+Th content[210]]

[604] A second bulk sample[211] totalling 1.4 tonnes and representing average grade Barrytown ore was composited[212] by the New Zealand Institute of Minerals to Materials Research (NZIMMR). It was calculated to contain an indicative specific radioactivity of approximately 0.16 Bq/g in-situ based on "U+Th" assay. The average grade HMC material resulting from the average grade ore was calculated to contain indicative specific radioactivity of 0.72 Bq/g based on U+Th content.

[605] Following ESR's peer review that was commissioned by GDC, samples of the produced HMC from the high-grade sample and the average-grade sample were submitted for radiological analysis at by SGS laboratories in Melbourne, Australia. Mr Ryan explained that SGS analyses the samples for the specific activity levels of their full radiological decay chain, rather than just U+Th. The sum of the average measured activities for each HMC decay chain[213] were 0.66 ± 0.06 Bq/g for the high-grade sample and 0.70 ± 0.11 Bq/g for the average-grade sample.

[606] Mr Ryan explained that NZIMMR also conducted a test work programme to assess the radioactivity of typical Barrytown ore, HMC, tailings and slime streams. The sum of the average measured activities for each decay chain was as follows: Ore 0.66 ± 0.06 Bq/g; Slimes 1.17 ± 0.15 Bq/g; HMC 0.87 ± 0.13 Bq/g; and Tailings 0.51 ± 0.05 Bq/g[214].

[607] Chris Ardouin (ESR peer review co-author) advised that Schedule 2 of the Radiation Safety Act 2016 (the RSA) lists and defines "acceptable levels" for individual radionuclides. The provisions of the RSA do not apply to material that contains radionuclides below these

[210] SOE Mitch Ryan, paragraph 16.
[211] That sample was a composite concentrated from 338 drill sub-samples.
[212] This HMC sample was a composite concentrated from a set of 111 drill sub-samples.
[213] Heads of chain: U238, Th232, U235, K40.
[214] SOE Mitch Ryan, paragraph 23.

"acceptable levels". The "acceptable levels" for the relevant Uranium and Thorium radionuclides are 10 Bq/g.

[608] Based on the sampling described by Mr Ryan we can conclude that the provisions of the RSA do not apply to the Applicant's proposal.

[609] Mr Ardouin noted that an activity concentration of 1 Bq/g is a generally-accepted level for naturally occurring materials containing Uranium or Thorium, below which a potential source of radiation exposure, such as an ore or mineral concentrate, can be considered inherently safe. We observe that other than the slimes, the radioactivity levels described by Mr Ryan are all below that threshold.

Transportation of the HMC

[610] Mr Ardouin advised that the transport of radioactive materials must be undertaken under the IAEA Regulations for the Safe Transport of Radioactive Material (IAEA SSR-6)[215]. These regulations are implemented in New Zealand through the Ministry of Health's Code ORS C6, Code of Practice for the Safe Transport of Radioactive Material and regulations, including the Land Transport Dangerous Goods Rule (2005).

[611] The IAEA regulations state, "*these Regulations do not apply to any of the following: (f) Natural material and ores containing naturally occurring radionuclides, which may have been processed, provided the activity concentration of the material does not exceed 10 times the values specified in Table 2*". The values quoted in Table 2 for uranium and thorium are1 Bq/g. Consequently, the activity concentration at which the Regulations would apply is 10 Bq/g.

[612] Mr Ryan and Mr Ardouin both concluded that the Applicant's HMC activity concentrations were well below the threshold for application of the IAEA Transport Regulations.

Adequacy of sampling

[613] Notwithstanding the above conclusions, Mr Ardouin considered that there was not enough information in the reports referred to by Mr Ryan to enable him to be satisfied

[215] The New Zealand radiation safety legislation makes use of mandatory Codes of Practice to prescribe more detailed requirements specific to the different types of radiation sources and their uses. There is no specific Code that deals with NORMs in mining and mineral processing.

that the results of the ore samples were sufficiently accurate or that enough sampling and assessment had been done. He recommended that additional sampling and testing using radionuclide analytical techniques be undertaken, after which the radiological risks posed by the Applicant's Proposal should be re-evaluated.

[614] Mr Ardouin's concern in that regard was shared by Brain Lunt[216], a witness called by CRRG. Mr Lunt believed that the three aggregate samples discussed by Mr Ryan did not constitute a statistically meaningful sample; on that basis, a conclusion could not be reached that the RSA did not apply[217].

[615] In response Mr Ryan advised that he understood the heavy mineral content in the 1,500 samples tested in the NZIMMR on-site drilling programme was reasonably consistent. On that basis, the low-moderate levels of variance in the measured radioactivity HMC samples would not result in the radionuclide concentration of the material increasing ten to twenty-fold, which is what would be required to cause the HMC to exceed the 'acceptable level' of 10 Bq/g.

[616] Mr Ryan helpfully provided further evidence on this matter[218], which was attached as an annexure to Ms McKenzie's end of hearing evidence statement. Mr Ryan advised that he had received and reviewed the individual results from the 2,274 drill samples. Those samples were analysed using a handheld XRF device for Thorium (Th). Uranium (U) was not measured, so while a reliable radioactivity (Bq/g) reading could not be inferred from those XRF assays, Mr Ryan was confident that the variability of radioactivity expected within the concentrated HMC could be provided by the Thorium assay, because Uranium and Thorium typically scale together[219]. That seems to us to be a reasonable conclusion to draw.

[617] The 2,274 samples yielded an average Thorium content of 25 ± 13 ppm[220]. The maximum Thorium reading of 73 ppm was 2.8 times higher than the average. The drill sample data shows that the mineral sands have consistently low Thorium levels and that there is a low

[216] Mr Lunt gave evidence as an independent qualified consultant Medical Physicist and not as a member of the Australasian College of Physical Scientists & Engineers in Medicine, International Accreditation New Zealand or the Radiation Safety Advisory Council.
[217] Statement of evidence of Brian James Lunt, for Coast Road Resilience Group Inc, Topic Radiation Safety Management & Monitoring, Dated: 25 January 2024.
[218] Supplementary Statement of Mitchell Ryan, 19 March 2024.
[219] Supplementary Statement of Mitchell Ryan, 19 March 2024, paragraph 3.
[220] Mr Ryan produced a spreadsheet showing all of the 2,274 sample results.

degree of variance throughout the MDA. Mr Ryan advised that the Thorium levels in the 2,274 samples were consistent with the levels of Thorium measured in the average and high-grade bulk samples (24ppm and 66ppm, respectively) that we discussed above, which confirms that those bulk samples are representative of the Barrytown resource.

[618] Relating the Thorium ppm data to Bq/g, Mr Ryan noted that the average grade Barrytown ore bulk sample assayed at 26 ppm U+Th. The HMC produced from that bulk sample was measured at 0.70 ± 0.11 Bq/g. Consequently, there would need to be an increase in radioactivity of approximately 14x across mineral sands in the MDA for the HMC to reach the 10 Bq/g level, where it would be classed as radioactive under the RSA. Based on the 2,274 samples assayed to date, that is not a plausible outcome.

[619] On that basis, we find that there is no need for an MDA-wide survey of radioactivity levels in the mineral sands.

