



12<sup>th</sup> June 2020

Department of Conservation  
Hokitika Shared Services Centre  
P.O Box 701  
Hokitika, 7842  
New Zealand

**ACCESS ARRANGEMENT APPLICATION- SUGARLOAF QUARRY**

Attention: Permissions Advisor (Support)

Please find enclosed the following;

- 1: Access Arrangement Application Form – Appendix B of Report: SQD620
- 2: Report: SQD620 Access Arrangement Application and Assessment of Environmental Effects

We look forward to the processing of our application and should you have any questions please contact the undersigned

Regards

Mackley Ferguson  
Director  
Kokiri Lime Company Limited  
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# DEPARTMENT OF CONSERVATION ACCESS AGREEMENT APPLICATION & ASSESSMENT OF ENVIRONMENTAL EFFECTS

## KOKIRI LIME COMPANY LIMITED SUGARLOAF QUARRY

REPORT: SQD620

**Submitted to:**

Department of Conservation  
Permissions Advisor  
P.O Box 701  
Hokitika



## SUMMARY

Kokiri Lime Company Limited (Kokiri) is proposing to re establish and operate Sugarloaf quarry for the purposes of producing Armour Grade Protection Rock (AGPR) and roading aggregates.

Accordingly this document addresses potential effects to the environment in reopening and operating the Sugarloaf quarry.

It is important to note that Sugarloaf quarry has already been operated in the past and site access roading already exists through Westland District Council formed legal road. No new access needs to be constructed through indigenous bush and the quarry has already been opened up.

Kokiri has undertaken an onsite and desktop review on the quarry site, as well as information obtained through the Department of Conservation, West Coast Regional Council and Westland District Council to assist in an Assessment of Environmental Effects.

The potential effects associated with the quarry activity include vegetation, ecology, surface water / ground water, air quality, acoustic ,landscape and visual amenity, traffic, land resource, cultural, archaeological and recreational. Kokiri have determined through this application that the reopening and quarry operation will have a minimal effect of the surrounding environment. On this basis we seek that our resource consent applications are processed on a non notified basis.

Due to the site location and its distance from any sensitive residential and commercial receptors, effects on air quality, noise, traffic, cultural, archaeological recreational activities are determined to be minimal for quarrying operation.

A range of management controls and mitigation are proposed in order to minimise and isolate the potential adverse effects. This includes rehabilitation, sediment controls, and minimising disturbance.

There are also a number of positive benefits. These include economic benefits associated with the direct and indirect employment of people and contracting of local business. New Zealand also benefits from the royalties and fees paid to the Crown and local and regional councils.

Our application demonstrates, the potential effects associated with Kokiri's proposal will be avoided, remedied or mitigated, provided the various management and mitigation measures proposed are implemented.

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**APPENDICES**

**APPENDIX A**

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**APPENDIX B**

DOC Application Forms / Mining Permit

**APPENDIX C**

Acid Mine Drainage Test Results and Rock Evaluation

**APPENDIX D**

Retrolens Aerials

**APPENDIX E**

Signed Affected Party Forms WCRC and WDC format / WCRC Letter of support

**APPENDIX F**

Site Photos / Old Map

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NZAA Sites

**APPENDIX H**

Previous Mining License and Access Agreement

**APPENDIX I**

Controller and Auditor General Report

## **PART A – ACCESS AGREEMENT APPLICATION FORMS**

**APPLICATION FOR LAND ACCESS**

To: Department of Conservation  
Permissions Advisor  
P.O Box 701  
Hokitika 7842

- **We attach an assessment (*Part B of this document*) of the proposed activity against the matters set out in the Department of Conservation – Application Form Access Arrangement.**

**Please refer to Appendix B for Application Form.**

Signature:

A handwritten signature in black ink, consisting of a large, stylized loop followed by a horizontal line extending to the right.

Signature of the applicant (or person authorised to sign on behalf of the applicant)

Dated this 12<sup>th</sup> day of June 2020.

**Address for Service:**

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**Address for Fees/Charges for the application:**

Kokiri Lime Company Limited – contact details as above  
**Please email all correspondence and accounts**



**PART B – SUPPORTING INFORMATION**

## 1.0 INTRODUCTION

### 1.1 BACKGROUND

Kokiri Lime Company Limited (Kokiri) is proposing to re establish and operate an open-cast basalt quarry located at Karangarua. Please refer to *Appendix A- Figure 1* for geographic positioning.

The Department of Conservation Access Agreement Application site covers an area of 15 hectares (ha) operating under (MP 60543). It is a hard rock basalt and granite deposit.

Rock resources in South Westland to the calibre of the Sugarloaf quarry, are hard to come by. Not only due to environmental constraints but also there geological characteristics, geographic positioning and accessibility. While we do not expect the quarry to occupy 15 hectares, we consider the resource secured. This allows for correct planning and quarry development to minimise environmental impacts.

Kokiri are now seeking an access agreement from the Department of Conservation (DOC) and resource consents from the West Coast Regional Council (WCRC) and Westland District Council (WDC). Accordingly, this document is our access agreement application, including an assessment of environmental effects (AEE). We have submitted this document to WDC and WCRC to obtain necessary resource consents.

### 1.2 HISTORY OF THE SUGARLOAF ACCESS ROAD

The Sugarloaf access road was originally the State Highway or Main South Road as it was known and shown on old maps. The Karangarua suspension bridge was not built until 1940, so it is our understanding that Sugarloaf road was used as the main highway north and south until then. You can identify the positioning of the old state highway below the quarry intersection on Sugarloaf road. This also gave access to the Karangarua Ferry Deviation that was used to ferry passengers across the Karangarua river in flood condition's.

*Appendix F shows the map of Ferry deviation.*

### 1.3 HISTORY OF THE QUARRY

The rock resource was originally scoped by the Ministry of Works and Development in 1972 as a proposed quarry reserve. In 1979 a number of meetings were convened with all land administering agencies to identify potential rock sources in South Westland. The Westland Catchment Board (WCB) applied for a mining license of 3.36 hectares on the 5<sup>th</sup> February 1979 over the resource area. Mining license 32874 was granted to the WCB on the 16<sup>th</sup> February 1982 for a 10-year period. Mining license 32874 expired on the 16<sup>th</sup> February 1992.

New Zealand Forest Service consented to state forest land access- License No: HO FS 20/5/9/109/1 on the 17<sup>th</sup> August 1979. The Minister of Forests signed this agreement.

The WCB allowed its contractors to win rock from the quarry for river and infrastructure protection. The Ministry of Works (MoW) used the quarry frequently.

The quarry still has existing infrastructure in place, including access roading off State Highway 6, a quarry face, floor and a stockpiling area.

*Refer to Appendix H for details of ML 32874 and HO FS 20/5/9/109/1*

#### **1.4 RETROLENS AERIAL PHOTOGRAPHS**

We have been able to access a number of aerial photographs from the Retrolens database between 18/3/1965 and 15/2/1987. This shows the development of the quarry. These are useful to show positioning of waterway systems over a number of years, as well as land use development.

*Please refer to Appendix D*

#### **1.5 CONSULTATION WEST COAST REGIONAL COUNCIL**

Kokiri have been in contact with Randal Beal- Operations Manager to undertake preliminary consultation. Kokiri has received a signed letter of support from the West Coast Regional Council on the re establishment of the Sugarloaf quarry.

This letter of support is attached to *Appendix E*

#### **1.6 CONSULTATION WESTLAND DISTRICT COUNCIL**

Kokiri have been in contact with Karl Jackson, John Bainbridge and Deborah Patterson to discuss resource consenting, roading and bridge infrastructure upgrades. We have also been in contact with Destination Westland a subsidiary of the WDC to obtain a license to occupy on unformed legal road that is required for the quarry operation.

#### **1.7 CONSULTATION- DEPARTMENT OF CONSERVATION**

Kokiri have been in contact with Arun Naismith and Rebecca Beaumont- Senior Permission Advisors for consultation in regard to the re establishment of the quarry within land administered by the Department of Conservation (DOC). An application for access has been submitted.

#### **1.8 CONSULTATION- TE RUNANGA O MAKAAWHIO**

We have been in contact with Kaiarahi: Rachael Forsyth to discuss the quarry and resource consenting applications.

We have submitted a copy of this document to Te Runanga o Makaawhio. Rachael has advised the Te Runanga o Makaawhio board meet monthly. We have decided due to these time frames that we would lodge our consent applications before affected party signoff from Te Runanga o Makaawhio was given. We are comfortable that we have included a detailed cultural assessment of effects of the quarry for Te Runanga o Makaawhio to give their approval. As discussed with Rachael the quarry will produce a superior rock which will assist with the protection of Te Tauraka Waka a Māui Marae and associated land at Bruce Bay and other cultural and spiritual areas that are effected from ongoing erosion from river and sea forces.

## 1.9 CONSULTATION – OTHER GROUPS

Kokiri have not directly consulted with Fish and Game, as there are no identified species within the quarry site that are threatened.

Consultation has occurred with Heritage New Zealand and New Zealand Archaeological Association to get an understanding if any historical and recorded archaeological sites exist. Email correspondence has been received.

We have not consulted with the New Zealand Transport Agency (NZTA), as the the intersection of State Highway 6 (SH6), Sugarloaf and Hobson Creek road is well constructed and has good visibility and access from both north and south directions for heavy vehicles. WDC use this intersection and if it was not suitable for their use then NZTA would have requested it be upgraded. No vehicle accidents have been recorded at this intersection.

## 1.10 ACTIVITY STATUS

The quarry and associated mining permit is located within Crown land, administered by DOC. As part of the Conservation Act and Resource Management Act- Schedule 4 an assessment needs to be undertaken if the proposal for quarrying of rock can be undertaken elsewhere in another area or another part of the conservation area to which the application relates.

The proposed activity cannot be undertaken or located elsewhere for the following reasons;

- A mining permit has been granted over the resource area
- The resource and quality of rock is not located elsewhere and is a one off a kind resource in regard to density per m<sup>3</sup>, weathering and abrasion resistance
- An access road is already existing
- A quarry has already been developed previously and has existing infrastructure.
- The proposed quarry is located in close proximity to logistical road infrastructure

Kokiri cannot change land ownership, the resource is where it is, there are no alternatives, any proposed alternatives would cause environmental damage to other land.

## 1.11 PURPOSE OF THIS DOCUMENT / CONSENTING

This document, consisting of Parts A and B, has been prepared by Kokiri Lime Company. Part B provides supporting information to meet the requirements of Schedule 4 of the Resource Management Act 1991 as well as questions asked by the Department of Conservation through their application forms. This document contains the required information, where relevant, including an AEE.

Our resource consents assessment is made against the WCRC and WDC operative plans. Within these plans there are a number of permitted activities and conditions attached to those rules. To allow the quarry to operate effectively we have sought consents based on parameters that could occur due to demand for rock and aggregate products. We do not want to get into a situation with WCRC and WDC where we are in breach of a permitted activity.

This application is for the re establishment and ongoing operation of the Sugarloaf quarry.

## 1.12 ACCESS AGREEMENT AREA / TIMEFRAMES

Our access agreement application applies to 15 hectares in the mining permit area ( Part Reserve 1683 s.67 CA1987 HMQ (DOC). This 15 hectare area is shown in Appendix A- Figure 2. This area has been indicated by DOC terrestrial ecologist- Jane Marshall as being described as lower value.

Granted access agreement is required to cover this area. The proposed commencement date of site works are as soon as all statutory permits and consents have been obtained. Kokiri Lime Company are seeking a 40 year access agreement from DOC so they co-exist with the current mining permit operational timeframes.

### 1.13 RECEPTORS BOUNDARY

For the purposes of determining the effects of the quarry on the rural landscape we used a 5km sensitivity analysis. This was determined to take into account all landowners in the Karangarua Settlement area. which we consider is an isolated rural environment, due to population size.

Residential receptor distances from quarry face are shown in *Appendix A figure 4*

- Receptor 1 - Wade Scott Homestead- 0.915 km
- Receptor 2 - James Scott Homestead, Hangar and Helipad- 2.4 km
- Receptor 3 - James Scott Farm Accommodation- 3.0 km
- Receptor 4 - David and Robert Scott- 2.9Km
- Receptor 5 - Wade Scott Accommodation – 3.3 km

Signed affected party approvals in WCRC and WDC format have been received, please refer to *Appendix E*. On this basis we request that our resource consent applications are un-notified. The quarry cannot currently be observed from SH6. There is only one access route into the quarry site.

### 1.14 POLICY'S, STANDARDS AND OBJECTIVES

There are four National Policy Statements (NPS) that need to be considered. Two of these statements relate to our application;

- New Zealand Coastal Policy Statement 2010;
- National Policy Statement on Freshwater Management 2014

We have considered the objectives of these NPS and believe that our application for the re development and ongoing operation of the Sugarloaf quarry will not cause any significant effects providing mitigation is undertaken and conditions of consents are imposed.

There are six National Environmental Standards (NES) that need to be considered. Three of these statements relate to our application;

- National Environmental Standards for Air Quality
- National Environmental Standards for Sources of Drinking Water
- National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health

Based on our assessment on the existing environment the effects caused by the quarry operation, we consider that NES will be complied with providing mitigation is undertaken and conditions of consent are imposed.

We have considered the West Coast Regional Policy Statement 2000 and we consider through our assessment of effects, the quarry operation complies with the objectives of this statement providing mitigation and conditions of consents are imposed.

As indicated in section 1.11 we have assessed our application on the ability to operate within the guidelines of the Regional and District Plans. We consider any associated environmental effects to be mitigated and within the framework of these plans which authorise the proposed quarry land use.

### 1.15 LOCATION

The quarry site is located 18km south of Fox Glacier and 18km north of Bruce Bay, towards a small settlement area known as Karangarua. It is located in a WDC rural resource area.

The quarry site itself is located at the base of the Sugarloaf ridge, which extends west to Scotchman's creek. The ridge the quarry is located is defined by the separation of the Karangarua river and Saltwater creek (Ohinetamatea River).

- NZTM coordinates: E 1342660 / N 5175184 will direct you to the Sugarloaf quarry floor.
- Appendix A- Figure 1 also illustrates geographic positioning.
- Appendix A- Figure 2 illustrates cadastral information
- Appendix A- Figure 3 illustrates current / proposed infrastructure
- Appendix A- Figure 4 illustrates receptor locations

The existing quarry face is located on public conservation land administered by DOC. The Te Wahipounamu- South West New Zealand World Heritage Area (WHA) overlaps it. The quarry floor and access roading is located on WDC Legal Road reserve (formed and unformed).

The proposed quarry follows the otita basalt / granite outcrop which as been geologically mapped by GNS Science. The westerly trending ridge ranging in elevation from 21 meters above sea level (m asl) at the eastern end (quarry floor) to a peak of 312m asl in the west.

The land surrounding the access route to the quarry is mostly flat gravel outwash terrace of the Karangarua and Border creek catchments.

Land use activities over the quarry site are currently non-existent, with only WCB quarrying operations being previous land uses. No logging has been undertaken over the quarry permit area.

## **1.16 THE RESOURCE**

### **1.16.1 GEOLOGICAL SETTING**

The geological map of Aoraki (QMap 15) outlines the rock resource lies over a stratum of basalt and granite. Inferred age of the basalt is 65-61 Ma. The basalt uncomfortably overlies Greenland Group and is tentatively correlated with Paleocene Basalt.

A basalt is a fine-grained basic igneous rock containing essential calcic plagioclase feldspar and pyroxene (usually Augite), with or without olivine. Basalts can also contain quartz, hornblende, biotite, hypersthene (an orthopyroxene) and feldspathoids. Basalts are often porphyritic and can contain mantle xenoliths. As basic rocks they contain between 45-50% silica, abundant Fe, Mg and Ca, and little Na and K.

At a cross sectional point in the mining permit area, rock type changes from basalt to granite as outlined in GNS geological map.

### **1.16.2 THE BASALT / GRANITE RESOURCE**

With reference to geological map 15 (2007), Geology of the Aoraki Area, compiled by Cox S.C, Barrell D.J.A, scale 1:250,000 the area of the proposed mining permit is underlain by two separate geological units, basalt and granite.

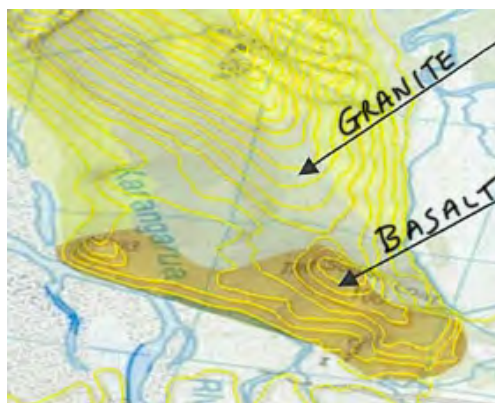
Within the mining permit area our consulting geologist has indicated through resource modelling there is 2.45 Mm<sup>3</sup> or 72 Million Tonne of basalt using the rocks density of 2.94T/m<sup>3</sup>.

As identified the granite is wedged behind the basalt outcrop.

Resource modelling as indicated 50.4Mm<sup>3</sup> or 136 Million Tonne using an estimated granite density of 2.7T/m<sup>3</sup>

It should be noted that rock analysis testing of the basalt has returned the following results.

- Density: 2.94 t/m<sup>3</sup>
- LLA: 13.1 %
- Weathering Classification : BA



## 1.17 SITE ESTABLISHMENT

### 1.17.1 INTRODUCTION

Kokiri require the following consents and permits for the Sugarloaf Quarry Operation;

- WCRC- Consents suite
- WDC- Land use consents for quarry operation, vegetation clearance
- Destination Westland- License to occupy an unformed road.
- Department of Conservation Access Agreement
- Access Agreement- James and Debbie Scott

### 1.17.2 SITE ACCESS ROAD

The quarry site is accessed off the intersection of Hobson Creek road, Sugarloaf road and SH6,

Both Hobson Creek and Sugarloaf roads are owned, operated and maintained by the WDC, although the WDC has retreated on maintenance of Sugarloaf road. SH6 is owned by the Crown and managed by NZTA. The total length of the formed Sugarloaf quarry road is 2.038km. The length of the unformed section of the legal road is 1.47km. The unsealed WDC ownership distance is 3.508km.

As indicated in section 1.2 Sugarloaf access road is the original highway prior to the Karangarua suspension bridge being constructed, however it did not tee off into the quarry until 1982. The access road is formed on alluvial outwash terraces above the current Karangarua River System.

Appendix A- Figure 3 indicates infrastructure on Sugarloaf Road.

Presently the road has a user warning of road closed- road not maintained, use at your own risk.

The access road is formed with an aggregate surface and drainage for approximately 855m from the SH6 intersection. There is a deep drain on the eastern side from CH 0.00 to CH 0.752. This requires cleaning and the face of the batter lined with rubble rock to build up and stabilise the shoulder. This will allow stormwater erosion protection.

From approximately chainage 752-1929m the Sugarloaf road has been formed and is of an aggregate surface, however it needs upgrading.

New steel culverts need to be installed to Border creek culvert crossing no: 3, the road needs re metalling / shaping and all side drainage channels need cleaning this is to include high shoulder removal.

We have discussed these requirements with the WDC transportation division with the intention to develop a suitable programme of works that will be based on site-specific specifications, so the road is fit for purpose.

Currently there is a bridge across Border creek – 244 Sugarloaf Road. It is owned and operated by the WDC. The bridge was installed by the MoW under authority from the WCB to obtain access to the quarry. Currently the bridge is rated to 20% of Class One. This gives it a current rating of 8.8 tonne. A Class One bridge rating is 44 tonne. It is approx. 4 meters wide and 6 meters in length.