[620] However, Mr Ardouin suggested that measurements inside the HMC processing building (once constructed) should also be carried out before operations to determine background gamma radiation, particulate airborne activity, and radon. We discuss that matter next.

Radon

[621] As noted by Mr Ryan[221], submitter Dr John Philip Bradley raised concerns regarding the radioisotope radon. Radon, specifically Rn-222 (or 222Rn), is a decay product of natural Uranium and Thorium. Radon is of particular concern due to its natural state being gaseous and, therefore its mobility in air. Mr Ryan advised that acceptable airborne radon levels above ambient levels are not defined within the RSA. He, consequently referred to the International Atomic Energy Agency Safety Standards No. GSR Part 3.

[622] Mr Ryan considered that due to the low levels of Uranium and Thorium in the ore and HMC, Rn-222 levels would remain well below the IAEA Safety Standard, so monitoring for airborne Radon was not required. He nevertheless recommended a consent condition to incorporate airborne Rn-222 monitoring in the HMC stockpile building into the proposed radiation monitoring programme. We consider that to be an appropriate

[221] Summary Statement, paragraph 17.

conservative approach and consider that it should include pre-mining background levels, as suggested by Mr Ardouin.

Radiation Conditions

[623] Turning to consent conditions, Ms Mackenzie tabled a final suite of conditions as part of her end-of-hearing evidence. Section 8.0 of the "Hazardous substances" conditions contains conditions 8.5 to 8.9 that address the radiation issue.

[624] In our view, a key consent requirement is using the radioactivity concentration limits specified in Schedule 2 of the RSA[222] as a 'trigger level' for quarterly HMC testing to confirm that the HMC remains below the acceptable level in the RSA (Condition 8.5).

[625] Daily analysis of HMC samples from the processed stockpile area will also be done using a hand-held X-ray fluorescence device (Condition 8.8). That condition utilises a trigger level comprising a calculated activity concentration of >1.0 Bq/g based on the U+Th assay. If that trigger is exceeded, then the HMC sample will be subjected to a head-of-chain radioactivity concentration (namely radionuclide) analysis by an independent accredited laboratory. If that radionuclide analysis exceeds 1 Bq/g, the Applicant will need to notify the Office of Radiation Safety and act as directed by them.

[626] If the daily analysis of HMC exceeds 10 Bq/g, the Applicant will need to cease HMC processing, and a HMC sample will be subjected to a radionuclide analysis by an independent accredited laboratory. The HMC material will be diluted with tailings material to reach <1Bq/g and returned to the mining void. If the independent test confirms a reading of >10Bq/g, the Office of Radiation Safety[223] will be notified, and a Radiation Safety Plan will be required to be submitted for approval within 10 working days of the independent testing result (Condition 8.8).

[627] The Applicant will also be required to install an apparatus in the HMC stockpile building to measure Rn-222 (radon) activity concentration and confirm that airborne radon levels do not exceed the IAEA Safety Standard No. GSR Part 3 reference level of 300 Bq/m^3 (Condition 8.9). Mr Ardouin considered that workers in the HMC stockpile building can

[222] We find that to be preferable to specifying a single figure of say 1 Bq/g as Schedule 2 of the RSA covers a wide range to Thorium and Uranium species.
[223] That Office is part of the Ministry of Health.

be considered as members of the public concerning radon levels. The radiation dose they receive can be assessed from the measure Rn-222 (radon) activity concentration monitoring programme combined with an assessment of worker occupancy in the monitored locations. The Applicant will be required to notify WCRC and the Office of Radiation Safety if the Rn-222 levels in the HMC stockpile building exceed 300 Bq/m^3 and then act as directed by the Office of Radiation Safety.

Finding

[628] On the available evidence, we find it unlikely that the mineral sands, the HMC, the slimes and the tailings will have a radioactivity level that triggers the requirements of either the Radiation Safety Act 2016 or the IAEA Regulations for the Safe Transport of Radioactive Material. We also consider it unlikely that airborne radon levels above ambient levels will exceed the International Atomic Energy Agency Safety Standards.

[629] We were comforted by the fact that in answer to our questions, Mr Ardouin advised that if the mineral sand samples tested by the Applicant are representative of the wider area to be mined, then there would be no significant risk from radiation to surface and groundwater or to the general public. Mr Ryan's 19 March 2024 evidence confirms that to be the case.

[630] Nevertheless, we consider that the conditions outlined above provide an appropriate and conservative cautionary approach insofar as they require ongoing monitoring for radioactivity levels and associated trigger levels for action to avoid any future adverse health and safety risks associated with radiation levels arising from the proposed mining activity.

Greenhouse gas emissions

[631] Several submitters[224] were concerned about the GHG generated by the proposal and the effects that would have on global warming and climate change. Notwithstanding our earlier finding that the Applicant's proposed GHG emissions are permitted under AQP Rules 3 and 5, we nevertheless address GHG emissions here.

[224] Including the Coast Road Resilience Group and the Director-General of Conservation.

[632] We understand that New Zealand's response to global warming is codified in the Climate Change Response Act 2002 (CCRA). Section 5Q of the CCRA defines a 2050 target to reduce net emissions of all greenhouse gases (except biogenic methane) to zero. To meet the 2050 target, under section 5X of the CRRA, the Minister for Climate Change must set a series of emissions budgets to act as stepping stones towards the 2050 target. For our assessment of the Applicant's proposal the relevant annual target is that set for Period 2 (2026 to 2030) of 61.00 million tonnes CO_2-e per annum, as that period is when the proposed mineral sands mine would most likely be active.

[633] The CCRA provides for the implementation, operation, and administration of the Emissions Trading Scheme (ETS) which is the Government's main tool for reducing GHG emissions in New Zealand. The emissions from the use of liquid fossil fuels in plant and machinery are currently captured by the ETS. Liquid fuel importers are compulsory participants in the ETS. The fuel importers pass the ETS costs on to consumers at the price of the liquid fuels sold.[225]

[634] We understand that the ETS funds are used to support emissions reductions directly. Since 2022, the NZ ETS auction proceeds have been used to support emissions reductions programmes through the Climate Emergency Response Fund[226].

[635] In light of the ETS, we queried whether or not we needed to consider GHG as we were initially concerned about potential regulatory 'double dipping'. However, we acknowledge that the previous statutory bar on RMA consent authorities considering GHG was removed on 2 March 2004. We therefore turn our mind to the GHG emissions that are likely to be generated by the Applicant's proposal.

[636] By the close of the hearing the Applicant had confirmed that the HMC processing plant and the associated water treatment facilities would be powered by electricity and not diesel generators. Condition 7.7 requires the Applicant to use mains supplied electricity to operate the HMC processing plant once it is commissioned[227]. Consequently, the only

[225] Crown Minerals Act 1991 assessment of Minerals Mining Permit 60785, Tim Journeaux, Principal Minerals Advisor, Ministry of Business, Innovation, and Employment. Section titled 'Climate Change'.
[226] Reply submissions, paragraph 74.
[227] Diesel generators may be utilised during the construction of the plant prior to a mains power supply being provided.

potential GHG emissions of any significance would be generated by the mobile machinery operated at the site along with emissions from the HMC truck haulage fleet[228].