WDC had intentions to remove the bridge and Kokiri had asked for time to conduct an economic feasibility study on the MoW bridge. We have since had a structural engineer determine that the bridge is not feasible to repair. According to the WDC will continue with the bridge removal so we can replace it with a suitably designed culvert / bridge structure.

From the north side of the MoW bridge the access road enters the quarry floor area, which is located on legal road reserve. The quarry face is within mining permit 60543 and located on Crown conservation land.

The access road has not been used extensively for a number of years and is now used predominantly for James Scott's farming operation at Karangarua. James is the main landowner in vicinity of Sugarloaf quarry. Kokiri have an access agreement in place with James for use and upgrading the access road, which overlies his property. Other road users for recreational purposes include, white baiters, anglers, hunters, jet boaters, kayaking, trampers, but usage is considered minimal.

In general the access road needs re-sheeting with aggregate, shaping to provide cross fall, swale drain cleaning, upgrading culverts and cutting back encroaching tree branches over the road.

We do not intend to widen the access road in general, however passing bays at appropriate locations will be installed for road safety. Machinery used for upgrading of the access road will include a 20 tonne excavator, grader and 6x4 road truck. All stripped vegetation / topsoil from the existing access road will be carted to VS1.

Resource Consent Analysis;

- All earthworks associated with upgrading of the access road are a permitted activity under rule 3 of the WCRC Regional Land and Water Plan (RLWP). Further these works are a permitted activity under rule 4 of the WCRC Regional Air Plan (RAP).
- These works are also a permitted activity of the WDC District plan as per Rule 6.2 C (i) and Rule 6.2 H.

No Resource Consents are required for these works.

### **1.17.3 BORDER CREEK CROSSING**

Access to the Sugarloaf quarry requires crossing Border creek. The MoW bridge is located at NZTM E:1342574 N: 5175109.

Border creek begins in the headwaters of the Copland Range (Southern Alps). It crosses SH6 at the Border creek bridge and meanders down the Karangarua flood plain and incises itself into pastoral farmland and LINZ managed marginal strips. Scott's Creek, unnamed field drains and stream systems from swampy areas also drain into Border creek. The Border creek tributary drains into the Karangarua river at 6.84km from the Karangarua suspension bridge.



Border creek velocity of flow at the MoW bridge is deemed stagnant. Water has a dark patina caused by dissolved organic matter, typical of swampy areas that drain into Border creek.

Water visibility is clear. There is approximately a 4-meter drop between the surface of the MoW bridge and the bottom of Border Creek

WDC own and operate the current Border Creek MoW bridge structure that currently provides access to the quarry.

As mentioned in Section 1.10.2 the MoW bridge is not economically feasible to repair, so needs to be removed and a new culvert structure needs to replace it. A suitable steel culvert design will be undertaken to accommodate Border Creek catchment flows. A steel culvert/option is sought for the following reasons;

- Quick installation for methodology;
- Can be re established quickly should it be effected by flooding;
- Will allow for heavy machinery and trucking weights; and
- Will allow for wider crossing for safety requirements

The culvert installation will require a temporary ford to be constructed across Border Creek for access. Grade of ford will be 1:5 and be temporary until culverts are installed. The installation will also require a dewatered site, so suitable rock / aggregate (pit run) raft foundations can be installed. In order to undertake this we propose installing a gravel cofferdam 10 meters upstream and downstream of the current bridge location. On a favourable fine weather forecast we will then use one 8/6 inch high head dewatering pumps with 6 meter suction lines and a fish screen rose head to over pump Border Creek flows. 6 inch HD PVC lay flat will be used for the discharge line. This over pumped water should be relatively sediment free.

Any rock and rubble supply requirements for the culvert installation will be obtained from the Sugarloaf quarry. Where river grade pit run is required this will be sourced from the Karangarua River and Havelock Creek. We note that there are permitted gravel extraction sites in these areas, however extraction is for 300m<sup>3</sup> per annum per site as per Rule 29 of the WCRC RLWP. We are currently looking into applying for resource consent for extraction for a different location on the Karanagrua river for ongoing river run supply requirements.

#### Resource Consent Analysis: WCRC RLWP

- Structures for the damming of water is a permitted activity as per Rule 24 providing its conditions are met.
- The temporary diversion of water is a permitted activity as per Rule 47 providing its conditions are met.
- The damming of water is a permitted activity as per Rule 50 providing its conditions are met.
- The use, extension, alteration, maintenance, repair, reconstruction, removal or demolition of the MoW bridge is a permitted activity as per Rule 20 if the appropriate conditions are met.
- The erection and placement of any culvert, ford or bridge is a permitted activity as per Rule 23 providing its conditions are achieved. This is also a permitted activity by the WDC District Plan Rule 6.2 G, I.
- Any flood protection works associated with the new culvert install at the MoW bridge location, to include rock abutments and rock rip rap protection from top to toe of batter is a permitted activity as per Rule 28 providing its conditions are met.
- Resource Consent is required from the WCRC as per Rule 35 of the WCRC Land and Water Plan for Disturbing the Bed of Border Creek.

*We note that the WCRC may consider that the width of the crossing is greater than 5 meters and therefore resource consent is required. We have considered this measurement and believe the crossing width in the waterway is 5 meters maximum. We are happy to discuss this with the WCRC.*

#### **1.17.4 EXISTING QUARRY INFRASTRUCTURE**

The quarry was established in 1982. Retrolens aerial photographs (*Appendix D*) show the timeline of the rural area and the development of the quarry access road. The quarry is also marked on current topographical mapping systems.

Currently the quarry has an open face and remains of rubble and rock stockpiles from previous operations. The quarry face is overgrown with matagouri, moss, lichens and grass / topsoil organic matter.

The quarry face currently at its highest point is approximately 20 meters above the quarry floor, however there are rough working rubble benches at 8m intervals. The width of the quarry face is approx. 25 meters at present.

Currently the quarry floor is covered in grass / moss / lichens and requires stripping down to hard. We intend to scape the quarry floor, providing a hard, all weather surface. This is for quality and environmental control purposes and will reduce sediment run off in inclement weather conditions.

### **1.18 QUARRYING OPERATIONS**

#### **1.18.1 OVERVIEW**

This section of the application describes the quarrying operation.

The quarry is of an open cast operation, no tunnelling will take place.

#### **1.18.2 HEALTH AND SAFETY**

The quarry operation will operate under the following Health and Safety Legislation

- Health and Safety Act 2015
- Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations 2016
- Work safe New Zealand (Good Practice Guidelines, Health and Safety at Opencast mines, Alluvial Mines and Quarries) November 2015.

Health and Safety signage will be erected to outline site safety including personnel protective clothing requirements.

#### **1.18.3 HUMAN GENERATED DETRITUS / FIREARMS AND DOGS**

All rubbish generated on site will be disposed off at the Fox Glacier Transfer Station or the Haast Landfill that are operated by the WDC. Cardboards from explosive packaging and food packaging are expected to be the main rubbish sources. We will install a mobile portaloo, with waste removed by Hibbs Drainage Services. Portaloo will be braced down using anchors.

No firearms and dogs will be permitted onsite.

#### **1.18.4 HOURS OF WORK**

The proposed hours for operation are 6.00am-9.00pm – 7 days per week

Rock Blasting (Explosives) will only occur between the hours of 8.00am and 6.00pm- Monday- Saturday

If a natural event (Flooding / Coastal Erosion / Earthquake) occurs and emergency rock / aggregates are required, we will seek a variation to the hours of work via email to the appropriate consents managers at WCRC and WDC to allow for 24 hour operation in such situations. This is to allow constant supply of rock in such events. We ask that a provision be made into consent conditions.

#### **1.18.5 QUARRY DESIGN AND OPERATIONAL PARAMETERS**

Quarry Design will be undertaken within the guidelines of Work Safe New Zealand (Good Practice Guidelines, Health and Safety at Opencast mines, Alluvial Mines and Quarries) November 2015.

The main objective of quarry design is to extract specification grade rock in the safest way possible, while limiting the amount of earthworks and vegetation clearance at any one time. As Indigenous vegetation is involved, we intend to maximise the tonnages of rock that can be removed per m<sup>2</sup> and by utilizing all undersized rock for processing of a variety of roading aggregates.

The rate of quarry development will depend on customer demand from WCRC, WDC, NZTA, DOC, roading contractors and the south westland farming community. It is our intention to operate the quarry as and when required, this is a typical operational approach where demand fluctuates. Once suitable stockpile levels are created, operations may not recommence until either contractual work or natural hazard response is required.

As the quarry is located in a rising ridge from a south eastern position, we intend to use the topography to create access tracks into higher altitudes of the deposit, so that appropriate benching can be installed. Benching heights will be determined by risk assessment which will include geotechnical conditions and size of machinery used in the quarry. No bench will exceed 15 meters in height as per Health and Safety legislation.

It should be noted that the Alpine Fault runs 2.760km from the Quarry (WDC GIS Layer), which will be taken into account with quarry design.

## 1.18.6 QUARRY STAGING

### 1.18.6.1 OVERVIEW

Key components of quarry works, include:

- Vegetation, Topsoil and overburden stripping:

The surface over the top of the basalt and granite deposit inhabits vegetation, organic matter and topsoil. This will required to be removed so it does not contaminate the won rock, but also provides access for drilling and blasting to occur. Vegetation and topsoil will be direct transferred, side casted or stockpiled within the parameters of the quarry.

- Drilling and Blasting:

Once the basalt and granite is exposed and been cleared of vegetation, soil and any weak overburden, it will require drilling and blasting. The end user product selected will determine the exact sizing. Secondary blasting using rock jackhammer with 3-6ft steels may be required.

- Rock Breaking and Vibrating Ripper:

In the case where rock becomes jointed, rock breaking and vibrating and stationary rippers will be used to produce rock. This is a less intrusive method and will ensure the rock is not over blasted and fractured in such geotechnical conditions.

- Excavation and Cartage:

Once the rock has been won by blasting or ripping, it will be excavated from the quarry using hydraulic excavator and carted to the stockpiling and processing site using articulated dump truck. Here it will be tipped off, graded and processed.

- Rehabilitation:

A rehabilitation plan will ensure the quarry is rehabilitated correctly. Vegetation, Topsoil and any overburden stripping will be reapplied as soon as practical by direct transfer, side casting or from stockpile as the quarry advances.

### 1.18.6.2 CLEARANCE AND EARTHWORKS OF INDIGENOUS VEGETATION

As mentioned above, earthworks are required on the surface of the quarry resource to clear indigenous vegetation. This is to include a variety of tree and other vegetation species as identified in section 2.5 of this document. This will expose the basalt and granite resource so it is free from contamination for processing, while allowing for correct separation to allow for productive rehabilitation. Where possible direct transfer removal methodologies will be used, accompanied by side casting vegetation and carting topsoil to VS1 stockpile site, so it can be reused for rehabilitation of the quarry as it advances.

Previous quarrying operations have already removed Indigenous vegetation, and there is clear evidence that access has been obtained above the quarry face to strip back vegetation. Retrolens photographs between 1965-1987 show how the quarry was developed, and the significant amount of earthworks and indigenous vegetation clearance that has previously occurred.

It is important to note that there will be no earthworks or vegetation clearance within riparian margins. Despite this there may be instances were small sediment ponds and cut-outs will need to be constructed in the riparian margin so treated surface water can be released to natural watercourses. This activity is permitted under Rule 2 and Rule 8 of the WCRC RLWP, provided its conditions are met.

The access road and the quarry floor area earthworks and vegetation clearance are in the non erosion prone area (less than 12 degree slope), annual earthworks volumes in this area will be one off and under 5000m<sup>3</sup> per hectare / annum.

These earthworks are permitted under rule 3 and rule 6 of the WCRC RLWP, provided its conditions are met. The vegetation clearance in non erosion prone area is also permitted under rule 10 of the WCRC RLWP provided its conditions are met.

For the sole purpose of resource consenting and site management of erosion and surface water management we consider the quarry to have no slopes in erosion prone area one between 12-24 degrees. Despite our internal assessment there are some slopes areas that are classified in erosion prone area one. In these areas we consider we can meet permitted activity provisions of rule 4, however not rule 9 of the WCRC RLWP.

Conditions of rules 5 and 9 of WCRC RLWP may not be achieved and earthworks volumes and vegetation m<sup>2</sup> limits are thought to be exceeded with the ongoing operation and development of the Sugarloaf quarry. It is important to note the m<sup>2</sup> limits may not be exceeded as it is dependent on demand for rock products. We seek resource consent to allow for exceeding the limits imposed under rule 5 and 9.

This invokes rule 16 of WCRC RLWP

On this basis a resource consent for earthworks and vegetation clearance in erosion prone area 2 is required from the WCRC due to the discretionary activity status.

The WDC also have conditions around Indigenous vegetation clearance under their operative district plan. As clearance over the quarry resource area, in erosion control area 1 and 2 may be greater (dependent on demand) than 2000m<sup>2</sup> per 5 years and from an area in excess of 5 hectares in total, the activity is discretionary as per rule 5.6.2.2 c and requires a resource consent to which we are applying for.

We note the WDC may consider this activity a restricted discretionary activity however there is a significant debate that the activity is not mining but quarrying. We reserve our right if required to present evidence on this matter.

Further under rule 5.6.2.2 D we consider we have met the parameters over which control is reserved through our assessment of environmental effects.

It is important to note that the WDC still does not have a list of Significant Natural Areas (SNA) and no SNA statutory legal status in place over the quarry and resource area. We understand that SNA effectively apply to wetland areas, which are not involved over the resource area.

### **1.18.6.3 QUARRYING METHODS**

The Sugarloaf quarry will be operated on an open cast basis. Due to the hardness of rock, blasting using explosive products will be required. Blasting design will be determined by the size of the rock required either for AGPR, being of larger sizing or rock for crushing purposes which will require a more concentrated blasting pattern to reduce the size of the feed rock into the crushing plant. Drilling will be undertaken with a 15 tonne Tamrock Scout Drill Rig, which uses a surface hammer and a 65mm cutting head.

Rock produced for river and coastal protection works will be won by blasting, sorted by a 20-60 tonne hydraulic excavator and stockpiled, for further transportation offsite. It should be noted that the strata conditions may change and rock may become more jointed. In this case rock will be extracted using vibrating or stationary ripper and rock breaker.

Material that does not meet AGPR grading requirements, will be stockpiled and carted to the processing area for crushing into a variety of aggregate products.

Aggregate crushing methods will consist of a jaw and cone crusher and split screens for

aggregate sizing. A 20-30 tonne hydraulic excavator and a 15-20 tonne loader will be required for feeding and tailing out from the crushing system.

Aggregate products will be stockpiled separately and await further transportation off site based on end user product demand.

Any surface topsoil / vegetation will be direct transferred, side casted or stockpiled for rehabilitation purposes as the quarry advances.

#### **1.18.6.4 SPECIFICATIONS**

New Zealand Standard – NZS 4407:2015 will be used for compliance for Methods of Sampling and Testing of Road Aggregates. Samples will be taken from the quarry and tested by an ICANZ laboratory as required.

NZTA also has its own rock and aggregate specifications, which are considered appropriate for the WCRC and WDC requirements.

Rock dimension specifications are determined by the engineers of NZTA, WCRC and WDC, DOC, which are usually project specific. Specifications are usually found within contract tender documents.

In emergency situations it is useful to have a stockpile that is certified and ready for deployment.

#### **1.18.6.5 EXPLOSIVES**

All Drilling and Blasting will be undertaken by an A Grade Quarry Manager.

Explosives will be transported and stored onsite under the Health and Safety at Work (Hazardous Substances) Regulations 2017.

#### **1.18.6.6 PLANT / EQUIPMENT AND FACILITIES**

The following plant is anticipated onsite

- Excavators- 20-60 Tonne
- Drill Rig
- Compressor
- Generator
- Articulated Dump Trucks
- Crushing and Screening Equipment
- Loader -20 T
- 40ft Site Tool Container
- 20ft Portacom- Quarry office
- Diesel Fuel Tanker

In emergency situations plant numbers may increase onsite to provide constant rock supply.

### 1.18.6.7 STOCKPILING

There are two proposed stockpiling areas ( VS1,SP1) and there is one proposed crushing / screening area (CS1). These areas will be cleared of vegetation except for a marginal strip of 10 meters which will act a riparian buffer between the stockpile areas and Border Creek. This setback is in compliance with WDC rural policy 5.6.3. This setback does not invoke rule 2 of the WCRC RLWP. Stripped vegetaion in these areas will be stockpiled in a bund formation in VS1.

CS1 will be the main area where machinery and screening / crushing equipment is operating. VS1 will be used for stockpiling of vegetation and soil that is stripped from the rock resource surface area where direct transfer and sidecasting is not effective and for all other vegetation that is stripped from these areas, including the access road.

SP1 will be used as a sole stockpiling site for AGPR and aggregates. This is to allow for emergency supply.

Stockpiling is a permitted activity under rule 83 of the WCRC RLWP provided there is no discharge of contaminated runoff. Rule 3 of the WCRC RAP also states stockpiling is a permitted activity providing there is no discharge of dust or odour. Clean graded rock will not provide sediment runoff or cause dust or odour.

### 1.18.6.8 Chemical Anylsis

We have undertaken Acid Based Accounting on the Sugarloaf basalt rock. *Please refer to Appendix C for test results.*

This test was undertaken to outline if there is any acidic chemical elements in the rock that will cause effects to the surrounding environment and waterways.

As outlined in test results the basalt rock generates no acid and has a small ph neutralising capacity. This means that if there is any acid in waterways then the basalt rock will help neutralise the acid component. This will generate positive effects for the flora and fauna in waterways.

## 1.18.7 WATER MANAGEMENT

### 1.18.7.1 OVERVIEW

Site water management requires stormwater (clean and turbid) to be managed separately and includes groundwater control. The way this will be undertaken is described below.

*Appendix A- Figure 3* indicates stormwater cut off drains along the perimeters of each infrastructure zone. Sediment ponds / check points will be installed every 20 meters along these drains.

### 1.18.7.2 SITE STORMWATER MANAGEMENT

Site management of stormwater will revolve around ensuring that the amount of 'dirty' stormwater at the site is minimised as much as practicable. To achieve this, we will progressively install (and remove) bunds or cut-off drains that move in association with quarry advancement.

The aim of these bunds and / or drains, and any associated silt fences and silt socks, is twofold. They will be designed to ensure that clean stormwater (i.e. stormwater that has not run across disturbed land) is diverted away from disturbed areas, while the stormwater that does run across disturbed land, and which has therefore been contaminated with sediment, is collected and directed either into settling ponds for treatment prior to being

discharged. The clean stormwater will continue to discharge into the surrounding land, as it would have prior to the quarry being established.

The infrastructure associated with the site stormwater management system will be sized to accommodate heavy rainfall events while also ensuring that the potential for localised erosion is minimised.

The quarry floor area and processing areas will be bunded by a 10m marginal strip of natural vegetation on boundary lines of Border Creek.

The main source of surface water will be within the quarry floor area. The quarry floor will be shaped to provide positive drainage away from the quarry face towards cut off drains along Border creek. This will reduce ponding and compounding of rock that could introduce fines into the quarry floor area.

Another source of sediment-laden water will be the access road into the quarry. Accordingly the access track will need to be shaped to allow surface water runoff into side swale drains, which will run into sediment ponds.