[637] As part of her evidence, Suzanne Hills provided a 'lay person' estimate of the likely carbon emissions from the proposal. We asked the Applicant to provide us with an expert estimate of those emissions, which Mr Miller provided[229]. He followed the "Measuring emissions: Detailed Guide 2023 (ME1764)" published by the Ministry for the Environment. Mr Miller noted that formal carbon emissions calculations always refer to CO_2 equivalents (CO_2 -e), not just CO_2. However, he provided both values for completeness.

[638] Mr Miller assumed:

(a) The mobile vehicle mining fleet is as presented in the Applicant's application;

(b) HMC haulage off-site based on a 30 km one-way loaded trip plus a 30km unloaded return trip;

(c) A total of 25 full truck loads plus 25 unloaded truck movements each day, totalling 50 truck movements per day for off-site HMC haulage; and

(d) The use of on-highway currently available 30-tonne trucks.

[639] The results were:

Component	**Tonnes CO_2 per annum**	**Tonnes CO_2-e per annum**
Mining fleet	1,583	1,583
Road haulage[230]	812	1,126
Total	**2,305**	**2,709**

[640] Using the second emissions budget period (2026-30), which is when the majority of the mining and road haulage activity will occur, Mr Miller advised that the proposal's overall total of 2,709 tonnes CO_2-e per annum amounted to 0.0044% of the All-Gases Emissions annual budget figure of 61.00 million tonnes CO_2-e per annum. The road haulage

[228] We acknowledge there will be some negligible additional emissions from the busing of staff to and from the Site in 'mini-vans'.
[229] Supplementary Statement of Stephen Jeffrey Miller, 7 March 2024.
[230] Mr Miller advised that as TiGa would use a fleet of large trucks the 'long-haul heavy truck' Emissions Factor of 0.105 kg CO_2-e / tkm was appropriate, which was smaller than the Emission Factor for 'all trucks' o f0.135 kg CO2-e / tkm.

component of the Applicant's proposal amounted to just 0.00741% of the annualised Transport Sector Emissions budget of 15.20 million tonnes CO_2-e per annum[231].

[641] We do not consider those emissions equate to any more than a less than minor adverse effect on NZ's Emissions Budget. Consequently, there will, in all likelihood, be a negligible impact on global climate change. In that regard, we agree with Ms Booker[232] that it is relevant to reflect on the findings of the Environment Court[233], which stated "The clear preferred policy of the New Zealand Government to address greenhouse gas emissions as an international issue and that sectional emissions should be considered at a national level to ensure a consistency of approach to guarantee an efficiency compatible with achieving the best social, environmental and economic outcome."

[642] Suanne Hills suggested[234] that the 2,709 tonnes CO_2-e per annum resulting from the proposal should be offset by planting approximately 10-12 hectares per annum of native trees and shrubs at 4000 stems/hectare. We find that would be unduly onerous and disproportionate in light of the absence of any similar requirement being imposed on current operators of NZ's heavy vehicle fleet.

Finding

[643] We find that having regard to the GHG likely to be emitted by the Applicant's proposal does not weigh against a grant of consent.

Monitoring and reporting

[644] A fundamental component of any resource consent is a programme designed to monitor the activity's effects once it commences to ensure conditions of consent are complied with. With regard to the WRCR consents the Applicant has proposed a Monitoring and Mitigation Plan[235]. The proposed monitoring and reporting programme includes:

(a) The establishment of an on-site meteorological station to measure, amongst other things, rainfall and wind speed and direction;

[231] We note that Mr Miller's table in his initial Supplementary Statement had incorrect percentages which we queried and a revised Statement of Evidence was provided on 11 March 2024.
[232] Reply Submissions, paragraph 81.
[233] *Environmental Defence Society (Inc) v. Auckland Regional Council* A183.
[234] Comment on Supplementary Statement of Stephen Miller dated 7 March 2024, 15 March 2024, paragraph 9.
[235] Other monitoring is specified in the ESCP and the Dust Management Plan.

(b) The flow in Collins Creek upstream and downstream of the mining activity;

(c) The quality and rate of flow of treated water discharged from the Clean Water Facility (Pond 4) to Canoe Creek Lagoon and the infiltration trenches and bores, and any augmentation discharges of Pond 4 water to the Northern Drain, Collins Creek or Canoe Creek. Water quality monitoring will be for metals and metalloids, total suspended solids, turbidity and visual clarity;

(d) The quality of water discharged from the Mine Water Facility ('dirty water' Pond 2) to the Central Drain;

(e) The quality of water in the Central Drain upstream and downstream of the mining activity;

(f) Water quality in Canoe Creek Lagoon;

(g) Water quality in the Northern Drain, Collins Creek and Canoe Creek upstream and downstream of the mining activity;

(h) Annual macroinvertebrate and fish surveys in Collins Creek, the Northern Boundary Drain and Canoe Creek;

(i) The rate of take from Canoe Creek;

(j) Groundwater level monitoring using an array of piezometers around the periphery of the MDA;

(k) Visual inspection of the Mine Water Facility ('dirty water' Ponds 1 and 2), Clean Water Facility (Ponds 3 and 4) and the Central Drain at least once daily;

(l) Monitoring of erosion and sediment control devices[236];

(m) Stormwater discharge rates to the infiltration basin adjacent to Canoe Creek and

(n) Daily visual dust inspections of all unsealed surfaces, including stockpiles, earthworks areas haul roads and any watering systems used in those areas, and

[236] Along with water clarity at all pond outlets, all pump discharge locations, the Central Drain and the receiving environment. This will occur a minimum of once per day.

(o) Two Dust Deposition Gauges on the boundary of the site adjacent to SH6;

[645] In terms of reporting, an Annual Hydrological and Water Quality Report will be submitted to WCRC as part of the Annual Work Programme.

Finding

[646] We are satisfied that the proposed monitoring and reporting programme is both 'fit for purpose' and suitably comprehensive.

Bond

[647] We discussed the issue of a suitable bond in the section of this decision that addressed the consents required from the GDC. We note that any bond required from the Applicant would relate primarily to the remediation of the site which is most relevant to the jurisdiction of the GDC and so we do not discuss that further here.

Overall finding on effects

[648] Our overall finding on effects is that subject to the imposition of robust conditions of consent, the potential adverse effects of the proposal are likely to be no more than minor and any residual adverse effects do not weigh against a grant of consent.

Other submitter issues

[649] We are unaware of any other relevant issues we need to address, over and above those set out above.

National Environment Standards and other regulations

[650] Dr Durand drew our attention to the NES-FW and the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010.

[651] We discussed the NES-FW in earlier in this decision.

[652] Regarding the Measurement and Reporting of Water Takes regulations, we are satisfied that the Applicant's proffered consent conditions relating to the measurement and reporting of water abstraction from Canoe Creek can comply with those regulations.

National Policy Statements

[653] Relevant national policy statements are:

(a) National Policy Statement for Freshwater Management 2020

(b) New Zealand Coastal Policy Statement 2010, and

(c) National Policy Statement for Indigenous Biodiversity 2023.