We have considered that providing fit for purpose and efficient storm water run off management systems are in place for all earthworks, vegetation clearance and quarrying for rock, then the discharge of storm water runoff is a permitted activity under rule 81 of the WCRC RLWP providing its conditions are met. We have supplied evidence that the quarrying of rock and production of aggregates will not generate any acidic-based runoff.

Other factors for this determination include;

- The storm water discharge flows will not be greater than the existing border creek flows.
- Designated fueling areas, with bunding and spill kits, then there will be no hazardous materials discharge.

Further to this the quarry floor will act as a large dissipation pad which will slow the velocity of surface water coming off the erosion prone area 2 rock resource area. Installed benches will also act as sediment runoff traps.

We note that the WCRC may not accept our reasoning for this activity being classified under rule 81 and if this is the case then we are happy to accept that resource consent will be required for storm water discharge under rule 90 of the WCRC RLWP. This invokes a controlled activity, which gives the WCRC more controls over storm water management.

The discharge of surface water that has passed through sediment retention systems and the discharge to Border creek is a permitted activity under rule 67 of the WCRC RLWP providing its conditions are met.

The discharge from any cut off drain / sediment pond is a permitted activity under rule 64 of the WCRC RLWP providing its conditions are met.

### **1.18.7.3 QUARRY DEWATERING**

Currently no groundwater is showing exiting the quarry face or running through the quarry floor. Groundwater will exist but will be depths lower than the current datum of the quarry floor. Hydrogeology information will present itself as the quarry advances. We cannot rule out that there is surface water intrusion through a back break (joint) in the rock. This may occur where the rock changes from basalt to granite, as clearly there is a different geological structure at this point.

As expected as the quarry progresses or if the quarry floor is lowered then groundwater will need to be managed effectively. In such circumstances there a variety of options, which includes over pumping or installing catchment drains. As expected any groundwater should be relatively sediment free in such a rock quarry environment, however if it needs treatment prior to discharge it will pass through appropriate sediment retention systems.



Groundwater take is a permitted activity as per rule 44 of the WCRC RLWP, providing its conditions are met.

To assist with removing surface water slope dewatering may be undertaken depending on volumes of surface runoff at the quarry face. Slope Dewatering is a permitted activity as per rule 46 of the WCRC RLWP, providing its conditions are met.

#### **1.18.7.4 DUST**

Quarry operations will result in discharge to air in the way of fine particle discharge (dust). This will occur with earthworks, vegetation clearance, blasting, screening / crushing and transportation movements that occur within the quarry and the access road. As the quarry is located in a rural area with a high annual rainfall this should be mitigated through the natural environment. There are also no sensitive receptors within a close vicinity of the quarry. Topographic contours of the quarry should keep all dust confined within the quarry area.

Unsealed haul roads are typically the most significant potential source of dust for quarrying activities if they are not mitigated. This is because on dry days the surface of the haul road can dry out and the action of vehicle wheels can act to pulverize the road surface material and subsequently suspend fine material in the air as the vehicle passes over it. The amount of dust generated from an uncontrolled, unsealed haul road depends on the volume of traffic, speed and weight of the vehicle and the condition of the road surface (presence of a high silt content as well as corrugations and pot-holes in the road surface).

Speed restrictions on the access road will be set at 50km/hr. for health and safety and to reduce surface corrugation, potholing and to minimize dust. Speed restrictions may be increased further should high winds and extended dry periods exist to mitigate associated effects.

Water for dust suppression may also be used within the quarry processing area and access as and when required. Water will be sourced from the Karangarua river. Water take from the Karangarua river is a permitted activity as per rule 39 of the WCRC RLWP providing its conditions are met.

## 2.0 THE ENVIRONMENTAL SETTING

### 2.1 INTRODUCTION

An assessment of potential effects of the activities for which resource consents are sought is required. To be able to undertake such an assessment, it is first necessary to identify the nature of the potentially affected environment. It is also useful to generally describe the values that society recognises as being associated with the area. This information is provided in the following sections of this application.

It should be noted that Kokiri has undertaken research from information portals of the following agencies to assist with determining the environmental setting.

- Department of Conservation- GIS Maps
- West Coast Regional Council- West Maps
- Westland District Council- GIS Mapping Layers
- Land Air Water Aotearoa
- National Institute of Water and Atmospheric Research (NIWA)
- Landcare Research

### 2.2 GENERAL SETTING

As outlined earlier within this document, the quarry site is located on a ridge (known as the Sugarloaf) between the Karangarua and Saltwater Creek (Ohinetamatea River). The ridge is indigenous forest prodocarp. Classified by Land Cover Database (Item 69)

The quarry and mining permit resource area is not identified as having any significance landscape values in the WDC District Plan. The quarry and the surrounding area have a WDC planning status of "Rural". It is not located in a WCRC Schedule 1 or 2 Wetland. Land use capability at the quarry is classified as grade 6 and 8 of the New Zealand Land Resource Inventory.

The quarry resource is predominantly in public conservation land managed by DOC. It has a land classification of "Conservation Purposes" and is land that can be leased from the Crown through DOC. The quarry does not overlap any Specially Protected Areas (Parts IV Sections 18-23) of the Conservation Act 1987.

The Mining Permit area overlaps the Te Wahipounamu- South West New Zealand World Heritage Area (WHA). WHA areas are not included in Schedule 4 of the Crown Minerals Act 1991, so mining permits can be granted.

The WCRC, WDC and DOC have no policies or rules prohibiting resource consents or access agreements and concessions being granted in WHA areas.

There is no WCRC and WDC policy or rule that does not allow for the quarry to operate, providing conditions of consents are met. The quarry and permit area is not located within a Significant Natural Landscape (SNA) by the WCRC and WDC.

### 2.3 CLIMATIC CONDITIONS / AIR QUALITY

The West Coast of the South Island and in particular South Westland experiences very high precipitation. Karangarua annual rainfall averages 4540-5000mm per year. Average wind speed is 10kmph. 2141 sun hours were recorded between March 2019- March 2020 ( 24%). These wet conditions need to be taken into account during quarry design and water management system implementation.

Given the orientation of the Karangarua valley, and the small rural population, the ambient concentration of air pollutants is likely to be minimal. No odour is present as there are no commercial operations around the Karangarua area that meet the criteria of The WDC District Plan- Appendix G – Odorous Activities. The areas high rainfall also keeps dust levels from rural operations to a minimum.

Based on the above, existing air quality in the Karangarua settlement and the quarry site is generally good. No PM<sub>10</sub> has been recorded in the area. In the cooler months April – October low lying fog can occur around the access road and quarry floor area.

## 2.4 LANDFORMS / LANDSLOPES

The quarry and mining permit area is located in a prominent forest covered ridge of Otitia basalt and granite.

The ridge marks the edge of a glacial advance. Landslopes vary throughout the mining permit area. The Quarry floor and access roading is situated in a slope of less than 12 degrees (non erosion zone) whilst the quarry face and rock resources is located in a mix of Erosion Prone Areas 1 and 2. (Rolling to Steep)



## 2.5 SOIL

As the rock resource area is located on a moraine terrace landform, topsoil profiles are characteristically naturally sparse. We expect an average topsoil depth overlying the rock of 100-200mm

There are two types of soils that overlie the mining permit area. (Landcare research, NZ soil classifications)

- Brown Soils - Acidic-pedal Allophanic Brown Soils in the lower altitudes of the ridge
- Humose Orthic Podzols in the upper altitudes of the ridge.

## 2.6 RIPARIAN MARGINS

Riparian zones are integral to the functioning of both aquatic and terrestrial ecosystems. The diversity of plants found at the land-water interface is the greatest of any habitat. Riparian zones also contribute directly and significantly to food sources as leaves and insects fall from terrestrial plants into waterways. spawning habitats for whitebait species and other fish species are found in the riparian zone.

Many insects that have aquatic larvae also spend their adult lives close to water, and support a rich fauna of web-building spiders as well as insectivorous birds.

WCRC rules apply for riparian margin setbacks. These are based on landcover, slope, and waterbody width. We will use a 10m wide setback for WCRC compliance as per page 53 of the RLWP as the land slope surrounding waterways is less than 12 degrees, the average width of Border creek is 4-5 meters and landcover is indigenous vegetation. Any earthworks and vegetation clearance in the riparian margin will be undertaken to the permitted activity Rules 2 and 8 of the WCRC RLWP.

The WDC are also responsible for riparian areas along unformed legal road and esplanade reserves created under the Local Government Act 2002 and the Resource Management Act 1991. WDC have a statutory obligation to protect the natural character of the margins of waterbodies. WDC rules as per Table 5.7 (l) require a 10m riparian margin setback as Border Creek is greater than three meters in width.

For all purposes a 10 meter setback will be used as a minimum.

## 2.7 VEGETATION

This can be described as indigenous lowland podocarp forest – hardwood forest- major species- *Dacrydium cupressinum* (rimu) , *Dacrycarpus dacrydioides* (kahikatea) and *Prumnopitys taxifolia* (matai)

*Metrosideros umbellata* (rata), *Weinmannia racemosa* (Kamahi), *Prumnopitys ferruginea* (Miro), *Podocarpus totara* (totara), and *Pennantia corymbosa* (Kaikomako) is also present.

There is a range tree fern and vine species throughout. This is to include Gully fern, Kidney fern, Rough tree fern, Soft tree fern, Toro fern , Crown fern and Bush lawyer.

Byrophytes, ferns, lancewood and small leaved shrubs are dominant over the existing face. Grass species and rush has formed over the quarry floor area. There are no threatened tree species or registered protected trees over the mining permit area.

As referenced in section 1.15.5.2 of this document indigenous vegetation clearance has already been undertaken in previous quarrying operations. Retolens aerial photographs show evidence of this between 18/3/1965-15/2/1987.

## 2.8 GROUNDWATER

As indicated in section 1.13.6.3 there is no flowing groundwater at the current datum of the quarry floor. No existing groundwater bores exist in Karangarua.

Groundwater in the Karangarua river and Border creek will not be interfered with, unless the quarry floor is lowered significantly. There is no intention to lower the quarry floor. The closest groundwater bore is at Pine Grove (RC 2019 0042-01- WCRC)

There is no geo-thermal activity over the quarry resource area.

## 2.9 SURFACE WATER

Naturally surface water will be generated through rainfall events or natural springs. Surface waterways rise and fall depending on meteorological conditions. No springs have been observed over the resource area, however this does not mean they do not exist. The effects of surface water on the quarry landscape depend on the amount of vegetation that is stripped at one time and the rate at which vegetation rehabilitation occurs.

There are no waterway systems that have been mapped or named on a topographic basis over the Sugarloaf mining permit area. This does not mean that none are present, just that they are not mapped. Due to the height and landform contours, there is no doubt that surface water systems will be encountered as the quarry develops. Any creek or runoff channels are

considered minimal in size and small flow rates as the catchment is well dispersed and not concentrated to localised points through massive gully landforms. Any waterway systems that are encountered will be managed to avoid sediment-laden water discharging into Border, Scott's creek and Karangarua river.

There are three main waterway systems that are involved with the quarry and access roading. These waterways are not ephemeral.

Scotts creek begins in the lower altitudes on the west side of the Copland range and makes itself visible on James Scotts farmland. It picks up a number of unnamed water channels to the east of SH6 and crosses the State Highway 0.385km from the Sugarloaf / Hobson creek road intersection. On the west side of SH6 a number of unnamed field drains are collected. It meanders its way through farmland and intersects Sugarloaf road at culvert crossing 2. From here it picks up water from the Sugarloaf access road watercourse through culvert number 1 and continues until it joins Border creek 100 meters downstream of culvert crossing 3. Water quality is clear but tannin stained due to dissolved organic matter from the surrounding swampy land.

Border creek begins in the headwaters of the Copland range (Southern Alps). It picks up surface water from a number of unnamed topographic tributaries, Scotts creek and man made landuse drainage channels. This is the main water system that will be affected from any quarry surface water runoff.

Where Border creek boundaries the quarry it is approximately 4-5 meters in width, water velocity is slow and water depth is on average 300-600mm in depth, high flow rates are experienced in localised rainfall events. The creek bed is incised 4 meters below ground level and bed substrates are a mixture between large and medium cobbles and sandy loam. Border creek has minimal in stream vegetation but in stream cover is provided by undercut banks and a small amount of woody debris.

It has no current erosion protection control in place in the form of groynes or rip rap. The banks are prone to erosion, due to its sandy loam composition, typical of swampy areas. Water colour below culvert 3 becomes darker due to dissolved organic matter coming from nearby swampy farmland which is not registered as a schedule 1 and 2 wetland (Hunts Beach and Saltwater Creek).

The fish community in Border creek is diverse, although not unique. Longfin eel, torrentfish (*Cheimarrichthys fosteri*), upland, common, and redfin bullies are typical of such a creek system. These species are nationally common and widespread. We expect the same kind of fish community in Scotts creek.

The Karangarua river is a moderate sized river, it has a catchment area of 350km<sup>2</sup> lying within the Westland National Park. Fed by rain and snow melt, it flows north-west from the Hooker range, south of Mount Cook. The Karangarua and its major tributary the Copland river, flows rapidly through steep, forest clad valleys, to meet 20km from the coast. Below the Copland confluence, the valley opens out and the river follows a wide braided bed to a large lagoon at the mouth, Gordon and Nicholson creeks enter the southern end of the lagoon. These creeks are tannin-stained and tidal and they drain Hunts beach forest.

It is a fast flowing river system and prone to flooding, with a constantly changing river bed substrate. The grade in the upper Karangarua (above suspension bridge) is 1:60 16.6m/km with a length of 26km. The lower Karangarua (below suspension bridge) is 1:310- 3.2m/km and is 17km to the Tasman Sea.

The river bed is constructed of boulders in the upper reaches while smaller rocks and finer particle sizes downstream of the bridge. Retrolens aerial photographs indicate that between 1965-1987 the Karangarua river had cut an overflow (flood) channel towards the quarry. This would not have caused too many issues as the river would eventually erode away alluvial deposits to expose the basalt ridge and this would only occur in flood events.

This overflow channel is no longer present and is now alluvial flat which is grazed as the river has incised itself deeper. Currently it is cutting to the north, however there is a significant safety buffer between its current location and the quarry and roading infrastructure. This just shows

that the rivers positioning can change at any time. Rock from the quarry can be used to create rip rap and groyne protection structures, should they be required.

Border creek flows into the Karangarua river at 6.84km from the Karangarua suspension bridge. So controlling any discharge to Border creek will protect the Karangarua river from any associated effects.

It is important to note than since 18/3/1965 the alignment of Border and Scott's Creek has not significantly changed, however there seems to be more sediment release above the Border creek SH6 bridge. This provides evidence that the quarry area has not been eroded into by natural flooding events.

## 2.10 TERRESTRIAL ECOLOGY

There are two main considerations;

- Freshwater Ecology and Riparian Margins
- Indigenous Terrestrial Ecosystems

As mentioned in section 2.7 there are no threatened freshwater biota in the Border, Scotts and Karangarua waterways.

Freshwater invertebrate fauna can include small snails, freshwater mussels, crustaceans, worms and insects, particularly larvae. They are a major contributor to freshwater communities, especially in capturing nutrients from decaying matter entering waterways and as food for other invertebrates, fish and birds.

Several species of native fish spawn in riparian areas. Inanga (the major whitebait species) live in slow-moving lowland waterways and wetlands and spawn in rank vegetation near the upper tidal influence limit of waterways that are open to the sea. Despite this Border Creek, Scotts Creek and the Karangarua River are not known as spawning sites or included in schedule 11 of the WCRC RLWP.

Although no site specific freshwater studies have been undertaken at Border creek and Scotts creek, a variety of freshwater biota will be present. The fish community in Border creek is diverse, although not unique. Long fin eel, torrent fish (*Cheimarrichthys fosteri*), upland, common, and redfin bullies are typical of such a creek system. These species are nationally common and widespread. We expect the same kind of fish community in Scott's creek.

As long as vehicle crossings do not have constant direct contact with water or the substrate of the creek bed then any associated effects will be isolated and minimised. The compliance with riparian setback rules as per district and regional plans and robust stormwater management systems that reduce sediment laden water entering all waterways will also isolate and minimise effects of the vegetation clearance and quarry operations.

It is important to note that West Coast Conservation Management Strategy Volume 1 2010-2020 does not indicate that Border creek catchment is nationally significant. The Karangarua catchment however was potentially considered nationally significant.

The quarry is located in a lowland Indigenous forest ecosystem. The following birdlife has been witnessed during field studies.

- New Zealand Fantail (*Rhipidura Fuliginosa*)
- Swamp Harrier- (*Circus approximans*)
- Weka- (*Gallirallus australis*)
- New Zealand Pigeon- (*Hemiphanga novaeseelandiae*)
- Rifleman- (*Acanthisitta Chloris*)
- Fernbird- (*Bowdleria punctata*)

- Morepork- (*Ninox novaseelandiae*)
- Bellbird- (*Anthornis melanura*)
- Tui- (*Prothemadera novaeseelandiae*)
- Slivereye (*Zosterops lateralis*)

All witnessed birdlife has a non-threatened status except for Fernbird (*Bowdleria punctata*), which has a declining status.

There are no habitats of threatened species in Border creek, Scotts creek or the Karangarua river, as per schedule 7A of the WCRC RLWP. Border creek and Scotts Creek is not recognised under the Fish and Game- Sports Fish and Game Management plan as having any recreational angling and game birds. Whilst Karangarua river is recognised as hosting Brown Trout and Salmon and no Game Birds.

Red deer and Chamois have also been observed in the quarry area, which are non-threatened wildlife.

## 2.11 LANDSCAPE AND VISUAL AMENITY VALUES

As the quarry lies within public conservation land and is overlapped by the Te Wahipounamu-South West New Zealand WHA there is obviously a degree of landscape and visual amenity values associated with the area.

Despite this the quarry is located in rural land use, it is not located in a Schedule 1 and 2 Wetland or subject to a Significant Natural Area (SNA).

The quarry is well suited to the topographical contours of the rock resource. The landscape can only be viewed from the air, as no public walkways or public roading will have a visual observation point of the quarry. As the quarry develops in height it may become visible from SH6 from south to north approaching traffic. There are a number of ways to mitigate such landscape effects, including buffering strips and planting. There is only one residential receptor that will be able to view the quarry, however this is only farm accommodation, and is frequently not lived in.

It is also located in a rugged landscape, where frequent slips occur within the ranges that are visible from SH6. The quarry area has never been subject to filming or constant photography. There are no commercial or recreational services that operate from the area that promote the natural landscape.

## 2.12 RECREATIONAL, CULTURAL AND HERITAGE VALUES

### 2.12.1 RECREATIONAL VALUES

Recreational values in the Karangarua area are outdoor-based activities. These are to include tramping the Copland valley track, fishing, hunting, kayaking, jet boating and white baiting on the Karangarua river. Clearly the Karangarua river is used due to its access to hunting blocks, high flowing water / rapids and access to the sea for white baiting.

The occasional hunter and angler use the access road. Only 4wd vehicles can access the Karangarua river from this access road, however there is no access for towing vehicles due to a washout at culvert no 3 location. This restricts jet boating access. Despite this access, James Scott the local farmer still requests any member of the public consult with him prior to use, as he operates a working farm which involves livestock.

The Karangarua area is well know to hunters and anglers, and James Scott from Fox Glacier Heli Services operates a helipad at his homestead and frequently takes hunters into alpine blocks. This Helipad is 2.4km from the quarry.

The only formal walking track in the area is the Copland track, which begins at the car park 0.568km north of the Karangarua suspension bridge. This track is in the conservation estate and is maintained by DOC. This is a well-used track with a number of accommodation huts and includes the Welcome Hot Pools as a major draw card. Tramping can be just a day trip or multiple days. The distance between the Sugarloaf quarry and the Copland track car park is 7.4km. The quarry is not visible from any track observation points, due to low elevation and as dense bush that surrounds it.