National Policy Statement for Freshwater Management (NPSFM)

[654] The National Policy Statement for Freshwater Management 2020 (NPSFM) has a single Objective:

> **2.1 Objective**
>
> (1) The objective of this National Policy Statement 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.

[655] Granting the application will enable the Applicant to provide for their economic well-being. The evidence is that the Proposal will also create economic (and hence social) benefits for the wider community through direct employment, the purchase of goods and services, and the flow on effects from those activities. Te Rūnanga o Ngāti Waewae support the Proposal, so we can safely assume that it will also enable the provision of cultural well-being.

[656] Some submitters suggested that the Applicant had no "social licence" for the proposed mineral sand mine. We understand that to mean that some people do not support the proposal. In response we simply note that the submissions were roughly evenly divided between those in opposition and those in support of the applications. We have therefore focused on the potential adverse effects that might arise should the Proposal proceed.

[657] Consequently, in overall terms we are satisfied that the Proposal will achieve Objective 2.1(1)(c). Objective 2.1(1)(b) is not relevant as no potable use is made of the groundwater

and surface water directly affected by the Proposal and the evidence is that with mitigation in place, springs in the southern Langridge property that we understand may be used for potable purposes will not be adversely affected.

[658] Objective 2.1(1)(a) requires us to prioritise the health and well-being of water bodies and freshwater ecosystems. We discussed those matters in preceding sections of this decision and we are satisfied that (with mitigation in place) potential adverse effects on surface water bodies, the ecosystems supported by those surface waterbodies, and groundwater will be no more than minor.

[659] Therefore, we conclude that the Proposal is consistent with Objective 2.1 of the NPSFM.

[660] Turning to the relevant[237] NPSFM policies, we find:

(a) Policies 1 and 2 are met because Te Rūnanga o Ngāti Waewae support the Proposal;

(b) Policy 3 is met insofar as the Applicant has considered potential adverse effects on the creeks, groundwater and Coastal Lagoons in the catchment that is directly impacted by the MDA;

(c) Policy 5 is met as the water quality in the affected surface water bodies and groundwater will be maintained through the application of discharge water quality standards for metals and metalloids derived from the USEPA or ANZECC guidelines that are designed to protect aquatic species;

(d) Policies 6, 7, 9 and 10 are met as there will be no further loss of natural inland wetlands or river extent and their associated values. The proposed riparian planting and stock exclusion will markedly enhance the existing habitat values of those water bodies; and

(e) Policy 11 is met as the water proposed to be abstracted from Canoe Creek is well within normally accepted limits.

[237] We do not consider Policies 4 and 8 are relevant. It is unclear to us what relevance New Zealand's integrated response to climate change has here (apart from the issue of GHG's which we have addressed) and there are no outstanding water bodies affected by the proposal. Policies 12, 13 and 14 appear to us to be relevant to the functions of the WCRC. Policy 15 merely repeats Objective 21.(1)(c).

[661] We find that having regard to the objectives and policies of NPSFM does not weigh against a grant of consent.

New Zealand Coastal Policy Statement 2010

[662] The NZCPS is relevant because at least part of the MDA resides within the coastal environment[238]. The NZCPS's six objectives and 23 policies are primarily relevant to the consents required from the GDC and we discussed those matters earlier in this decision.

[663] We consider that the Proposal is consistent with the objectives of the NZCPS that are relevant to the consents required from the WCRC. In particular the proposal will maintain coastal water quality (Objective 1) and Te Rūnanga o Ngāti Waewae support the proposal (Objective 3).

[664] Turning to the NZCPS policies, Te Rūnanga o Ngāti Waewae support the Proposal (Policy 2). We do not consider that a 'precautionary approach' is warranted because the potential adverse effects of the Proposal are neither little understood nor significantly adverse (Policy 3). The evidence is that the Proposal will yield significant regional economic benefits and the MDA is well set back from the coastal marine area (Policy 6). Subject to the mitigation proposed (such as the imposition of water quality discharge standards and the augmentation of creek flows) the water quality and indigenous biodiversity of the potentially affected water bodies will be protected (Policies 11, 22 and 23). The natural character and landscape attributes of the surface water bodies will be enhanced (or restored) by the proposed riparian planting (Policies 13, 14 and 15).

[665] We find that having regard to the objectives and policies of the NZCPS does not weigh against a grant of consent.

National Policy Statement for Indigenous Biodiversity 2023

[666] National Policy Statement for Indigenous Biodiversity 2023 is not overly relevant to the consents required from the WCRC because it applies to the terrestrial environment[239]. However, clause 1.3(2)(c) states that provisions relating to promoting restoration and increasing indigenous vegetation cover extend to include natural inland wetlands. Insofar

[238] Paragraph 4.4 of the AEE states that the Site is within the Coastal Environment overlay contained in the proposed Te Tai o Poutini Plan.
[239] NPS-IB clause 1.3(1).

as that might be relevant to Canoe Creek Lagoon, we note that the Applicant's intention is to undertake restoration planting and stock exclusion fencing around the margins of that lagoon, which is entirely consistent with the NPS-IB.

Regional Policy Statement

[667] The West Coast Regional Policy Statement (RPS) was made operative in July 2020.

[668] The West Coast Regional Policy Statement (WCRPS) was addressed by Ms McKenzie and Dr Durand. In terms of the WCRPS objectives, we agree with Ms McKenzie that the WCRPS seeks to provide for resilient and sustainable communities (Objective 4.1), recognising the contribution of resource use to the local economy (Objective 5.1) and enabling economic use and employment opportunities in a sustainable manner (Objective 4.2). We also agree that the objectives of the WCRPS demonstrate an overarching intent to enable activities[240], provided that the adverse effects of the activities are avoided, remedied, or mitigated[241]. In that regard we find that the proposal is consistent with that intent.

Regional plans

[669] The relevant regional plans are:

(a) Regional Land and Water Plan;

(b) Regional Coastal Plan; and

(c) Regional Air Quality Plan.

Regional Land and Water Plan (LWP)

[670] The Regional Land and Water Plan (RLWP) seeks to sustainably manage the West Coast's natural and physical resources. In that regard, we consider that, subject to mitigation, the Applicant's proposal will adequately protect the surrounding surface water bodies (the Northern Drain, Collins Creek, Canoe Creek and Canoe Creek Lagoon and their riparian

[240] Objective 5.1 with regard to the use of natural resources; Objective 7A.1 with regard to natural character; Objective 8.2 with regard to land and water; Objective 9.2 with regard to the coastal environment; Objective 10.2 with regard to discharges to air.
[241] SOE Mackenzie, paragraph 135.

margins), including their water quality, aquatic ecology, and natural character[242]. The proposed system of infiltration trenches and bores will in all likelihood avoid surface water depletion of those water bodies, and if depletion beyond reasonable trigger levels does occur, flows in the creeks will be augmented with treated mine derived water[243].

[671] We find that the objectives and policies of the RLWP do not weigh against a grant of consent.

Regional Coastal Plan (RCP)

[672] The mine site is not located in the coastal marine area but is located in the coastal environment. We were advised that the Regional Coastal Plan (RCP) was approved in 2000 and has not been updated to give effect to the NZCPS. Mr Geddes considered it to be out of date and recommended that little weight should be given to its provisions[244]. We agree.