The National Water and Soil Conservation Organisation published the New Zealand Recreational River Survey Part 3 in 1981. This publication makes reference to the recreational and scenic values of the upper and lower Karangarua river, with the suspension bridge being the separation point. The upper Karangarua was considered having an impressive scenic value with a high recreational value. This is because of the upper reaches being more massive and inspiring and giving access to higher-grade rapids for water sports and the Copland walking track. The lower Karangarua was considered to have uninspiring scenic value and intermediate recreational value. There are lower grade rapids in this 17km stretch and jet boating is not challenging or technical. Access can also be an issue.

The Karangarua river and Border and Scott's creek are not included in schedule 8- Sportfish Habitats of WCRC RLWP.

The Karangarua river, Border creek and Scott's creek are not recognised under schedule 9 - Selected Swimming Areas of WCRC RLWP.

The Karangarua supports a significant commercial whitebait fishery, with catches comparable to those from the Haast and Moeraki Rivers. It generally fishes well later in the season. There are 13 whitebait stands permitted on the Karangarua River and there are 2 permitted mid river channel stands. These stands are 7km downstream of the quarry.



## 2.12.2 CULTURAL VALUES

The location of the quarry and permit area comes under the cultural jurisdiction of Te Runanga o Makaawhio.

There is a long association of Te Runanga o Makawhio with the Karangarua and Copland valleys. There are traditional stories of ancestral exploration of the area and, while it was used, the Copland alpine pass route was not a common east to west route as it was difficult to cross. Up until the 1950s it was common for Makawhio to travel from Bruce Bay to Welcome Flat to visit the hot pools and snare weka.



Early maori settlements clung to the shores of Westland's lakes and lagoons, where food was plentiful. In their travels up and down the coast in search of Pounamu, the Ngai Tahu people also became familiar with the glaciers, ranges and forests of the Westland area. As the quarry has close proximity to wetlands and river systems, the area has cultural values that need to be accommodated.

There are two sites in the Karangarua area that have been identified sites of cultural redress in the Ngai Tahu Claims Settlement Act 1998- Map 4

- Site 24- There is a Deed of Recognition on the Karangarua Lagoon;
- Site 25- There is a Nohonga Entitlement on the Karangarua River

Schedule 7C of the WCRC RLWP also makes reference to these areas, however includes them as having the following values;

- Site 24- Karangarua Lagoon- Values: Mahinga Kai, Cultural Materials, Traditional Campsite, Nohonga, Statutory Acknowledgement Area
- Site 25- Karangarua River- Values: Mahinga Kai, Cultural Materials, Traditional Campsite, Nohonga

It is important to note that site 24 the Karangarua Lagoon is a Statutory Acknowledgement Area and is included under Schedule 16 of the WCRC Land and Water Plan and is protected under Schedule 24 of Ngai Tahu Claims Settlement Act 1998. Site 24 location is identified on Allocation Plan MD50 (SO12512). Although the quarry operation has no direct impact on these sites, they are within the vicinity of the quarry and need to be considered.

Wetlands are also considered culturally important to Te Runanga o Makaawhio. There are three schedule 2 wetlands surrounding the Karangarua area.

- Ohinetamatea River / Saltwater Creek Wetland
- Hunts Beach State Forest Wetland
- Manakaiaua Wetland



Pounamu resources are also culturally significant to Te Runanga o Makaawhio. It is unknown if any Pounamu has been recorded being located or removed within the quarry permit area. We consider that Pounamu would be centralised to the Karangarua River system, as this river system is constantly changing due to erosion and sediment release in the headwaters of the Copland and Karangarua valley.

Accidental Discovery Protocols should be adopted into resource consent conditions to accommodate Te Runanga o Makaawhio.

### 2.12.3 HERITAGE, RESERVES AND ARCHAEOLOGICAL VALUES

Historical landuses usually determine if there are any heritage or archaeological sites within a site specific area.

The area was long traversed by Maori, followed by European settlers to this part of the coast. From as early as the 1870s stations and runs were established along the Karangarua river. Tourism boomed in the early 1900s with a popular route for trampers leaving the Hermitage and crossing to Karangarua. By the 1920s sawmilling had set up in the area as well.

In the case of the Karangarua settlement, there have been very few landuses. There has been no previous native forestry / logging operations over the quarry site. This has been confirmed by old employees of the Forest Service.

There has been previous mineral exploration activities over the quarry and resource area. In 1971 Southern Cross Minerals Exploration were granted a Mineral Prospecting Warrant by the Mines Department. The New Zealand Forest Service granted access. There has been no hard rock or alluvial gold mining in the area, or mining of any other minerals except quarrying for basalt rock for aggregate production purposes.

This effectively rules out any man made historic features being constructed which would have heritage or archaeological values.

A search of the New Zealand Archaeological Association (NZAA) database files shows that no archaeological sites have been recorded within the access road, quarry and permit area.

In the greater Karangarua area there are three identified sites;

- H 36/3- Site of Historic sawmill operational in the 1920s and 1930s
- H 36/4- Site of Historic sawmill operational in the 1920s and 1930s
- H 36/6- Historic site of the initial Copland Track construction which commenced in 1901

These sites all date to after 1900, none of these particular sites are protected under the archaeological provision of the Historical Places Act. We append summary reports for H63/3, H36/4 AND H36/6 to *Appendix G*.

The West Coast Conservation Management Strategy Volume 2 2010-2020 indicates the following reserve areas in the Karangarua area.

- (H36005) Karangarua Cemetery Local Purpose Reserve - s.23 Reserves Act 1977, 0.45 South Westland -
- (H36002) Karangarua Bridge Scenic Reserve - Scenic Reserve - s.19(1)(a) Reserves Act 1977 23.36 South Westland
- G35041 Karangarua River Ferry Reserve Local Purpose Reserve - s.23 Reserves Act 1977, Westland District
- G35042 Karangarua Lagoon Statutory Areas - Schedules 14-77, 100-104&108 Ngai Tahu Claims Settlement Act 1998

#### 2.12.4 ACOUSTICS

Noise levels at Karangarua and the quarry area are minimal. This is because of its rural land use and small resident population. Currently main sources for noise are;

- Rural agricultural works (cultivation, land development)
- State Highway 6 traffic
- NZTA and WDC road maintenance works (machinery operation)
- James Scott's hangar and helipad- Homestead Location
- Karangarua air strip- David and Robert Scott
- Wade Scotts portable sawmill at his Hobson creek road residential address
- Jet boating of the Karangarua river (mainly whitebait Season)

Despite these sources of noise they comply with any resource consent conditions that have been imposed on their operations or operate within the WDC District Plan restrictions of;

- 0700-2100- Monday to Friday- 55 dBA L<sub>10</sub>
- 0700-1800- Saturday- 55 dBA L<sub>10</sub>
- All other times including public holidays - 45 dBA L<sub>10</sub>

*This applies to permitted, controlled and discretionary activities*

It should be noted these noise limits have exceptions being agricultural activities or road noise traffic.

As expected the Sugarloaf quarry operation will be a source of noise through operating machinery and blasting. Quarry face blasting will be intermittent and earthmoving equipment meets current noise standards. Further any activities that occur are only for short periods of time and are not constant.

There is ample distance between the quarry and residential receptors, that sound waves should be buffered by topography. As all effected residential receptor parties have signed off on the quarry, we consider there should be no noise complaints.

#### 2.12.5 TRAFFIC

The Sugarloaf access road and Hobson creek road are owned and operated by the WDC. These rural roads interect SH6 for access to the main arterial route north and south.

A well construced interection is already in place, and we consider this interesction meets the requirements of High Generator Vehicle Generation Thresholds (ecm/d) 60/100 as per figure 8.1d- Accesses on to Rural State Highways of the WDC District Plan.

For safety, maintenace and dust control reasons we will limit speed on the access road to 50km/hr. This allows for a minimum 50meter visibility distance, which is well complied with due to the flat topogaphy of the area.

### 2.12.6 NATURAL HAZARDS

South Westland is well known for its rugged and challenging environmental landscapes. In particular Karangarua's natural hazards are based on high rainfall and steep terrain. Flooding and landslips are common. The large catchment area of the Copland and Karangarua valleys, allows the Karangarua river to cause erosion into farmland and public infrastructure.

The main natural hazard that is present in the Karangarua area is the Alpine Fault. This fault line is approximately 2.760km from the quarry (WDC GIS Layer). The last rupture is believed to have occurred in AD1717, with a estimated recurrence interval of 300 years. It has been modelled that a magnitude 8.2 Alpine Fault event is possible over a length of 400km with between 8-9 meters of dextral-reverse surface displacement.

If a rupture occurs on the Alpine Fault the quarry will be effected due to its close proximity. We expect subterranean uplift, fracturing and lateral movement of the rock resource, rock slips at the quarry face / resource area, and damage to roading and drainage infrastructure. It is important that this risk is correctly managed through quarry management plans and we constantly update ourselves with information as it become available.

Fire is another natural hazard that can present itself in dry climatic conditions. Due to the areas high rainfall and minimal land use activities fire risk is low. There are no stockpiles of tyres in the quarry or Karangarau area.

### 2.12.7 HAZARDOUS SUBSTANCES

The presence of hazardous substances is determined by current and previous land uses. We have checked The Hazardous Activities and Industries List (HAIL)- October 2011 to determine what activities with the Karangarua and quarry area would cause land contamination from hazardous substance use, storage or disposal.

The quarry is located in a rural area, and farming is prominent land use. We expect that a range of fertilizer's have been used in these rural land holdings. There are stockyards, which are used for drenching, however no sheep dip has been observed.

Herbicides used for spraying for gorse and rushes may also have occurred. Feed crops may have grown in the past and these may be subject to sprays.

Volumes used for these purposes would cause no major effects, as they would become diluted with the areas high rainfall. Despite this there could be areas where high nitrogen levels exist, this could have effects on localised waterways.

We are not aware of any horticultural land uses and the areas climate is not favourable to this land use.

The WCRC / Vector Control use a number poisons and sprays for plant and animal biosecurity. DOC has the ability to use 15 different types of registered and approved poisons for use against mammal pests.

Schedule 15 of WCRC RLWP also indicates a number of hazardous substances that are recognised and may have been used in the area.

The current un-operational status of the quarry does not cause any hazardous substance release to the surrounding environment.

## **3.0 ASSESSMENT OF EFFECTS ON THE ENVIRONMENT**

### **3.1 INTRODUCTION**

The potential effects associated with Kokiri's Sugarloaf quarry, are assessed in Sections 3.2 to 3.18 of this document, In relation to a number of the potential effects. Where relevant, the means of avoiding, remedying or mitigating any significant adverse effects are also discussed in the following sections of this application.

Given the nature of the quarry activities, and the resources that will be potentially affected, the assessment covers the following matters:

- Effects on groundwater.
- Effects on surface water.
- Effects on air quality.
- Noise effects.
- Landscape and visual effects.
- Traffic effects.
- Effects on the land resource, buildings and infrastructure.
- Effects from Natural Hazards.
- Effects on cultural values.
- Other effects, namely effects on heritage and archaeological values and recreational activities.
- Positive effects.

### **3.2 EFFECTS ON GROUNDWATER**

The upgrading of the access road, and quarrying activities are not expected to have any effects on groundwater. No groundwater is currently flowing from the quarry face. Groundwater presence could occur at anytime due to factures / faults in the geological rock structure, uplift in water table from a seismic event or if the quarry floor datum height is reduced, which is not intended.

If groundwater does begin seeping then it will need to be channelled, so it does not become sediment laden by passing over the quarry floor and processing area. In a rock environment any groundwater should present itself as clean and uncontaminated. The rock and rubble interface will act as a filtration mechanism.

There is no geothermal activity on site.

The rock will have no effect on groundwater Ph levels as it is non acidic.

### 3.3 EFFECTS ON SURFACE WATER

Surface water volumes are dependent on precipitation events and the area of land that has been stripped of vegetation. Vegetation acts as a retention and filtration system. As the quarry develops vegetation will be removed and this will increase the amount of surface water run off. As the rock resource gradient is greater than 25 degrees it is classified in erosion prone area 2. This means that surface water runoff is quicker and has higher erosion ability.

To reduce this impact we will undertake slope dewatering. When vegetation is stripped cut off drains will be installed, which will direct surface water to certain points within the earthworks, this will flow down constructed channels or access roading, down into the quarry floor, where it will be channelled into cut off drains and fit for purpose sediment ponds for treatment before discharge to Border creek. Geo fabric sediment retention system's, by the way of socks and silt fences will be used where required. In general context the interface between topsoil / vegetation removal is the main source of turbidity. Rock and rubble will have no organic matter and will be clean and free draining.

The quarry floor will be stripped back to rock or aggregate surface and shaped to positive drainage with water directed to cut off drains and sediment ponds along the buffer zone of vegetation (Riparian Margin) between the quarry floor and Border creek. The constant tramming of heavy machinery and crushing and screening will allow for fine particle distribution.

Site surface water management plans with reference to the TP90 Sediment and Erosion Control Guidelines will ensure no turbid surface water enters Border creek, which then transfers to the Karangarua river.

Due to the areas high and frequent rainfall, cut off drains, water tables, check drains, dissipation pads and sediment ponds need to be constructed so they can be maintained efficiently and have capacity to work effectively.

The access road will be shaped to provide cross fall, with surface water running into side water channels. Sediment sumps will be constructed at suitable intervals and prior to all culvert structures.

There are three surface water bodies within the surrounding area, Border creek, Scott's creek and the Karangarua river. By installing sediment retention and erosion controls any associated effects from the access road and quarry operation can be mitigated on these waterways. Conditions of consent will enforce these requirements.

Border creek requires crossing for access to the quarry site. Our intention is to install a hydraulically suitable steel culvert/s across Border creek at the MoW bridge location. A temporary ford will need to be installed across border creek to provide access for the culvert installation. There is not expected to be any adverse effects of installing the ford and culvert/s as works will be temporary and our methodology is suitable to minimise effects to biota and taxa.

No refuelling will be undertaken near operational waterways, to include rivers, creeks, cut of drains and water tables.

If all discharges from the quarry and access road are managed through sediment retention systems then all associated effects will be minimised.

### 3.4 EFFECTS ON INDIGENOUS VEGETATION AND SOILS

As the rock resource is underneath Indigenous podocarp, there will be effects on the density and volume of established vegetation. The quarry resource area is located within Threatened Environment Classification Six (Less Reduced and Better Protected) of the New Zealand Landcover Database. In this classification there is over 30% indigenous vegetation left and its protection status is over 20%. Our interpretation of this classification is that while the indigenous vegetation is significant it is not threatened as there is a large area of the same podocarp outside the mining permit area, that will be retained. Further, vegetation clearance only occurs in stages or blocks as rock is won to meet demand requirements.

Effects from vegetation clearance include;

- Habitat Loss
- Reduction in tree species inventory
- Reduction in Carbon Dioxide absorption

There will be a percentage of habitat loss due to vegetation clearance, this can be minimised through direct transfer rehabilitation, sidestepping and reapplying stockpiled topsoil and vegetation to quarried areas as soon as possible.

If vegetation (trees under 300mm diameter at breast height (DBH), broadleaf podocarps) are sidestepped or where possible direct transferred, this will allow access so ferns and topsoil can be extracted using direct transfer methods. This will keep seed and nutrients within the topsoil so it can regenerate indigenous vegetation. Regeneration success of direct transfer is estimated at 50-60%. All side casted or stockpiled slash can be reapplied to quarried areas.

A variety of tree species will need to be removed, as they come into contact with the quarry face. Where possible we will avoid and protect indigenous tree species with a diameter of over 300mm DBH and trees which have higher stands and are significant (veteran) within the canopy. Any areas which have major tree species groupings will be avoided. We will use tree calipers to measure DBH and use an isolation tagging and GPS location system.

Another mitigation technique that can be used is planting viable indigenous stems. The cutting procedure is determined by the species being hardwood or softwood. Hardwood stems can be planted in open ground in well cultivated soil, while softwoods require individual potting procedures. Rates of replanting vary between 2000-5000 per hectare. Annual maintenance weeding and spraying will also assist regeneration success, whilst also minimising the ability for gorse to develop.

Tree stands along the perimeter of the mining permit area will be retained, to limit visual impacts.

With the removal of any vegetation there will be slight un-calculated reduction in atmospheric carbon dioxide absorption. This is minimised by efficient rehabilitation of the site as the quarry advances, and using direct transfer methods.

In considering the effects of indigenous vegetation removal, the quarrying of rock allows for the protection of public, cultural and private infrastructure, whilst increasing response times in emergency situations.

We consider the effects of vegetation clearance to be no different than the ones that are already permitted for two other quarry operations in South Westland which have similar podocarp environments.

### 3.5 EFFECTS ON TERRESTRIAL ECOLOGY

Terrestrial ecology effects are determined by interference of waterways and vegetation clearance. All biota and taxa in surface waterways will be protected in their natural state, providing sediment release discharges do not occur; or if they did occur they cause minimal turbidity effects. Mitigation to limit discharge includes;

- Sediment ponds
- Cut off drains
- Check drains
- Sediment socks and slit fences
- Rock lined surface water release points or piping
- Positive drainage on the quarry floor
- Riparian margin buffer zones

We consider these systems provided they are well positioned, sized correctly based on flows and can be maintained, there should be minimal impact on freshwater micro organisms, fish and food habitats of Scotts creek, Border creek and the Karangarua river. Any effects to freshwater biota and fauna during the installation of culvert structures will be temporary.

The impacts on birdlife and invertebrates are related to indigenous vegetation clearance. We have witnessed a number of birdlife species during field studies. We have determined that none of the identified species under the New Zealand Threat Classification System (NZTCS) are nationally critical or nationally endangered however are considered at risk conservation status.

Our interpretation of effects on birdlife is that species should migrate within the untouched canopy of the resource area. As vegetation clearance will be staged, birdlife will retreat into surrounding bush. Effectively food source habitats are being reduced as vegetation is cleared. We do not see the inventory of birdlife declining because of associated effects. Initial earthworks will generate seed release and present food source options within the topsoil. By separating all topsoil from vegetation, earthworms will remain intact, which will provide nutrient availability for rehabilitation.

Mitigation proposed includes veteran indigenous podocarp (over 300 DBH) avoidance, direct transfer rehabilitation (trees and ferns), topsoil removal to stockpile were not involved in direct transfer, reapplying side casted slash as soon as practical, planting and nursery of indigenous tree stems and weed spraying. These methods will determine regeneration success and reduce the timeframes for food sources, bird and invertebrates colonies to re occupy the rehabilitated quarry area.

### 3.6 EFFECTS ON AIR QUALITY

Section 2.3 outlines the areas climatic and meteorological conditions. The area is well known for experiencing frequent and heavy rainfall events. Therefore it is likely that there will be rain events in most months.

There are currently no residential or commercial receptors within 0.915km from the quarry site. All affected residential parties within a 5km have approved of the quarry operation. Access to the quarry over the existing access road, requires entry to private land holding, to which the public are not allowed access to.



Dust and emissions are the only potential air effects to the environment. Within the quarry boundaries dust from drilling and crushing will have effect on air quality. X- Ray Fluorescence analysis (XRF) has indicated that there is 44.67% of SiO<sub>2</sub> (Silicon dioxide) within the basalt rock. Silica dust can cause Silicosis, which is a progressive and deadly disease that causes fibrosis of the lungs from inhalation.

This needs to be managed through exclusion zones and signs to mark the boundaries of work areas. Appropriate PPE needs to be worn including certified respirators when required, i.e. drilling 3-6ft holes by jackhammer. Drilling rigs will require dust separators and cabins will have a filtered air supply. Silica dust is common in quarrying operations. There is no Mica in the rock deposit, which can have similar effects.

There will be two locations for dust to be generated;

- Rock resource area and quarry floor;
- Site access road

The frequency of dust discharges from drilling and crushing will be depend on the demand for rock and aggregate products. More demand the higher the frequency of dust generation. Our consents need to allow for drilling and crushing everyday.

The duration of dust discharges from drilling will be intermittent, and you could expect drilling times of 2-4 hours per day. Again this depends on hole depths and rock sizing requirements. Crushing and screening duration would be 8-10 hours, however less frequent. Dust from earthworks, vegetation clearance and logistics when occurring would be 8-10 hours per day, however less frequent as based on demand for rock and aggregates.

The intensity of dust depends on climatic conditions, if wet, dust will be suppressed, if dry intensity depends on wind, vehicle and equipment speed and product sizing. The intensity of dust will also effect visibility. When drilling we can modify drill speed and rotation to suit geotechnical conditions, this will reduce dust by increasing fragment sizing which is heavier.

Dust should not generate an offensiveness odour.

The extent of dangerous and offensive dust from quarry drilling, blasting and crushing will be localised to the quarry resource and processing area. When face blasting there will be a one-minute timeframe where a plume of dust will reside over the quarry face and floor area. The intensity of dust will depend on climatic conditions on the day of blasting. We have discussed quarry blasting with James Scott, as he has an operational heli pad and hangar at his homestead address. We have conditions within our access agreement with James that 1-hour notice is to be given prior to any face blasting. This does not include individual rock blasting.

The topographic contours and indigenous vegetation will assist with trapping dust particles. Dust from the access road will not be dangerous or offensive and should dissipate quickly. Speed restrictions and applying water and dust suppressants will help mitigate effects. We are aware that dust from the access road may have effect on the visibility for road users on SH6 in dry conditions. Speed restrictions and intermittent use should minimise these effects. It should be noted that the WCRC RAP does not cover continual usage discharges from traffic use from unsealed roads outside industrial areas.

There will be mixture of deposited and suspended dust as it depends on the sizing of particles. Dust from earthworks and vegetation clearance will be deposited dust while drilling and crushing dust will be a combination of both. Any dust generated will be non-combustible.

Dust could effect the surrounding vegetation. There is potential for trees to be affected by high concentrations of dust, which reduce photosynthesis, however the high annual rainfall means that effects will be minimal.

The upgrading and ongoing maintenance of the access road will not cause any effects on the air quality environment and we consider that we can operate under the permitted activity of rule 4 of the WCRC RAP. Any dust generated during these works will temporary and will not be noxious, dangerous, offensive or objectionable beyond the WDC road reserve boundaries.

Dust generated from stockpiling, loading and sorting will be minimal. This is because aggregates and rock is already crushed or won in the quarry floor and processing area. The areas frequent rainfall should keep a degree of moisture in the aggregate stockpiles. AGPR will be free of fines and clean due to rainfall events. We consider we can operate this activity within the conditions of rule 3 of the WCRC RAP.

Emission generation on site will be low. Heavy plant, machinery, trucks and passenger vehicles burn diesel fuel. Effects are mitigated as exhausts are not confined, and there are large open spaces between receptor boundaries. Plant items as per section 1.15.5.5 are clean burning.

Resource Consent Analysis:

- The quarry operation is a discretionary activity and not covered under rule 5 of the WCRC RAP, resource consent for discharge to air is required.
- The access road upgrade and maintenance is a permitted activity under rule 4 of the WCRC RAP.
- Stockpiling, loading and sorting are a permitted activity under rule 3 of the WCRC RAP.

### **3.7 NOISE / VIBRATION EFFECTS**

The quarry operation will generate acoustic soundwaves from operating machinery during the extraction and processing of rock and aggregates.

Excavators, loaders, articulated dump trucks, road trucks and passenger vehicles will not be heard by residential receptors or the public due to separation boundaries. Topographic contours and vegetation will assist in buffering.

Higher levels of noise frequency will come from rock drilling, rock breaking, vibrating ripper, rock crushing and face blasting. Depending on geological conditions and hardness of rock, rock drilling and crushing may be heard, however due to boundary distances noise levels will be faint and can be minimised through bunding and stockpiling. Untouched riparian margins vegetation and sugarloaf hill contours will also assist in restricting soundwaves. Face blasting noise intensity will be determined by the size of the blast. This activity has the ability to be heard by residential receptors, however frequency of blasting will be intermittent and as required.

Vibration will also be caused, by all activities, however due to boundary separation distances from the quarry, this will not cause any effect.

The noise generated from drilling, crushing, rock breaking and blasting will be infrequent and as required due to demand of rock and aggregate products. In an operational day drilling would equate for 3-4 hours, crushing and screening for 8 hours and blasting instant.

Mitigation measures of the quarry include;

- Restricting hours of high frequency sources of noise (drilling, crushing / screening and blasting)
- Not using exhaust brakes (Jacobs brakes) on the access road
- Bunding
- Vegetation buffer zones (Riparian margins)
- Dense blast stemming procedures

### 3.8 LANDSCAPE AND VISUAL EFFECTS

Quarrying of rock involves earthworks and vegetation clearance and creates changes to existing topographic contours. The effects are determined by the existing topography. In comparison to other quarries in South Westland the topographic contours of Sugarloaf quarry are moderate. What this means is that the height of the quarry face will not rise rapidly. Another factor is that the rock is uniform in its characteristics; it does not have any impurities that can modify a sudden change in quarry height or direction. By using a mixture of rock winning methodologies and producing a number of aggregate products, the amount of rubble generated can be reduced; this significantly reduces quarry floor elevation. Elevation causes the rate at which visual effects are developed.

At Sugarloaf, there is a significant rock resource at lower altitudes that can be extracted without causing major visual effects, vegetation stands are significant and will act as buffering. The quarry will only be visually seen from the public travelling on SH6 from a south to north orientation. Travellers travelling north to south would either have to stop on the highway shoulder, or look back while travelling which is unrealistic. At the distance between the closest highway observation point and quarry, the rock face would look like a natural slip.

We have determined there is over three years of quarrying before the quarry is visually seen from SH6, which is the main interception point for public perception, providing perimeter vegetation stands are in place. From the air the quarry can be observed, however there is minimal flight activity over the quarry air space. Perception from tourism activities will not be effected, as there are no low flying commercial operations that operate directly over the quarry.

The quarry floor and face has already been established and we are aware of no complaints that have been made during the dormant operational time period. The effects to landforms and visual appearance will be minimised by rehabilitation as the quarry advances. All vegetation and topsoil stripped will be reapplied to the quarry area, as it advances. Natural vegetation buffer zones will remain around riparian margins and around the perimeter of the quarry resource.

We are aware that indigenous vegetation landforms have particular landscape values, however there are two other quarries in South Westland that operate in the same environmental landscape.

### 3.9 RECREATIONAL EFFECTS

We consider there to be minimal recreational impacts from the quarry operation. Besides from random walking or hunting over the resource area, there are no recreational activities directly involved. There are no specific formed walking tracks through the permit area, that encourage public useage.

As long as erosion and sediment release into waterways is contained then there will be no downstream water quality effects. Proposed sediment retention systems will limit any discharge. The whitebait season occurs annually and jetboating activity is related to this, while there may be the occasional craft that is thrill seeking. Kayaking predominately takes place above the Karangarua suspension bridge, due to rapid class.

As quarry blasting and internal operations are intermittent it is highly unlikely that any recreational users will witness any increases in noise levels. The quarry area is not involved in filming or commercial photography, so intact vegetation screens and topographical contours will limit any visual impacts to recreational users.

We consider there to be more benefits to recreational groups. This includes upgrading the Sugarloaf access road, providing better access to public areas and the ability to protect infrastructure from natural events that can cause ongoing road closures, which limit the ability for recreational groups to access the area and wider region.

### **3.10 TRAFFIC EFFECTS**

There will be an increase in heavy vehicle traffic from the quarry on Sugarloaf road, the effects associated with this are minimal provided speed and dust control measures are in place. Ongoing maintenance will ensure surface water is managed to minimise sediment release to waterways. Speed restrictions will minimise dust generated from the access road.

We do not anticipate any significant effects to traffic volumes on SH6. All rock and aggregate products are currently sourced from a variety of locations. Effectively Sugarloaf quarry will change the source point, this will increase heavy vehicle traffic flow from Karangarua, but reduce it in other areas.

Having the Sugarloaf quarry operational will assist with delivery of infrastructure repair and maintenance, and will reduce time frames for road closures associated with emergency works.

### **3.11 EFFECTS ON THE LAND RESOURCE, BUILDINGS AND INFRASTRUCTURE**

The land resource contains basalt and granite, when it is quarried it is not replaced, so the land resource reduces over time. There are no buildings within the permit area, and the only current infrastructure is the existing access road, MoW bridge and the quarry face and floor. There is no other infrastructure that will be affected as part of operations.

### **3.12 EFFECTS ON CULTURAL VALUES**

As outlined in section 2.11.2, we have identified Karangarua holds cultural significance to Ngai Tahu and in particular Te Runanga o Makaawhio. The area is a known food source, and traverse for access north and south. We understand there will be a number of traditional beliefs, customs and community stories that relate to the area. We are of the opinion that that quarry will deliver positive benefits in the way of protection of the areas infrastructure and Iwi landholdings that are threatened by sea and river forces.

Kokiri have investigated if any cultural significant sites are directly within or surrounding the quarry area. No sites have been identified over the quarry area, but two sites have been identified in the greater area that could be affected. The effects on these two sites are predominantly around surface water runoff control. If sediment-laden water from quarrying activities enters Border creek, then this could cause effects down stream on the Karangarua river where these sites are located. This could effect taxa and biota. Due to the distance between these sites and the quarry there would need to be a significant discharge to cause turbidity effects as the Karangarua has high flow rates.

Due to the areas high rainfall and the quarry being in erosion prone area 2 we need to ensure robust stormwater sediment retention systems are in place and operate effectively and can be maintained with ease. Sediment ponds, cut off drains, slit fences, slit socks and riparian buffer zones will assist in minimising sediment-laden run off.

The quarry operation will cause no effect to wetlands identified in section 2.11.2, as the waterbodies surrounding the quarry do not flow directly into a wetland.

Earthworks could un cover Pounamu, If found this will be returned to Te Runanga o Makaawhio through Accidental Discovery Protocols.

### 3.13 EFFECTS ON HERITAGE, RESERVES AND ARCHAEOLOGICAL VALUES

Under section 2.11.3 we have determined that there are no sites over the rock resource that contain specific heritage, archaeological values or have a reserve status that have been documented. Sites identified are located within the boundaries of the Karangarua settlement, and considered un effected.

In general Karangarua is well known, however land uses have been predominantly pastoral farming. We do not expect to find any human / industrial artefact's or caves systems within the resource area.

Effects associated with vegetation clearance, earthworks and ongoing quarrying will have no effects on the three identified NZAA sites. The natural state of the reserves listed in section 2.11.3 will not be effected providing sediment runoff is contained and waterways remain clear. The quarrying operation will cause no change to direction of Border creek, Scott's creek and the Karangarua river, which could cause erosion into reserve areas. The velocity and metric volumes of surface water discharge from the quarry will not cause flooding. Dust will cause no effects to the sites identified, as there is ample boundary separation.

We consider riparian margins to have reserve status as they are protected under the WDC and WCRC operative plans. Providing erosion protection measures can be installed on the surface water release points there will be no effects to the natural habitat of riparian margins. Earthworks and vegetation removal to install such protection measures will meet the conditions of permitted activity rule 2 (a-l) and rule 8 (a-e) of the WCRC RLWP.

### 3.14 EFFECTS ON NATURAL HAZARDS

The quarry operation will not generate an increase in natural hazard occurrence. While surface water volumes will increase as vegetation is removed, this will not cause downstream flooding effects as the main source of flood water is derived from the Copland and Karangarua catchments. Storage volumes of Scott's and Border creek are large enough to accommodate the slight increase in surface water volumes that are predicted. The only effect will be managing erosion at locations where surface runoff from the quarry exits into Border creek. Providing these points are rock lined or piped then erosion will be minimal.

Rock blasting will not assist in any way to a rupture of the Alpine Fault. Vibration from blasting may cause any existing rock slips within the resource area to creep should they be present.

The introduction of plant and equipment to the quarry area, will increase the risks associated with rural fire. All machinery will be equipped with spark arrestors and estinguishers. Kokiri will hold rural fire insurance policys to accommodate this risk.

### 3.15 HAZARDOUS SUBSTANCES

The quarry operation gives opportunity to four activities that could introduce hazardous substances if mitigation is not used.

- Mobile diesel storage tanks
- Explosives- shot firing, bulk storage
- Human and animal faeces
- Spraying- Weed control

By not refuelling in waterways and designated bunded refuelling locations with spill kits and fire prevention will isolate refuelling effects. Certified storage of explosives and no misfires will minimise explosive contaminants discharges. As indicated in section 1.15.5.8 the basalt rock is non acidic. Weed killers (roundup) use may be required during rehabilitation maintenance periods. The intermittent usage will not require any sprays to be kept onsite. An onsite portaloos will be used, and cleaned out as required or removed from site when quarry is not in use. No dogs or animals will be introduced to site.

### 3.16 POSITIVE EFFECTS

There are a number of positive effects;

- Once the access track has been upgraded, it provides access for WCRC, WDC and DOC staff to access the Sugarloaf range area and Karangarua river from the Sugarloaf road side, which may assist with their management requirements, including pest control.
- Kokiri intend to undertake mining and ongoing technical reporting / monitoring over the permit area, which provides useful information for the WCRC, WDC and DOC over the area.
- The Crown (New Zealand Petroleum and Minerals) will receive compensation in the way of annual permit fees and royalty from the quarrying of industrial stone (basalt / granite).
- WCRC and WDC will receive initial income from resource consenting applications, as well as annual consent compliance fees.
- DOC will receive ongoing annual payment fees, to include compensation fees, monitoring fees and cost recovery fees.
- Provides employment and positive economic effects to the West Coast region.
- Allows for protection of roading, culverts and bridging infrastructure, increased emergency response times, protection of public, private and Iwi landholdings from sea and river forces.
- The Sugarloaf basalt rock is a superior product, which increases asset life expectancy and value to taxpayer funds.

### 3.17 OTHER QUARRY RESOURCES AND THEIR ENVIRONMENT

At present there are only three operational quarries between Whataroa and Haast. Two of these are in Whataroa and the third is at Paringa (Condon's). Two of these quarries are owned and operated by one contracting company with the other owned and operated by the WCRC. We consider this 175km of SH6 to be the high activity and response zone, which is prone to flooding, slips, coastal and river erosion. Their needs to be rock source midway between Whataroa and Paringa that fills this gap due to un-economic cartage distances. Logistical distances for rock supply are seen as economic between 30-40km.

We also consider the Paringa quarry to be unsustainable in the long term. Rock testing on this source has indicated a CB weathering rock classification and a high LLA. There is a high percentage of mica in the Paringa produced rock. This presents quality issues and has implications on the rate / taxpayer. This quarry topography is so steep now that the visual impacts are well observed by the public from SH6.

The West Coast Regional Council have been granted a mining permit, resource consents and DOC access agreements for their Okuru quarry, which lies in a WHA area since 2012.

### 3.18 SIGNIFICANT BENEFITS

The current quarry ownership environment is creating a monopoly. Of recent the Controller and Auditor General have just completed its investigation into the WDC for physical works undertaken in Franz Joseph.

Conclusions from this report indicated ratepayer funds were not managed correctly by the WDC. Correct procurement processes were not undertaken to ensure value for all ratepayers both in monetary and technical aspects.

I draw your attention to Section 7- No Competitive Process of the Auditor Generals Report. Item 7.31 outlines why a competitive process was not followed for the physical rock work. The fact the one rock source was available, was the reasoning given. If Sugarloaf quarry was operational which is a more superior rock then a competitive tender process could be followed and these situations avoided.

One of the central purposes of the Commerce Commission is to promote competition while the Commerce Act 1986 enforces this. This is not currently being achieved, with local ratepayers and public taxpayers being subject to an uncompetitive market.

Another significant benefit is the quarry resource volumes and life expectancy. Due to environmental constraints and difficulty locating quality rock sources, Sugarloaf quarry will avoid opening up more sensitive areas, that have no existing infrastructure in place or removing rock from creek beds, which previously been undertaken, eg Mia Mai creek. Rock supply is limited, so the environmental effects are deemed higher. Removing rock from riverbeds can also have damaging erosion effects and increase sediment build up. Which can raise the creek bed and reduce flow capacity, especially effecting culverts and bridges.

The WDC has also been subject to recent environmental incidents- Fox River dump. Having a close rock supply from Sugarloaf quarry would increase response times and ensure ongoing protection is economic to ratepayers.

With Sugarloaf quarry operating, rock supply can attack the Franz and Fox Glacier settlement areas from the south, this improves emergency response times and benefits road users. Currently the Fox Glacier access road is non operational due to constant erosion of its access road. Sugarloaf quarry could assist with the re establishment and maintenance of this road, should DOC look at reopening it.

Bruce Bay is a particular area which gets significantly impacted by coastal erosion. Not only does the highway meet the Tasman Sea at this point but there are sacred Iwi grounds and the Te Tauraka Waka a Maui Marae that needs protection. The Sugarloaf quarry is 18km north of Bruce Bay, so there are response and economic benefits to be gained.