Regional Air Quality Plan (AQP)

[673] The Regional Air Quality Plan (RAQP) is relevant to the consents required from the WCRC for various discharges to air. Ms McKenzie advised that the Applicant sought consent for discharges to air as a precautionary measure, however their intention is to comply with permitted activity Rules 3 and 5 of the RAQP.

[674] Rule 3 permits the discharge of any contaminant into air arising from the stockpiling, conveying, and handling of gravel, sand, soil, or rock provided there is no discharge of dust beyond the boundary of the subject property. Notwithstanding the Applicant's proposed Dust Management Plan, we are not convinced that there will be no discharge of dust beyond the property boundary. However, we are satisfied that the proposed erosion and sediment control measures together with the implementation of the DMP will result in any potential adverse effects arising from dust discharges being appropriately avoided or mitigated.

[675] Rule 5 is a 'catch-all' permitted activity rule applying to the discharge of any contaminant into air arising from earthworks, quarrying operations or mining provided (in this case)

[242] Objectives 3.2.2, 6.2.1, 8.2.1 and 10.2.1. Policies 3.3.1, 3.3.2, 3.3.7, 3.3.10, 6.3.5 and 8.3.1.
[243] Objective 7.2.1 and Policy 7.3.1.
[244] A Proposed Regional Coastal Plan (*PRCP*) was notified in 2016 but it was put on hold in 2020 and has not progressed to hearings. We consequently afford little weight to that document.

that any discharge of dust or gas is not noxious, dangerous, offensive, or objectionable beyond the boundary of the subject property. We consider that in terms of dust, the more specific Rule 3 applies.

[676] In terms of gas, the relevant issue is radon. The RAQP does not explicitly address radon. We discussed radon in section 4.2.8.4 of this decision and we understand the primary concern is with levels of radon inside the HMC processing plant that might pose a risk to the health of mine workers. We note that the Applicant has Offered Conditions requiring the monitoring of radon levels in the HMC building. On that basis we are satisfied that this potential adverse effect will be adequately addressed.

[677] For completeness, we note that the RAQP does not explicitly address radiation, other than in permitted activity Rule 11.2 which applies to x-rays from a radioactive source. The explanation of that rule states "The control of radiation is administered by the National Radiation Laboratory. Permitting these activities[245] avoids the duplication of current legislative requirements and controls relating to radiation." We are not convinced Rule 11.2 is relevant to the radiation matters we addressed earlier in this decision and in that regard, we have agreed that consent to discharge ionizing radiation from an industrial or trade premises into air is required under the general 'catch-all' discretionary activity Rule 16[246] of the RAQP. Having said that, for the reason set out earlier in this decision, we are satisfied that consent can be granted for that discharge.

[678] This leaves the issue of greenhouse gas (GHG) emissions which are addressed in Chapter 9 of the RAQP. That chapter contains no rules and the relevant objective 9.3.1 is "The reduction and minimisation of adverse effects from discharges of contaminants to air of global significance, such as ozone depleting substances or greenhouse gases." As we discussed earlier in this decision, while the Proposal will result in the discharge of GHG's from the onsite machinery and trucking fleet, we find those discharges to be inconsequential from a national viewpoint.

[679] We find that having regard to the provisions of the RLWP does not weigh against a grant of consent.

[245] X-rays released in a range of industrial processes used for testing the integrity of pipes, welding and structures.
[246] Rule 16 applies to an industrial or trade process and we are satisfied that the processing of the mineral sand ore into HMC meets the definition of an industrial process in the RMA.

Section 104(1)(c) other matters

[680] Relevant to the consents required from the WCRC, we do not consider that there are any other matters that we need to assess.

Section 105(1) matters

[681] The Section 105(1) of the RMA states that where an application is for a discharge permit to do something that would otherwise contravene Section 15 or Section 15B[247] of the Act we must have regard to certain matters, namely:

(a) The nature of the discharge and the sensitivity of the receiving environment to adverse effects;

(b) The applicant's reasons for the proposed choice; and

(c) Any possible alternative methods of discharge, including discharge into any other receiving environment.

[682] We discussed the nature of the proposed discharges and the sensitivity of the respective receiving environments in earlier sections of this decision. We are satisfied that the proposed water quality discharge standards are appropriate in relation to the sensitivity of the Canoe Creek Lagoon, Northern Drain, Collins Creek and Canoe Creek receiving environments. We note the reasons for the Applicant's choosing of monitoring locations for those receiving environments are reasonable, namely that discharges from Pond 4 to Canoe Creek Lagoon relate to water that would have probably reached that lagoon anyway and the discharges to the creeks are primarily intended to augment flows when necessary. The only alternative receiving environment is the sea and we are satisfied that it is more desirable to discharge to the aforementioned surface water bodies.

[683] We find that having regard to s105(1) matters does not weigh against a grant of consent.

Section 107(1) matters

[684] Section 107(1) of the RMA states that a discharge permit shall not be granted if, after reasonable mixing, the contaminant or water discharged is likely to give rise to certain listed

[247] Discharge of harmful substances from ships or offshore installations which is not relevant here.

effects. As we stated in section 4.2.3 of this decision, we accept Dr Fitzpatrick's advice[248] that the proposed discharges to surface water would fulfil the requirements of RMA section 107(1)(d), most notably that they will not result in any conspicuous changes in colour or visual clarity, and would not result in any significant adverse effects on aquatic life.

Part 2 matters

[685] We are aware of the case law which outlines that if the lower order statutory instruments appropriately deal with Part 2 matters, then no further assessment of Part 2 matters is required. Consequently, it is arguable that there is no need to separately assess RMA Part 2 matters in light of our previous assessment of the statutory instruments. However, we do so now in a reasonably concise manner for the sake of completeness.

[686] We are satisfied that the Applicant's proposed riparian planting, buffer areas from surface water resources (including a 100 m buffer from Canoe Creek lagoon during the August to December bird breeding season), and use of infiltration trenches to insulate the hydrology of Canoe Creek Lagoon and Collins Creek from the mining pit, will preserve the natural character of the MDA residing within the coastal environment, along with that of Canoe Creek Lagoon, Collins Creek, Canoe Creek and their margins. Those mitigation measures will also protect those natural resources from inappropriate use and development (s6(a)). There are no outstanding natural features or landscapes in the site (s6(b)). The aforementioned mitigation measures will also protect any significant habitat of indigenous avifauna in Canoe Creek Lagoon. We note there are no areas of significant indigenous vegetation within the site itself (s6(c)). The proposal will not affect public access to and along the coastal marine area or Canoe Creek[249] (s6d). The support of Te Rūnanga o Ngāti Waewae' for the proposal satisfies us that the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga has been recognised and provided for (s6(e)). Sections (ss6(f) and (g)) are not overly relevant to the consents required from the WCRC, but in any case, we note there are no historic heritage or protected customary rights affected by the proposal. We are satisfied that the significant

[248] Summary Statement, paragraph 8.
[249] Collins Creek and the Northern Drain are on private property and there is no right of public access to them.

risks of significant natural hazards (earthquakes and coastal inundation) can be suitably managed should those hazards impact on the operational mining pit (s6(h)).

[687] The support of Te Rūnanga o Ngāti Waewae for the proposal satisfies us that kaitiakitanga and the ethic of stewardship have had particular regard to (ss7(a) and (aa)). The mining of the mineral sands and the production of HMC represents an efficient use of that natural resource (s7(b)) and the efficient end use of energy (electrical power) (s7(ba)). The site to be mined has little if any amenity value. We are satisfied that the proposed landscape and riparian planting, together with the avoidance of nuisance off-site dust emissions, will maintain amenity values for adjoining properties. The proposed planting and the eventual use in perpetuity of the Clean Water Facility as a wetland will enhance the amenity values of the site (s7(d)). The Applicant's proposed landscape and riparian planting, buffer areas (including a 100 m buffer from Canoe Creek lagoon during the August to December bird breeding season), and use of infiltration trenches to insulate the hydrology of Canoe Creek Lagoon and Collins Creek from the mining pit has appropriate regard to the intrinsic values of those ecosystems (s7d)) and will maintain and enhance the quality of those environments (s7(f)). The mineral sands within the site are a finite natural resource insofar as the site itself is considered, but not in the context of the wider Barrytown Flats area. The mining of the site is not an inappropriate use of that natural resource (s7(g)). Any trout habitat in Canoe Creek Lagoon, Collins Creek or Canoe Creek will be protected by the mitigation measures summarised above (s7(h)). We have regard to the effects of climate change insofar as that might affect sea levels and the risk of coastal inundation of the site. We have also considered the matter of GHG emissions from the proposal (s7(i)). Section 7(j) is not relevant.

[688] The support of Te Rūnanga o Ngāti Waewae' for the proposal satisfies us that we (and the applicant for that matter) have appropriately taken into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

[689] In overall terms we find that a consideration of Part 2 matters does not weigh against a grant of consent.

Consent duration and lapsing

[690] As we noted earlier in this decision, the Applicant has sought a 12-year consent term to allow for contingencies and to provide operational certainty given the level of financial

investment required in the proposed sand mineral mine. We find that duration to be appropriate.

[691] The Applicant has not sought an extended lapse period and so the default period of five years after the date of commencement of the consent set out in section 125(1)(a) of the RMA applies.

Consent conditions

[692] We were provided with a suite of recommended conditions for the WCRC consents by the applicant. Unfortunately, Dr Durand elected not to provide us with any commentary on those conditions as part of his end of hearing report. Nevertheless, we have reviewed the conditions ourselves and find them to be generally appropriate, subject to some amendments to clarify their intent, remove subjective terms and use consistent terminology. Those amendments are shown in 'track changes' format in Appendix One attached to this decision.

[693] We also attach a 'clean' version of the conditions. We direct the WCRC to provide both versions of the conditions to the Applicant and submitters. The 'track changes' version should be circulated in PDF format.

[694] Given the amendments we have made to the conditions, combined with their complexity, it is conceivable that they may now contain minor errors or omissions. Accordingly, should the applicant or the WCRC identify any minor mistakes or defects in the attached conditions, then we are prepared to issue a revised schedule of amended conditions under s133A of the RMA correcting any such matters. Consequently, any minor mistakes or defects in the amended conditions should be brought to our attention prior to the end of the 20-working day period specified in section 133A of the RMA.

Determination

[695] We grant the resource consents required under the WCRC Regional Land and Water Plan (LWP) as follows:

Rule	Purpose	Activity Status
16	To use land for earthworks and vegetation clearance within 10 m of a riparian margin.	Discretionary

16	To use land for earthworks within 50 m of the Coastal Marine Area.	Discretionary
16	To use land for earthworks exceeding 5000 m^3 per annum.	Discretionary
55	To take and use of surface water from Canoe Creek for the purposes of mineral sand mining.	Restricted Discretionary
56	To take and use groundwater for the purposes of mineral sand mining and processing, pit dewatering and well-point pumping.	Restricted Discretionary
71	To discharge water including contaminants (dewatering water, treated mine, process and stormwater) to land where it may enter water.	Discretionary
71	To discharge ionizing radiation into water.	Discretionary
91	To discharge water including contaminants (dewatering water, treated mine, process and stormwater) to water in Collins Creek, the Northern Boundary Drain and Canoe Creek.	Discretionary
91	To discharge ionising radiation into land	Discretionary

[696] We also grant the consents required under the WCRC Regional Air Quality Plan (AQP) as follows:

Rule	**Purpose**	**Activity Status**
16	To discharge unanticipated dust emissions from stockpiling and mining activities	Discretionary
16	To discharge ionising radiation from an industrial or trade premises into air	Discretionary

[697] Our reasons are detailed in the body of this decision, but in summary they include:

(a) Subject to the imposition of robust conditions of consent, the potential adverse effects of the proposal are likely to be no more than minor and any residual adverse effects do not weigh against a grant of consent; and

(b) Granting consent for the proposal subject to those conditions would not be inconsistent with the relevant statutory instruments.

John Maassen (Chair) Rob van Voorthuysen Tim Vial

Attachment 1

List of application items, materials, reports and evidence received by the Panel excluding individual lay submitter items presented on the day of the hearing

1	Mineral Sands Mine	Link
2	Public Notice	Link
3	Public Meeting	Link
4	Applications • Resource Consent Application form Grey District Council • TiGa Application Form 1 - Administration fillable • TiGa Form 5 - Resource Consent Application Declaration • TiGa RC Application AEE FINAL • TiGa Site Plan V6 • Records of Title • Archaeological Site Records • Certificate of Compliance • MUP site layout (DIMENSIONED) • Processing Plant Building Plans • Barrytown Mine Transport Assessment • Acoustic Assessment • Noise Management Plan • Hydrological Assessment • Water Management Plan • Barrytown Erosion and Sediment Control Plan • Fuel Tank Indicative Design • EcIA - Final - 170423 • Wetland and Riparian Plan • Avian Management Plan FINAL • Barrytown Landscape Assessment • Landscape Graphic Supplement • Rehabilitation Management Plan April 2023 • Proposed Conditions of Consent FINAL • Compliance Assessment • Economic Assessment • Geotechnical Assessment • Radiation Assessment • Radiation Dose Report MMR-001E • Objectives and Policies Assessment • HAIL Form GDC	Link

5	Amendment to Application • 2019-G-MEM-0000-8016_A_Process Water Treatment • Proposed Conditions of Consent Revised • Proposed Conditions of Consent Revised	Link
6	Further Information Requests • Economic Peer Review • Final Noise Peer Review • Final Terrestrial Ecology Peer Review • Landscape Peer Review • Landscape Report in response to submissions • Noise Review May 2023 • Palaris Final Landform Report • Final landform v2 • Landscape Memorandum • Revised Landscape Assessment • Barrytown Graphic Supplement • Cowan Written Approval Redacted • ONeil and Costello Written Approval Redacted • Ecological Response Memorandum • Amended Site Plan • Transport Assessment Revised • Dust Management Plan April 2023 • Landscape Desktop Review 20230511 • Gary Bramley Appendix 1 Draft Avian Management Plan V3 - provided by Applicant 23 January 2024 • Grey District Significant Natural Areas Assessment – 1 June 2006 [PUN-W034] Punakaiki Ecological District • Hyperlinks to Planning Instruments received 29 01 2024 - Mark Geddes • LU3154-23 - Further Information Request 12.05.23 • LU3154-23 - Further Information Response 20230726 • RC-2023-0146 s92 further information request • WCRC Hydrological Peer Review Response • WGA Final Peer Review 04.09.23._hydrological and hydrogeological Review • WGA211239-MM-HG-0001_A Consent application review hydrological and hydrogeological Review	Link
7	Submissions	Link
8	Late Submissions	Link
9	Commissioner's Minutes	Link