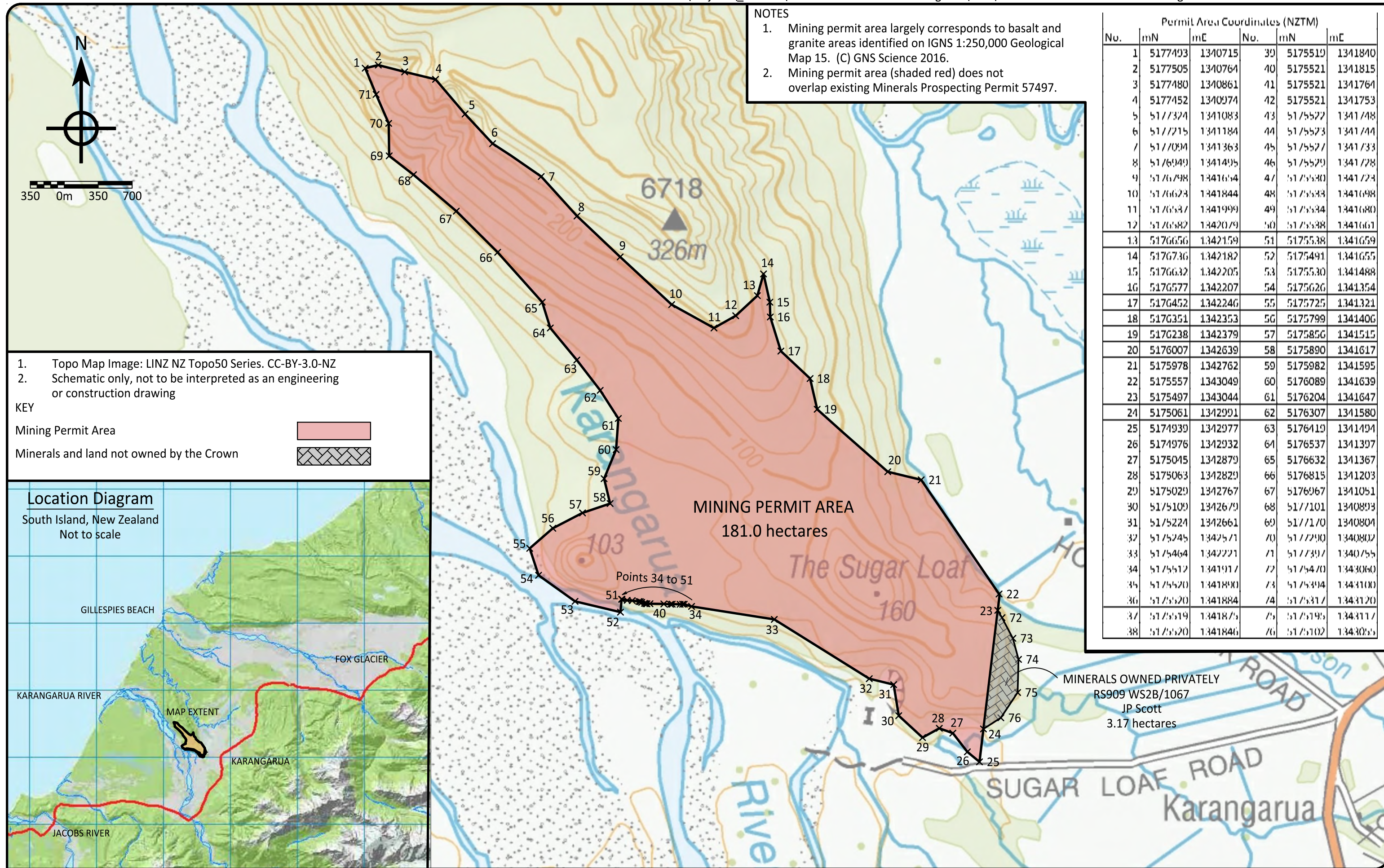
Should an Alpine rupture occur, then roading aggregates and rock will be required in significant quantities to restore infrastructure and reconnect south westland communities. River systems for aggregate supplies may be unaccessible, and suitable rock is difficult to locate, develop and permit in such timeframes.

The chemical and structural characteristics of the Sugarloaf basalt are one of a kind in South Westland. Not only does the rock have the highest density t/m<sup>3</sup> of all rock sources, which means it is heavier and takes more water force to move than typical granites, it is also less prone to weathering and abrasion. In comparison to granite, basalt has finer grained minerals which are more interlocking and less susceptible to weathering. This will reduce ongoing asset maintenance requirements and costs.

**Appendix A**

**Site Maps and Graphics**





**NOTES**

1. Mining permit area largely corresponds to basalt and granite areas identified on IGNS 1:250,000 Geological Map 15. (C) GNS Science 2016.
2. Mining permit area (shaded red) does not overlap existing Minerals Prospecting Permit 57497.

1. Topo Map Image: LINZ NZ Topo50 Series. CC-BY-3.0-NZ  
 2. Schematic only, not to be interpreted as an engineering or construction drawing

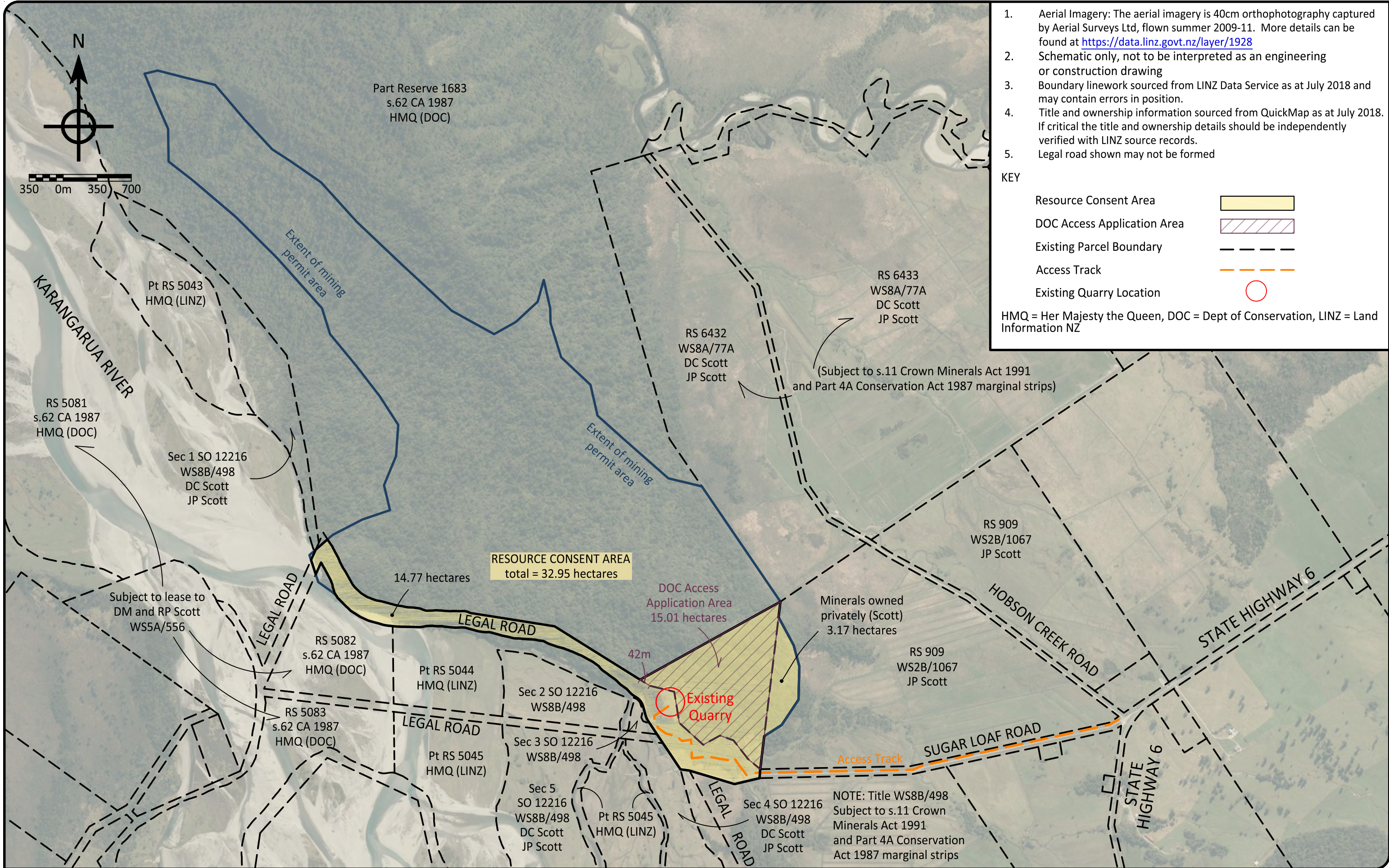
**KEY**

Mining Permit Area

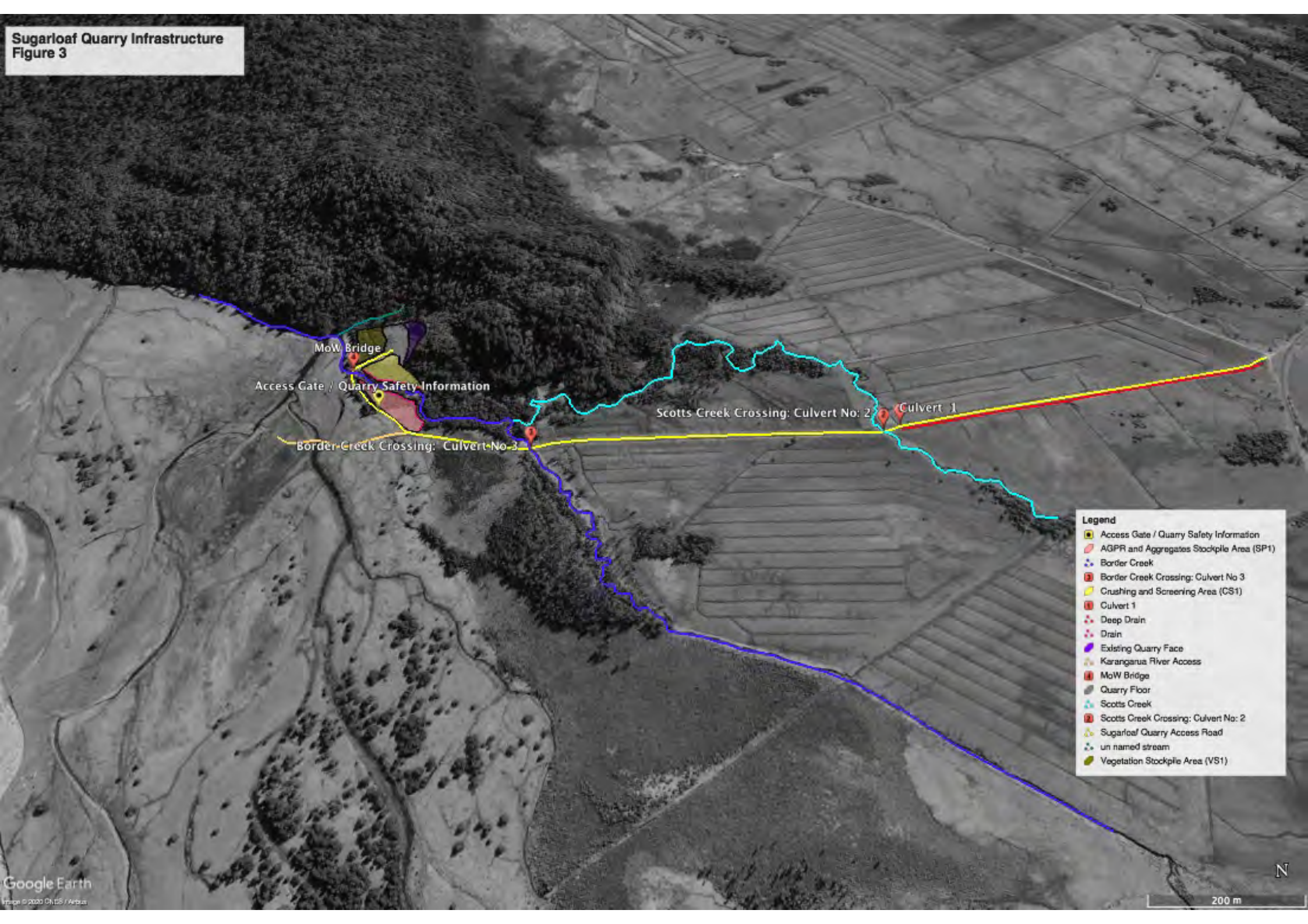
Minerals and land not owned by the Crown



Permit Area Coordinates (NZTM)					
No.	mN	mE	No.	mN	mE
1	5177493	1340715	39	5175519	1341840
2	5177505	1340764	40	5175521	1341815
3	5177480	1340861	41	5175521	1341764
4	5177452	1340974	42	5175521	1341753
5	5177324	1341083	43	5175522	1341748
6	5177215	1341184	44	5175523	1341744
7	5177094	1341363	45	5175527	1341733
8	5176949	1341495	46	5175529	1341728
9	5176798	1341654	47	5175530	1341724
10	5176624	1341844	48	5175533	1341698
11	5176537	1341999	49	5175534	1341680
12	5176582	1342079	50	5175538	1341661
13	5176656	1342159	51	5175538	1341659
14	5176736	1342182	52	5175491	1341655
15	5176632	1342205	53	5175530	1341488
16	5176577	1342207	54	5175626	1341354
17	5176452	1342246	55	5175725	1341321
18	5176351	1342353	56	5175799	1341406
19	5176238	1342379	57	5175856	1341515
20	5176007	1342639	58	5175890	1341617
21	5175978	1342762	59	5175982	1341595
22	5175557	1343049	60	5176089	1341639
23	5175497	1343044	61	5176204	1341647
24	5175061	1342991	62	5176307	1341580
25	5174939	1342977	63	5176419	1341494
26	5174976	1342932	64	5176537	1341397
27	5175045	1342879	65	5176632	1341367
28	5175063	1342829	66	5176815	1341203
29	5175029	1342767	67	5176967	1341051
30	5175109	1342679	68	5177101	1340893
31	5175224	1342661	69	5177170	1340804
32	5175245	1342571	70	5177290	1340802
33	5175464	1342221	71	5177397	1340755
34	5175512	1341917	72	5175470	1343060
35	5175520	1341890	73	5175394	1343100
36	5175520	1341884	74	5175317	1343120
37	5175519	1341875	75	5175195	1343117
38	5175520	1341846	76	5175102	1343055



Sugarloaf Quarry Infrastructure  
Figure 3



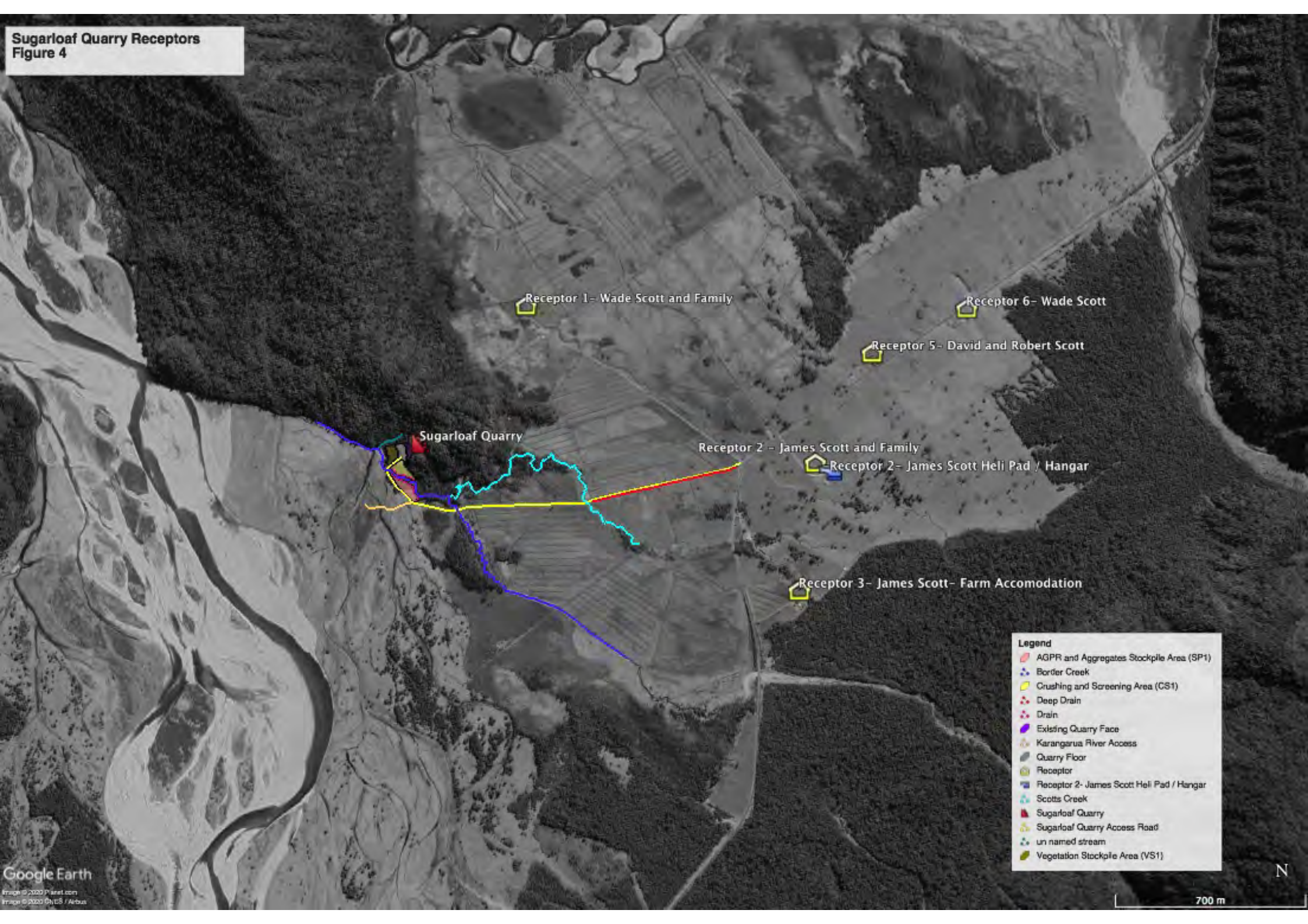
MoW Bridge  
Access Gate / Quarry Safety Information  
Border Creek Crossing: Culvert No 3

Scotts Creek Crossing: Culvert No: 2

Culvert 1

- Legend**
- Access Gate / Quarry Safety Information
  - AGPR and Aggregates Stockpile Area (SP1)
  - Border Creek
  - Border Creek Crossing: Culvert No 3
  - Crushing and Screening Area (CS1)
  - Culvert 1
  - Deep Drain
  - Drain
  - Existing Quarry Face
  - Karangarua River Access
  - MoW Bridge
  - Quarry Floor
  - Scotts Creek
  - Scotts Creek Crossing: Culvert No: 2
  - Sugarloaf Quarry Access Road
  - un named stream
  - Vegetation Stockpile Area (VS1)

**Sugarloaf Quarry Receptors**  
**Figure 4**



- Legend**
- AGPR and Aggregates Stockpile Area (SP1)
  - Border Creek
  - Crushing and Screening Area (CS1)
  - Deep Drain
  - Drain
  - Existing Quarry Face
  - Karangarua River Access
  - Quarry Floor
  - Receptor
  - Receptor 2- James Scott Heli Pad / Hangar
  - Scotts Creek
  - Sugarloaf Quarry
  - Sugarloaf Quarry Access Road
  - un named stream
  - Vegetation Stockpile Area (VS1)

**Appendix B**

**DOC Application Forms / Mining Permit**



We recommend that you contact the Hokitika Permissions team to discuss the application prior to completing the application forms:

Permissions Advisor (Support)  
Private Bag 701  
Hokitika 7842  
Ph +64 3 756 9117  
Email: [permissionshokitika@doc.govt.nz](mailto:permissionshokitika@doc.govt.nz)

Please provide all information requested in as much detail as possible. Applicants will be advised if further information is required before this application can be processed by the Department. If extra space is required for answering please attach and label according to the relevant section.

Once you have filled in your application form, please ensure you have completed the checklist on page 3 to ensure that all components of your application are complete. This will help prevent any possible delays in the processing of your application.

Please tick

Have you read the section regarding the liability of the applicant for payment of fees?

**Have you signed your application?**

**All efforts in putting together a detailed application are greatly appreciated and will allow the Department to effectively and efficiently process your application.**

## A. Applicant Details

<b>Applicant Name</b> (full name of registered company or individual)	Kokiri Lime Company Limited				
<b>Legal Status of applicant (tick)</b>	<input type="checkbox"/> Individual	<input checked="" type="checkbox"/> Registered Company	<input checked="" type="checkbox"/>	<input type="checkbox"/> Trust	<input type="checkbox"/> Incorporated Society
<b>Other (please specify full details)</b>					
Please supply the company, trust or incorporated society registration number: 816244					
If an individual please supply your date of birth (this is a unique identifier for you):					
<b>Trading Name</b> (if different from Applicant name)					
<b>Postal Address</b>	89a Jeffreys Road Fendalton Christchurch,8052				
<b>Street Address (if different from Postal Address)</b>					
<b>Registered Office of Company or Incorporated Society (if applicable)</b>	c/- PricewaterhouseCoopers, Level 1, Westpac Building, 106 George Street, Dunedin, 9016 , New Zealand				
<b>Phone</b>	027 222 6363	<b>Website</b>	NA		
<b>Contact Person and role</b>	Mackley Ferguson- Director				
<b>Phone</b>	027 222 6363	<b>Cell Phone</b>	027 222 6363		
<b>Email</b>	mac@kokirilime.co.nz				
<b>Alternative Contact Person and role</b>	NA				
<b>Phone</b>			<b>Cell Phone</b>		
<b>Email</b>					

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## B. Crown Minerals Act Permit Details

You must hold a permit under the Crown Minerals Act to apply for access to public conservation land, access cannot be granted until a permit has been granted by NZ Petroleum & Minerals.