10	Memorandums	Link
11	Hearing Timetable and Expert Witnesses	Link
12	Joint Witness Statements • Barrytown_Landscape_JWS 29 01 2024 • TiGa Applications - Geotechnical hydraulic factors - Joint Witness Statement • TiGa Applications - Hydrology & Water Related - Joint Witness Statement • TiGa Applications - Water injection - Joint Witness Statement	Link
13	Applicant's Evidence • Planning Bundle • Statement of Evidence - Cam Wylie (geotechnical) • Statement of Evidence - Gary Bramley terrestrial ecology • Statement of Evidence - Gary Teear (coastal) • Statement of Evidence - Graeme Ridley (sediment control and stormwater management) • Statement of Evidence - Jens Rekker (hydrogeology) • Statement of Evidence - John Ballingall (economics) • Statement of Evidence - John Berry (company) • Statement of Evidence - Jon Farren (noise) • Statement of Evidence - Kate McKenzie (planning) • Statement of Evidence - Mark Roper (aquatic ecology) • Statement of Evidence - Mike Fitzpatrick (water quality) • Statement of Evidence - Mitch Ryan (metallurgy and radiation) • Statement of Evidence - Naomi Crawford landscape • Statement of Evidence - Nick Fuller (transport) • Statement of Evidence - Robert Brand (company) • Statement of Evidence - Stephen Miller (mine planning) • Statement of Evidence - Tom Lawson (plant design)	Link
14	GDC s 42a Report • TIGA S.42A Officer's Report • Addendum 1 - Summary of Submissions • Addendum 2 - Recommended Amendments to Conditions • Addendum 3.1.1 Initial Landscape Peer Review • Addendum 3.1.2 Landscape Peer Review in response to submissions • Addendum 3.2.1 Noise Peer Review May 2023 • Addendum 3.2.2 Noise Peer Review Memo November 2023 • Addendum 3.3 Terrestrial Ecology Peer Review	Link

	• Addendum 3.4 Economic Peer Review • Addendum 3.5 Radiation Peer Review	
15	WCRC s42A Report • RC-2023-0046 Notification of s42A report time extension to 15 January 2024 - issued 12 01 2024 • RC-2023-0046 s42A Staff Report FINAL amended 15 01 2024	Link
16	Submitter Evidence • Hearing Letter by Fire and Emergency - Grey District Council and West Coast Regional Council - TIGA Minerals and Metals • Submitter [175] CRRG Dr John Bradley expert evidence submission 26 01 2024 • Submitter [175] CRRG Dr S Waugh evidence body 25 01 24 • Submitter [175] CRRG Expert evidence Dr J Renwick • Submitter [175] CRRG tourism expert evidence Patrick Volk 26 01 2024 • Submitter [175] 'Westland petrel and blue penguin conservation biology • Submitter [188] Statement of Evidence of Professor Brian McGlynn on behalf of G & G Langridge 25 January 2024 • Submitter [208] New Zealand Penguin Initiative – TiGa Barrytown Mineral Sand Mining Submission Hearing - received 26 01 2024 • Submitter [241] Legal Submissions for the DG - TiGa resource consent application 2024 pdf (003) • Submitter [241] TiGa Minerals and Metals Ltd - Evidence of K Simister for the DG of Conservation 25 01 2024 • Submitter 175 CRRG Expert evidence Brian Lunt Medical Physicist Jan 2024 Final	Link
17	Applicant's Legal Submissions • Legal Submissions - Functional need - 16 February 2024 • Legal Submissions - TiGa - 5 February 2024	Link
18	Applicant's Summary Statements and Rebuttal Evidence • Summary Statement - Cam Wylie geotechnical • Summary Statement - Graeme Ridley sediment control and stormwater • Summary Statement - Jon Farren noise • Summary Statement - Mike Fitzpatrick water quality • Summary Statement and Rebuttal Evidence - Katherine McKenzie • Summary Statement and Rebuttal Evidence - Gary Bramley ecology • Summary Statement and Rebuttal Evidence - Gary Teear coastal • Summary Statement and Rebuttal Evidence - Jens Rekker hydrology • Summary Statement and Rebuttal Evidence - John Ballingall economic	Link

	• Summary Statement and Rebuttal Evidence - Mark Roper aquatic • Summary Statement and Rebuttal Evidence - Mitch Ryan metallurgy • Summary Statement and Rebuttal Evidence - Naomi Crawford landscape • Summary Statement and Rebuttal Evidence - Nick Fuller transport • Summary Statement and Rebuttal Evidence - Stephen Miller mine • Summary Statement and Rebuttal Evidence - Tom Lawson plant design	
19	Applicant's Evidence provided during Hearing • 2023_nzenvc_277_te_runanga_o_ngati_whatua_v_auckland_council • 2304626 Graphic Bundle - For resource consent applications by TiGa Minerals and Metals Ltd • 240208 N Crawford - Supplementary Evidence R1 • Amendments-to-the-NES-F-and-NPS-FM-Section-32-report (1) • Appendix 1 Revised Conditions with Changes Hearing version • Deverys Creek, Collins Creek, & Canoe Creek annexures 07 02 2024 • Draft Avian Management Plan V5 March 2024 • DRAFT Lighting Management Plan V2.docx 8 March 2024 • essential-freshwater-amendments-report-recommendations-summary-submissions-may2022 • J Ballingall Rebuttal of lay person evidence • Memorandum RDE Ltd - 7 Feb 24 • MOU TIGA Ngati Waewae and Paparoa Wildlife Trust (redacted) • Supplementary Evidence - Mitchell Ryan 6 Feb • Supplementary Evidence - Nick Fuller transport - 7 March 2024 • Supplementary Evidence - Stephen Miller carbon emissions - 7 March 2024 (revised 11 March 2024) • Supplementary Evidence - Stephen Miller carbon emissions - 7 March 2024 • Supplementary evidence in response to questions - Jens Rekker • Supplementary Evidence Stephen Miller 6Feb2024.docx • Supplementary Evidence Cam Wylie 6 February • Supplementary Statement - Gary Bramley ecology - 8 March 2024 • Table 25.2A • TiGa - Corporate - Governance - Sustainability Report - FINAL 17	Link
20	Submitter Lay Witness Statements and Evidence • Appendix Michael Weston methodology • v2 Climate Change revised • Compliance • Lay witness statement Tourism • Visitor survey data • Lay witness statement of evidence Transport • SH6 Concerns Det. Scott Burrowes to Waka Kotahi	Link