Permit/Application Number	Permit type (Mining/Exploration/Prospecting)	Permit Area km <sup>2</sup>
60543	Mining Permit	1.81

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## C. Application requirements

Please attach a detailed application including all the requested information below. Please complete the checklist to ensure all relevant details have been provided in your application.

- Copy of Crown Minerals Act Permit attached (if granted).**
- Clear map/plan of application area attached.**
- A description of the proposal, including:**
  - A description of the application area including location and features (i.e. water courses, roads, amenities, other features)
  - Summary of proposed activities (i.e. type of prospecting/exploration/mining methods, duration, scale of activity)
  - Detail of access for personnel, plant, equipment etc to and from the application area and within the site
  - Detail of any existing services in the application area and any to be installed
  - Detail of any accommodation to be established
  - Detail of any other surface structures to be constructed
  - Detail proposed water supply and disposal methods
  - Detail of how wastes will be managed and disposed of
  - Detail of any resource consents held, applied for or intended applications
  - The direct net economic and other benefits of the proposed activity in relation to which the access arrangement is sought (required as part of application under s59(2)(f) of the Crown Minerals Act 1991)
- Assessment of Environmental Effects, including:**
  - Description of existing natural environment in and around the application area (include flora, fauna, aquatic, landscape)
  - Description of any historic sites within the application area (position and significance)
  - Description of the social environment in and around the application area (include scenic qualities, recreation facilities and use)
  - Outline of consultation undertaken with relevant Iwi
  - Description of the effects your proposed activities will have on the above values
  - Description of the proposed safeguards and mitigation measures to be put in place (i.e. proposed rehabilitation, water management, management of flora/fauna/historic/cultural sites, management of any risks, bond assessment if relevant and proposed offer of compensation)
  - Detail of any other relevant information



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## **D. Fees and costs**

### **Processing Fees:**

Section 60B of the Conservation Act contains the statutory provisions regarding processing fees.

The Department recovers all direct and indirect costs to process an access arrangement application from an Applicant regardless of whether an application is approved or declined. The cost of processing an access arrangement depends on whether the application is classified as low, medium, or high impact.

The estimated processing fee for straightforward low impact applications (eg, suction dredging) is **\$2,150 plus GST** (\$2,472.50 including GST). If the application is complex or medium/high impact then further costs would be incurred. In this situation you will be sent an estimate.

Medium impact applications can cost in the range of **\$3,000 to \$30,000 plus GST**. The majority of medium impact applications (eg, small/medium scale alluvial gold mining and drilling at numerous locations) generally cost in the range of **\$4,000 to \$8,000 plus GST**. You will be sent an estimate of costs.

High impact applications can cost from **\$50,000 to more than \$100,000 plus GST**. You will be sent an estimate of costs

Applicants are also entitled to request an estimate of costs at any point but the Department may impose a charge for preparing such an estimate. Estimates are not binding.

The Department will ordinarily invoice the Applicant for processing fees after a decision has been made on the application but in some cases interim invoices will be issued. If at any stage an application is withdrawn the Department shall invoice the Applicant for the costs incurred by the Department up to that point. Applicants are required to pay the processing fees within 28 days of receiving an invoice. The Director-General is entitled to recover any unpaid fees as a debt.

The Director-General of Conservation has discretion to reduce or waive processing fees.

The Department may obtain further information either from the applicant or from any other relevant source in order to process the application. The applicant will be advised of any information obtained from other sources. The cost of obtaining such information will be charged to and recovered from the applicant. The applicant will be informed as soon as practicable from receipt of the application if further information is required before this application form can be fully processed by the Department.

### **Bond:**

If your application is approved, you will be required to lodge a bond with the Department prior to carrying out any activities under your access arrangement

### **Ongoing Fees:**

If your application is approved, you will also be required to pay annual fees throughout the term of your access arrangement. These are:

- Compensation fee(s); and/or
- Monitoring fee(s) (if required) to cover the cost of monitoring the effects of your activity; and/or
- Cost recovery fee(s) for processing Annual Work Programme and/or Management Plan approvals, bond submission/release and general file administration.

Please contact the Hokitika Permissions team, as on page 1 of this document, to discuss the applicable bond, fee(s) and processing timeframe for the application.

### **Terms and Conditions for an Account with the Department of Conservation:**

Have you held an account with the Department before? (Please tick) Yes  No

If yes, under what name: Kokiri Lime Company Limited

1. I/We agree that the Department of Conservation can provide my details to the Department's Credit Checking Agency to enable it to conduct a full credit check.
2. I/We agree that any change which affects the trading address, legal entity, structure of management or control of the applicant's company (as detailed in this application) will be notified in writing to the Department of Conservation within 7 days of that change becoming effective.
3. I/We agree to notify the Department of Conservation of any disputed charges within 14 days of the date of the invoice.
4. I/We agree to fully pay the Department of Conservation for any invoice received on or before the due date.
5. I/We agree to pay all costs incurred (including interest, legal costs and debt recovery fees) to recover any money owing on this account.
6. I/We agree that the credit account provided by the Department of Conservation may be withdrawn by the Department of Conservation, if any terms and conditions of the credit account are not met.
7. I/We agree that the Department of Conservation can provide my details to the Department's Debt Collection Agency in the event of non-payment of payable fees.

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## Declaration

I certify that the information provided on this application form and all attached additional forms and information is to the best of my knowledge true and correct.

**Note: The Minister can vary any access arrangement granted if the information given in this application contains inaccuracies.**

Signature (Applicant)		Date	
Signature (Witness)		Date	
Witness Name			
Witness Address			

This application is made pursuant to Section 59 of the Crown Minerals Act 1991.

Applicants should familiarise themselves with the relevant provisions of the Conservation Act 1987 and the Crown Minerals Act 1991.

The purpose of collecting this information is to enable the Department to process your application. The Department will not use this information for any reason not related to that purpose.

Applicants should be aware that provisions of the Official Information Act might require that some or all information in this application be publicly released.

---

**For Departmental use**

<b>Credit check undertaken?</b>			
<b>Comments :</b>			
<b>Signed</b>		<b>Name</b>	
<b>Approved (Tier 4 manager or above)</b>		<b>Name</b>	

## Permit Application 60543.01 Report

Application Number	<a href="#">60543.01</a>
Change Type	New
Description	Application for Minerals Permit
Status	Under Evaluation
Extend Area by	
Submitted on	13/05/2019
Received Date	13/05/2019
Duration	40 years
Permit Area	181 Hectares
Location	West Coast Region
Commodity	Minerals
Type Code	Mining Permit
Type Description	Minerals Mining Permit
Subsequent To Permit	
Allocation Method	AWPO
Commencement Date	
Expiry Date	
Grant Date	
Operation Name	Sugarloaf Quarry
Permit Received Date	28/05/2019
Owner(s)	Kokiri Lime Company Limited
Change Allocation Method	AWPO
Reduce Area by	0
Permit Status	Proposed
Operator	Kokiri Lime Company Limited
Mineral(s)	Aggregate, Basalt, Granite
Associated Permits	
Change Status Date	28/05/2019
Permit Offshore/Onshore	Onshore
Permit Mineral Programme	Minerals Programme for Minerals 2013
Permit Nonexclusive Y/N	



**Appendix C**

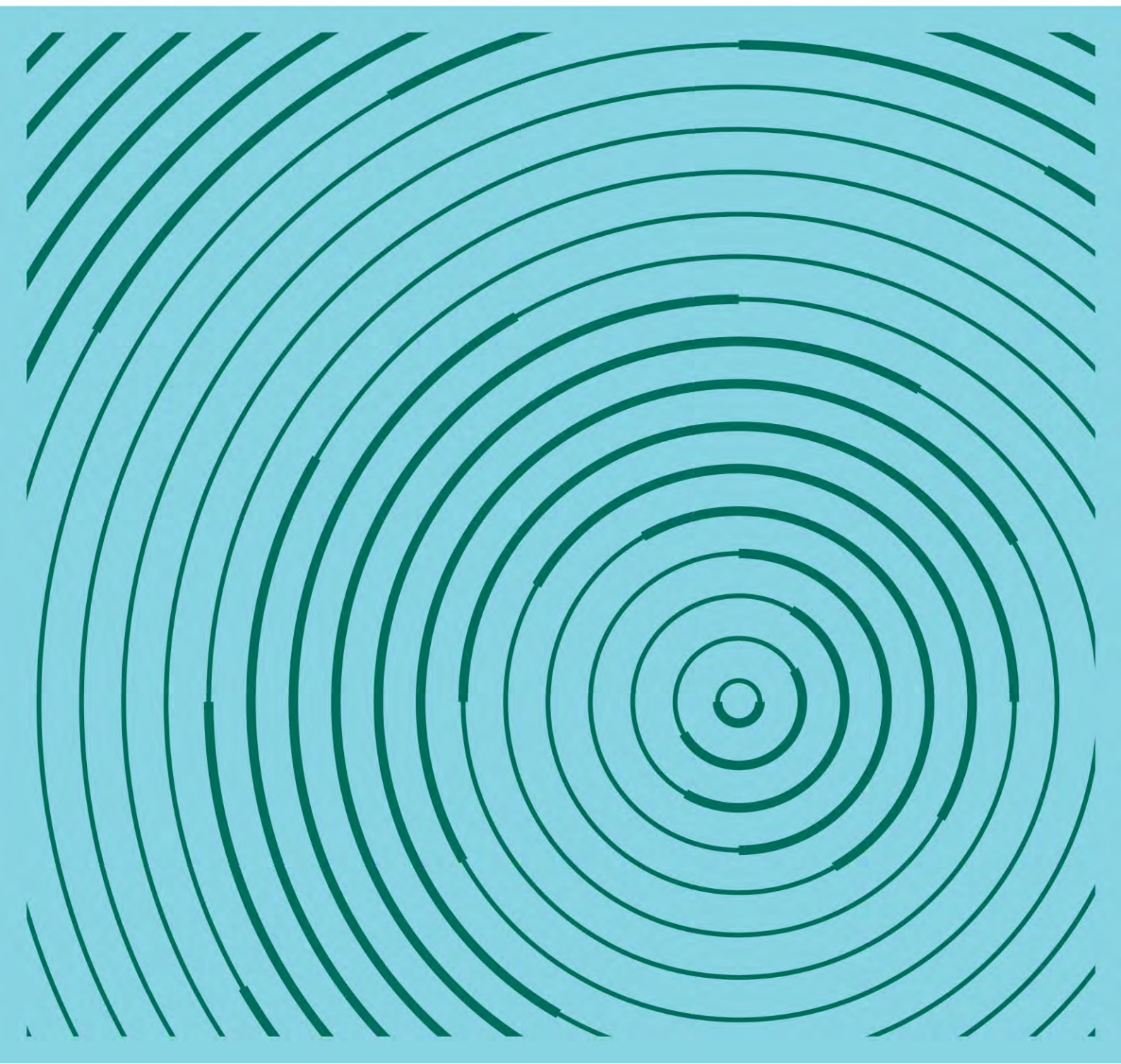
**Acid Mine Drainage and Rock Evaluation**

**Verum Group**

**Basalt quality  
summary report**

Prepared for Kokiri  
Lime Company

June 2020  
C94-20-0007



**Author** Cameron McCabe

**Verum Group reference** C94-20-0007

**Client name** Mac Fergusson

**Client address** Kokiri Lime Ltd

**Distribution  
(other than client)**

**Date of Issue** 8-June-2020

**Reviewed by** James Pope

**Approved by** James Pope  
Geochemist

**Document tracking**

Version	Date	Changes made	Reviewer(s)
1	2-Jun-20	First draft	CM
2	8-Jun-20	Finalized	JP
3	9-Jun-20	Typos, add in point load test	MF

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# 1. Scope and Introduction

Kokiri Lime Company (Kokiri) operate the Sugarloaf Quarry at Karangarua in Westland, 15 km south of Fox Glacier and 75 km north of Haast. Kokiri is investigating the suitability for the Karangarua Basalt at their Sugarloaf quarry for Armor Grade Protection Rock as well as other potential uses such as ballast and seal chip on roads.

Kokiri submitted a basalt rock sample **to Verum Group's** (Verum) Gracefield laboratory **for analysis of the rock's** composition. Another basalt rock was submitted to Central Testing Services and Fulton Hogan in mid-2018 to test the suitability for the basalt for roading material.

Kokiri has now commissioned Verum to provide an interpretive report of the results of these analysis against the national standards for armor rock protection, rail ballast material and sealing chip and base course for roading that Kokiri is investigating.

## 2. Methods

### 2.1 Sample provided to Verum

Kokiri submitted a single basalt rock (approx. 3kg) to the Verum Group Gacefield laboratory on 15 May 2020 with the rock being analyzed for:

- Major oxides via x-ray fluorescence spectrometry using the borate fusion method.
- Mineral composition via x-ray diffraction spectrometry using a Bruker Advance D8 diffractometer with Co anode tube through 5-80°2θ.
- An acid base accounting test using the standard methods set out in AMIRA test handbook (2002)
- A sub sample of the rock was sent to Canterbury University for point load testing, similar to uniaxial compressive strength (UCS) but can be completed on smaller and less uniform samples. Point load testing was completed using ISRM (International Society of Rock Mechanics) method.

Verum Group operate IANZ accredited laboratories throughout New Zealand that service the minerals and energy sectors.

### 2.2 Analysis by other labs

Kokiri also provided a rock sample to Central Testing Services in Alexandra to analysis for the weathering resistance and the solid density of the basalt rock on 5 June 2018. Central Testing Services are an IANZ accredited laboratory who specialize in aggregate, concrete and soil testing. The weather resistance testing was carried out in accordance with the New Zealand Standard of methods of sampling and testing road aggregates (NZS 4407:2015, Test 3.11). the testing of solid density of the rock followed the NZS4407:2015 standards (test 3.7.2).

Fulton Hogan carried out Los Angeles Abrasion test on the basalt rock on 16 June 2018 on behalf of Central Testing Services. It is unclear whether the sample tested by Fulton Hogan has a separate sample or a sub sample of that which was tested by Central Testing Services. The Fulton Hogan lab is a an IANZ Accredited laboratory who specialize in testing roading aggregate.

## 3. Results

### 3.1 XRD and XRF

The XRD analysis of the sample showed that the basalt is primarily anorthite (58% by weight) a feldspar mineral that has a hardness of 6 on the Mohs hardness scale and has a specific gravity of 2.75. The other major minerals making up the sample was diopside and augite, both clinopyroxene group minerals with a hardness between 5.5 and 6 and a specific gravity between 3.2 and 3.4 (Appendix 1). Olivine was not identified in this rock by XRD (detection limit 1%) or hand specimen investigation. Olivine is a mineral that crystallizes at high temperature and is a more reactive than other minerals that typically occur in basalt such as anorthite, augite and diopside.

The results from the XRF analysis for major oxides indicate the rock is primarily composed of silica reflecting pyroxene (silicate) and feldspar (alumino-silicate) composition with Fe > Ca >> Mg > Ti as the primary cations (Appendix 2).

These minerals have relatively low chemical weathering rates and are stable under surface geochemical conditions including

- Oxidic conditions (in contact with oxygenated surface waters or ground water)
- Anoxic conditions (in contact with anoxic surface waters or ground water)
- Reducing conditions (in contact with high dissolved organic carbon surface or ground water)
- Saturated conditions (submerged)
- Saline saturated conditions (submerged in sea water)
- Aerated conditions (exposed to the atmosphere)

### 3.2 Acid Base Accounting Analysis

Acid Base Accounting analysis indicates if the rocks contain minerals that are reactive under oxidic surface-water, oxidic groundwater or aerated conditions. These analyses do not directly determine the composition of the rocks but instead assess if there are small quantities of reactive minerals present in the rocks that release dissolved components. These reactive minerals include sulphates, sulphides or carbonates.

The paste pH of the basalt sample is 8.4 and this indicates that the rock does not contain reactive sulphate minerals. Reactive sulphate minerals often contain available Fe or available H<sub>3</sub>O<sup>+</sup> and can release acid during weathering. The acid neutralizing capacity of the rocks is 48kg/t (H<sub>2</sub>SO<sub>4</sub>) which indicates that if these rocks are exposed to acidic conditions they have a high capacity to neutralize acidity. The Net Acid Generation potential of the rocks is zero and NAG pH is high indicating that even when exposed to strongly oxidizing conditions the rocks will not produce acid.

Overall these analyses indicate that the basalt is unreactive and therefore that it is likely to be unaltered and unweathered (Appendix 3).

### 3.3 Weathering and Abrasion testing

To assess suitability for chip sealing and road construction materials for NZTA requirements a series of tests can be completed including weathering and abrasion testing. To meet NZTA requirements, all source rocks need to be sampled and tested in an IANZ accredited manner. Typically, IANZ accredited sampling procedures include requirements related to ensure a representative sample with adequate volume is analyzed and sampling procedures are worked into the quarry production process. These sampling processes cannot be completed by Kokiri Lime currently, and instead grab samples from the potential quarry site have been obtained and analyzed and therefore all results below are discussed with this caveat in mind.

Table 1: Test results from Weathering and Abrasion testing (Appendix 4)

Source Rock Characteristics	Test results	Test Method	Test Lab
Weathering resistance	BA	NZS 4407:2015, Test 3.11	Central Testing Services
Solid Density	2.94t/m <sup>3</sup>	NZS 4407:2015, Test 3.7.2	Central Testing Services
Los Angeles Abrasion (LAA)	13.1%	NZS 4407:2015 Test 3.12	Fulton Hogan
Loss after 100 Revs/Loss after 500 Revs	0.20		Fulton Hogan

### 3.4 Point Load Test

Point load testing could be completed on 9 subsamples of basalt after samples had been processed for other test work. Point testing is completed on samples that are smaller or less regular than core samples that are used for UCS testing. Typically the point load strength index figure ( $I_{s50}$ ) should be multiplied by between 20 and 25 times to get an estimate of UCS.

The  $I_{s50}$  value for the basalt submitted for testing by Kokiri Lime is 6.48 MPa (Appendix 6), this is a high value indicating the basalt is relatively strong rock and would likely have a UCS value between 130-160 MPa.

## 4. Discussion

### 4.1 Armor Grade Protection Rock

There is not an apparent specification for rip rap rock material for river protection provided by the West Coast Regional Council.

After reviewing standard council contracts for rip rap there appears to be a minimum specific gravity of 2.6. The testing shows the basalt rock has a density of 2.94t/m<sup>3</sup>, making the basalt 13% denser than the minimum requirement. By comparison granite has an average density between 2.65 and 2.75 and greywacke has an average density of 2.6 and 2.7. The grain size of Basalt is finer and more interlocking than granite and therefore it is less susceptible to weathering along mineral boundaries than granite.

Rock for rip rap shall be either grades I and II of the weathering term for the field description of rock, given in the 1988 guidelines of the NZ Geomechanics Society. Weathering tests and geochemical stability tests completed by Verum Group indicate that the basalt rock supplied by Kokiri Lime is unreactive and falls into Grade I.