	• Hydrology & Functional Need • Natural Character & Landscape, Amenity Values & Social Wellbeing • Westland petrel • Indigenous Biodiversity • Indigenous Biodiversity Attachment One DOIA 2324-0082 • Lay witness statement Radiation • Health & Safety, specifically Dust • Emissions Data • Coast Road overtaking Excel data • Coast Road overtaking places Excel data 2 • Coast Road overtaking places methodology • Traffic survey 231216AM • Traffic survey 231216AM photos • Traffic survey 231219AM • Traffic survey 231219AM photos • Traffic survey 240114PM • Traffic survey 240114PM photos • Traffic survey 240116PM • Traffic survey 240116PM photos	
21	Submitter Evidence provided during Hearing • Kate Simister TiGa Summary Statement of Oral Evidence 26th February 2023 on behalf of Submitter [241]	Link
22	D-GoC Further Information Request during Hearing – 20 02 2024 • Gloucester Resources Limited v Minister for Planning - NSW Caselaw • MfE 2I-definitions-standard (1) • Waugh and Wilson 2017	Link
23	GDC s42A Expert Evidence provided during Hearing • Addendum A Recommended Amended Conditions Mark Geddes • Mark Geddes Evidence in Relation to Minute 8 • RC-2023-0046 s 42A Report Addendum 18 March - updated • Rhys Girvan BM230199_Hearing_Landscape_Summary_20240213 • Supplementary Evidence Mark Geddes • Terrestrial Ecology Statement_Harding_18 March 2024	Link
24	WCRC s42A Expert Evidence provided during Hearing • Cris Ardouin witness statement 13Feb24 • RC-2023-0046 s42A Report Addendum 18 March - updated (1)	Link
25	D-GoC Supplementary Statements and Legal Submissions – 15 03 2024	Link

	• TiGa - Legal Submissions for DG dated 15 March 2024 • TiGa Kate Simister Supplementary Statement 15th March 2024	
26	Coast Road Resilience Group Supplementary evidence provided 15 March 2024 • CRRG response to Mat Collins transport review • GHG Emissions supplementary statement Suzanne Hills • Waugh supplementary evidence 170324	Link
27	Applicant's Supplementary evidence provided 19 03 2024 • Appendix 1 to Reply Statement of Katherine McKenzie - Revised Conditions of Consent - Changes Version • Appendix 1 to Supplementary Evidence of Mitchell Ryan - Barrytown Drill Programme XRF Data • Appendix 2 to Reply Statement of Katherine McKenzie - Revised Conditions of Consent - Reply Version • Appendix 3 to Reply Statement of Katherine McKenzie - Schedules to Conditions • Appendix 4 to Reply Statement of Katherine McKenzie - Email from Tom Lawson • Reply Statement - Katherine McKenzie (planning) - 19 March 2024 • Supplementary Evidence - Mitchell Ryan (radiation) - 19 March 2024 • Supplementary Evidence - Nick Fuller (transport) - 19 March 2024	Link
28	Applicant's legal Reply and Final conditions – 26 March 2024 • Final conditions of consent - 26 March 2024 • Legal Reply - TiGa - 26 March 2024	Link

Attachment 2

Index of items provided as part of the planning bundle for the hearing

Section A:	**West Coast Regional Policy Statement**
1	WCRPS Chapter 3 – Resource Management Issues of Significance to Poutini Ngāi Tahu
2	WCRPS Chapter 4 – Resilient and Sustainable Communities
3	WCRPS Chapter 5 – Use and Development of Resources
4	WCRPS Chapter 7 – Ecosystems and Indigenous Biodiversity
5	WCRPS Chapter 7A – Natural Character
6	WCRPS Chapter 8 – Land and Water
7	WCRPS Chapter 9 – Coastal Environment
8	WCRPS Chapter 10 – Air Quality
9	WCRPS Chapter 11 – Natural Hazards
Section B:	**West Coast Regional Land and Water Plan**
1	WCRLWP Chapter 3 – Natural and Human Use Values
2	WCRLWP Chapter 4 – Land Management
3	WCRLWP Chapter 6 – Wetland Management
4	WCRLWP Chapter 7 – Surface Water Quantity
5	WCRLWP Chapter 8 – Surface Water Quality
6	WCRLWP Chapter 10 - Groundwater
7	WCRLWP Chapter 15 – Hazardous Substances
Section C:	**West Coast Regional Air Quality Plan**
1	RAQP – Chapter 7 Dust
2	RAQP – Chapter 8 – Products of combustion
3	RAQP – Chapter 9 - Global Issues – Objectives and Policies
Section D:	**National Policy Statement on Freshwater Management 2020**
1	NPS-FM 2020

Section E:	**National Environmental Standards for Freshwater Management**
1	NES-FM Regulation 45A
2	NES-FM Regulation 45D
3	NES-FM Regulation 52
4	NES-FM Regulation 54
Section F:	**National Policy Statement for Indigenous Biodiversity 2023**
1	NPS-IB 2023
Section G:	**New Zealand Coastal Policy Statement**
1	NZCPS Objectives
2	NZCPS Policies 1-6
3	NZCPS Policy 11
4	NZCPS Policies 13-15
5	NZCPS Policies 22-26
Section H:	**West Coast Regional Coastal Plan**
1	WCRCP Map of Coastal Marine Area boundaries
2	WCRCP Map of Marine Mammal Bird Sites and Coastal Hazard Areas
Section I:	**West Coast Proposed Coastal Plan 2016**
1	WCPCP 2016 Map of CMAs
2	WCPCP 2016 Map of Coastal Management Areas (from page
Section J:	**Grey District Plan**
1	GDP Chapter 4 – Landscape
2	GDP Chapter 5 - Significant Indigenous Vegetation and Significant Habitats of Indigenous Fauna
3	GDP Chapter 6 – Waterways and Margins
4	GDP – Chapter 7 – The Coastal Environment
5	GDP – Chapter 9 – Natural Hazards
6	GDP – Chapter 10 – Tangata Whenua
7	GDP – Chapter 11 – Hazardous Substances

8	GDP – Chapter 12 - Transport
9	GDP – Chapter 19 – The Rural Environment
10	GDP – Planning Maps – Map 6
Section K:	**Proposed Te Tai o Poutini Plan**
1	TTPP – Strategic Direction – Minerals Extraction
2	TTPP – Strategic Direction – Natural Environment
3	TTPP – Strategic Direction – Poutini Ngai Tahu
4	TTPP - Transport
5	TTPP – Natural Hazards
6	TTPP – Ecosystems and Indigenous Biodiversity
7	TTPP – Natural Features and Landscapes
8	TTPP – Natural Character and Margins of Waterbodies
9	TTPP – Coastal Environment
10	TTPP – Earthworks
11	TTPP – Light
12	TTPP – Noise
13	TTPP – Mineral Extraction Zone
14	TTPP – Planning Maps – Grey Zoning Mapbook – Map 39
15	TTPP – Planning Maps – Grey Natural Hazards Mapbook – Map 39
16	TTPP – Planning Maps – Grey Environmental and Cultural Values – Map 39