### 4.2 Rail Ballast

There are several specifications for aggregates to be accepted as track ballast summarized in Ballast Track Specification 140. Based on the data collected to date samples from Kokiri Lime are acceptable for Ballast.

Source Rock Characteristics	Test results	Kiwi Rail requirements	Characteristic meets Kiwi Rail minimum requirement
Los Angeles Abrasion	13.1%	20%	Yes
Solid Density	2.94t/m <sup>3</sup>	2.5t/m <sup>3</sup>	Yes

There are several other test types that can be completed for Ballast assessment including to be tested from quarry product including:

- grading properties
- particle shape
- broken face

These tests can not be completed because there is not product available from the quarry currently. However, based on physical examination of the basalt, it is likely that these tests would be passed by quarry product generated from the samples submitted to Verum Group. Particle shape during processing was equidimensional and there was very little overbreak or fines generation during processing.

### 4.3 Sealing chips

The specifications of base-course aggregate for use on state highways and other heavily trafficked roadways are outlined by NZTA under the NZTA M/6:2011 specifications. NZTA M/6:2011 require that testing of source rocks be of a specified fraction size range and mass of the aggregated supplied for testing. The testing done by Central Testing Services and Fulton Hogan do not state whether these requirements were met or not. For the purposes of this report Verum has assumed they were.

The rock characteristics of the analysis completed on basalt from Sugarloaf Quarry compared to the NZTA M/6:2011 minimum requirements are acceptable (Table 2).

**Table 2: Source rock characteristics compared to NZTA sealing chip specifications**

Source Rock Characteristics	Test results	NZTA M/6:2011 requirements	Characteristic meets NZTA minimum requirement
Weathering resistance	BA	A, or BA	Yes
Solid Density	2.94t/m <sup>3</sup>	2.35t/m <sup>3</sup>	Yes

There are other test specifications for NZTA purposes that can be considered in future including:

- Crushing resistance
- Polished Stone Value Testing; and
- Skid Resistance

#### **4.4 Base course aggregate**

The specifications of base course aggregate for use on state highways and other heavily trafficked roadways are outlined by NZTA under the TNZ M/4: 2006 specifications. These specifications outline the AP40 and AP20 size chips.

The rock characteristics of the analysis completed on basalt from Sugarloaf Quarry compared to the TNZ M/4: 2006 minimum requirements are acceptable for these purposes (Table 3).

**Table 3: Source rock characteristics compared to NZTA base course specifications**

Source Rock Characteristics	Test results	TNZ M/4: 2006 requirement	Characteristic meets NZTA minimum requirement
Weathering resistance	BA	A, AB, AC, BA, BB or CA.	Yes
Solid Density	2.94t/m <sup>3</sup>	2.35t/m <sup>3</sup>	Yes
Los Angeles Abrasion (LAA)	13.1		

There are other rock specifications for base course under TNZ M/4: 2006 that can be completed in future.

- Crushing resistance;
- Californian bearing ratio

## Summary

For the rock characteristic tests carried out, the basalt rocks tested from the Sugarloaf Quarry have met the minimum **requirements for NZTA's sealing chip** and base course, and the Kiwi Rail requirements for Ballast. There is additional test work that can be completed for these purposes, but many of the remaining tests require a quarry product material is tested to deliver optimal results. Quarry product material is currently not available for the Basalt material supplied by Kokiri Lime. The potential for chemical weathering of the basalt material supplied by Kokiri Lime is low and these rocks are likely to be unreactive under all surface and submerged geochemical environments.

# Appendix 1 XRD Analysis



## X-RAY DIFFRACTION ANALYTICAL REPORT

**CLIENT** : **KOKIRI LIME COMPANY**  
**ADDRESS** : 89A JEFFREY'S ROAD, FENDALTON, CHRISTCHURCH  
**EMAIL** : [mac@kokirilime.co.nz](mailto:mac@kokirilime.co.nz)  
**PHONE** : 027 222 6363  
**ATTENTION** : MACKLEY FERGUSON **JOB REFERENCE** : SA21786-B

**CLIENT REFERENCE** : O/N - not received  
**SAMPLE TYPE[S]** : 1 x Basalt Rock Sample  
**DATE OF SAMPLE RECEIPT** : 13/05/2020 **CONDITION** : SOLID  
**ANALYSES CARRIED OUT** : X-RAY DIFFRACTION.  
**REPORTING BASIS** : AS RECEIVED


*The analytical results presented in this report apply to the sample(s) received by SpectraChem Analytical.*

<b>Analysis</b>	<b>Method used</b>	<b>LLD</b>	<b>Unit</b>
XRD *	Unoriented powder mount / X-ray diffraction Siroquant search / match	1	%

**Comments** : XRD analysis and/or evaluation performed by sub-contracting laboratories.

\* Not an IANZ accredited method.

*This report may not be reproduced either in part or whole without the prior consent of the undersigned.*

**Date** : 22/05/2020 **Signed** :  Yukinori Iwasaki Signatory

Verum Group Ltd , SpectraChem Analytical : 68 Gracefield Rd : Lower Hutt  
 P O Box 31-244 Lower Hutt : Tel. 04 570-3799 : Email. c.fraser@verumgroup.co.nz

## JOB REFERENCE : SA21786-B

X RAY DIFFRACTION ANALYSIS REPORT PREPARED FOR :

---

## KOKIRI LIME COMPANY

---

*The following XRD instrumental conditions were used :*

*Bruker D8 Advance diffractometer with parallel beam optics*

*Goebel mirror monochromator*

*Counting interval 0.05 degrees, 4 seconds per point*

*40 kV 30 mA tube power*

*Co anode X-ray tube*

*5 to 80 degrees 2 theta scan range*

*Single sample was received from **KOKIRI LIME COMPANY**  
on 13/05/20, labelled as follows :*

### **Basalt Rock Sample**

*The sample for XRD was prepared as an unoriented powder mount.*

*Phase identification and semi-quantification was carried out using a EVA  
search/match programme.*

Yukinori Iwasaki

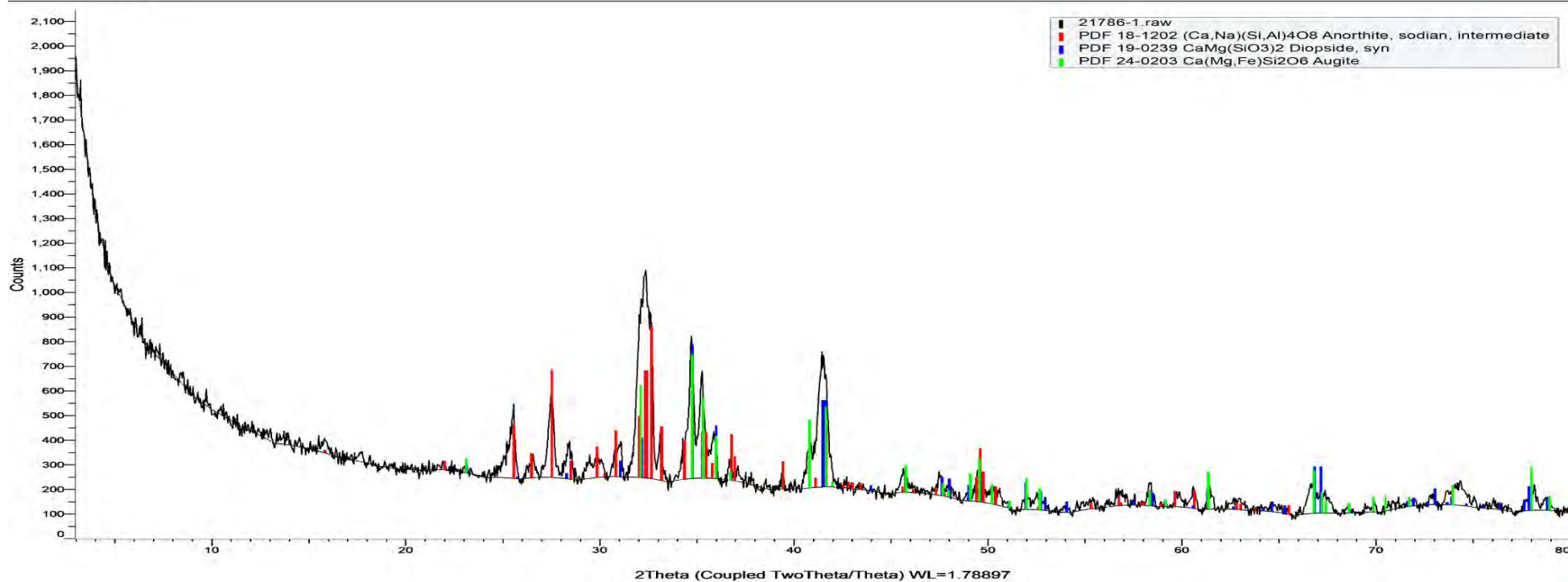
**Verum Group / SpectraChem Analytical**

## KOKIRI LIME COMPANY

SA21786-B : Basalt Rock Sample

Phase Name	Phase Formula	Weight %
Anorthite	$(Ca,Na)(Si,Al)_4O_8$	58
Diopside	$CaMg(SiO_3)_2$	26
Augite	$Ca(Mg,Fe)Si_2O_6$	16

SA21786-A



### Notes:

These minerals are all pretty much interchangeable - realistically it's just a mix of feldspars.

## **Appendix 2: XRF Analysis**

## X-RAY FLUORESCENCE ANALYTICAL REPORT

**CLIENT** : **KOKIRI LIME COMPANY**  
**ADDRESS** : 89A JEFFREY'S ROAD, FENDALTON, CHRISTCHURCH  
**EMAIL** : [mac@kokirilime.co.nz](mailto:mac@kokirilime.co.nz)  
**PHONE** : 027 222 6363  
**ATTENTION** : MACKLEY FERGUSON **JOB REFERENCE** : SA21786-A

**CLIENT REFERENCE** : O/N - not supplied  
**SAMPLE TYPE[S]** : 1 x Basalt Rock Sample  
**DATE OF SAMPLE RECEIPT** : 13/05/2020 **CONDITION** : SOLID  
**ANALYSES CARRIED OUT** : XRF MAJOR OXIDES, LOI.  
**REPORTING BASIS** : OVEN DRIED (110°C)

*The analytical results presented in this report apply to the sample(s) received by SpectraChem Analytical.*

Analysis	Method used	LLD	Unit
Major oxides	Borate fusion / X-ray fluorescence spectrometry	0.01	%
LOI	Loss on ignition at 1000 deg.C	0.01	%



SpectraChem Analytical is an IANZ accredited analytical laboratory. All analyses presented in this report other than those indicated (\*), have been carried out by SpectraChem or by a sub-contracted laboratory in accordance with the requirements of International Accreditation New Zealand. This report may not be reproduced either in part or whole without the prior consent of the undersigned.

**Date** : 15/05/2020 **Signed** :  Craig Fraser Signatory

Verum Group Ltd , SpectraChem Analytical : 68 Gracefield Rd : Lower Hutt  
 P O Box 31-244 Lower Hutt : Tel. 04 570-3799 : Email. c.fraser@verumgroup.co.nz

## KOKIRI LIME COMPANY

JOB REFERENCE : SA21786-A

### XRF MAJOR OXIDE ANALYSES

SAMPLE>	Basalt Rock Sample
Fe <sub>2</sub> O <sub>3</sub>	13.56
MnO	0.20
TiO <sub>2</sub>	3.98
CaO	10.65
K <sub>2</sub> O	1.42
SO <sub>3</sub>	<0.01
P <sub>2</sub> O <sub>5</sub>	0.63
SiO <sub>2</sub>	44.67
Al <sub>2</sub> O <sub>3</sub>	15.14
MgO	4.14
Na <sub>2</sub> O	2.80
LOI	2.35
SUM	99.55

LOI = loss on ignition at 1000°C for 1 hour.  
Results are expressed as weight % on oven dried (110° C) basis.

## **Appendix 3: Acid Base Accounting Testing**

# Report of Analysis

Kokiri Lime Company  
89 Jeffrey's Rd  
Fendalton  
Christchurch

Report Number: 20/1322

Issue: 1

Date: 20 May 2020

**Sample** : 20/1322-01  
**Description** : 0 Rock  
**Customer Ref.** : Karangarua - Sugarloaf Quarry  
**Notes** : Large rock

**Order No.:** 20/1322  
**Date Received:** 13/05/2020

Test Code	Acid Mine Drainage - AMIRA International ARD Test Handbook.	Result
450	pH paste	8.5
451	Acid Neutralising Capacity	48kg H2SO4/t
452	NAGpH	8.3
453	Net Acid Generation	0kg H2SO4/t

## Comments:

This report may only be reproduced in full.



Mike Young  
Laboratory Manager



# **Appendix 4: Weathering Resistance and Solid Density Analysis**

## **Appendix 5: Fulton Hogan Material Test Report**

# Appendix 6: Point Load Test

POINT LOAD TESTING LUMP SAMPLES											
SAMPLE:		Kokiri Lime Basalt									
DATE:		4/05/2020									
Test No.	Type	P (kN)	D (mm)	W (mm)	A = WD (mm <sup>2</sup> )	D <sub>e</sub> <sup>2</sup>	D <sub>e</sub>	I <sub>s</sub>	F	I <sub>s(50)</sub> (MPa)	
1	Lump	9.04	16.0	70	1120	1426	37.8	6.34	0.881	5.59	
2	Lump	9.22	22.0	50	1100	1401	37.4	6.58	0.878	5.78	
3	Lump	8.31	21.0	40	840	1070	32.7	7.77	0.826	6.42	
4	Lump	16.51	26.0	70	1820	2317	48.1	7.12	0.983	7.00	
5	Lump	8.62	24.0	40	960	1222	35.0	7.05	0.851	6.00	
6	Lump	8.90	21.0	33	693	882	29.7	10.09	0.791	7.98	
7	Lump	15.83	31.0	60	1860	2368	48.7	6.68	0.988	6.60	
8	Lump	11.50	20.0	33	660	840	29.0	13.68	0.782	10.71	
9	Lump	9.05	34.0	60	2040	2597	51.0	3.48	1.009	3.51	
										5.59	
										5.78	
										6.42	
										7.00	
										6.00	
										7.98	
										6.60	
		Rejecting lowest and highest results, the mean I <sub>s(50)</sub> =									<b>6.48</b>

## **Appendix D**

### **Retrolens Aerials**

18/3/1965



10/1/1978



1/2/1986



1/6/1986





15/2/1987



**Appendix E**

**Signed Affected Party Forms – WCRC & WDC / WCRC Letter of Support**

**APPROVAL BY A PERSON  
AFFECTED BY AN APPLICATION  
FOR A RESOURCE CONSENT (SECTION 95 OF  
THE RESOURCE MANAGEMENT ACT 1991)**

Office Use Only



File Number:

Consents Officer:

**PART A: DESCRIPTION OF APPLICATION:**

APPLICANT:

Kokiri Lime Company Limited

DESCRIPTION OF PROPOSED ACTIVITY:

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

LOCATION:

Sugarloaf Road / Quarry - Karangarua- Westland

**PART B: PERSON GIVING APPROVAL: (To be completed by the person giving approval)**

Full name/s	Westland District Council- Engineering / Transportation			
Postal address	P.O Box 704 Hokitika, 7842			
I am the owner of the following property: (Address of property affected by application)	Sugarloaf Legal Roads- Formed and Unformed			
Primary contact person/s	Karl Jackson			
Email address	karl.jackson@westlanddc.govt.nz			
Phone number/s	Home:	NA	Business:	03 756 9032
	Mobile:	027 608 5045	Fax:	NA

I have read the full application for resource consent, the Assessment of Environmental Effects, and any site plans as follows: (list documents with form numbers and dates where relevant)

Resource Consent Application: SQ620

I have the authority to give approval for the application as described in the documents listed above on behalf of either all other owners/occupiers of the property identified above or the organisation identified above, and hereby do so.


Signature:

Date:

Name (BLOCK CAPITALS): **KARL JACKSON**

**3-7-2020**

**NOTE: DO NOT SIGN BEFORE READING THE NOTES ON THE BACK OF THIS SHEET**

<b>APPROVAL BY A PERSON AFFECTED BY AN APPLICATION FOR A RESOURCE CONSENT (SECTION 95 OF THE RESOURCE MANAGEMENT ACT 1991)</b>	Office Use Only	 THE WEST COAST REGIONAL COUNCIL
--	-----------------	---

File Number:	Consents Officer:
--------------	-------------------

**PART A: DESCRIPTION OF APPLICATION:**

APPLICANT:  
 Kokiri Lime Company Limited

DESCRIPTION OF PROPOSED ACTIVITY:  
 Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

LOCATION:  
 Sugarloaf Road / Quarry - Karangarua- Westland

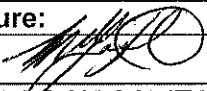
**PART B: PERSON GIVING APPROVAL: (To be completed by the person giving approval)**

Full name/s	Te Runanga O Makaawhio- Board		
Postal address	P.O BOX 225 Hokitika, 7842		
I am the owner/occupier (delete one) of the following property: (Address of property affected by application)	Te Runanga O Makaawhio- Jurisdiction		
Primary contact person/s	Rachael Forsyth- Kaiarahi		
Email address	rachael.forsyth@ngaitahu.iwi.nz		
Phone number/s	Home: NA	Business: NA	03 755 7885
	Mobile: NA	Fax: NA	NA

I have read the full application for resource consent, the Assessment of Environmental Effects, and any site plans as follows: (list documents with form numbers and dates where relevant)

Resource Consent Application:SQ620

I have the authority to give approval for the application as described in the documents listed above on behalf of either all other owners/occupiers of the property identified above or the organisation identified above, and hereby do so.

Signature: 	Date:
Name (BLOCK CAPITALS): RACHAEL FORSYTH	20/7/2020

**NOTE: DO NOT SIGN BEFORE READING THE NOTES ON THE BACK OF THIS SHEET**

## **Important information – please read carefully**

In signing this written approval, I understand that the Council must decide that I am no longer an affected person, and the consent authority must not have regard to any adverse effects on me.

I understand that I may withdraw my written approval by giving written notice to the consent authority before the hearing, if there is one, or, if there is not, before the application is determined.

**If you do not understand this form or the implications of signing it, do not sign the form.**

**There is no obligation to sign this form, and no reasons need to be given.**

**Conditional written approvals cannot be accepted.**

If this form is not signed, the application may be notified with an opportunity for submissions.

If signing on behalf of a trust or company, please provide additional written evidence that you have signing authority.

Make sure you have seen the application in its entirety, including any attachments and supporting documents.

If you choose to sign this form it can be sent directly to the West Coast Regional Council.

Once granted you can request that a copy of the resource consent be provided to you.

### **Public information**

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

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

### **More information**

For more information on the application process or resource consents, visit our website at [www.wcrc.govt.nz](http://www.wcrc.govt.nz) or phone a member of the Consents team on (03) 768 0466 or 0508 800 118.



388 Main South Road, Paroa, Greymouth 7805  
PO Box 66, Greymouth 7840  
Telephone (03) 768 0466  
Toll Free 0508 800 118  
Facsimile (03) 768 7133  
Email [info@wcrc.govt.nz](mailto:info@wcrc.govt.nz)  
Website [www.wcrc.govt.nz](http://www.wcrc.govt.nz)

**APPROVAL BY A PERSON  
AFFECTED BY AN APPLICATION  
FOR A RESOURCE CONSENT (SECTION 95 OF  
THE RESOURCE MANAGEMENT ACT 1991)**

Office Use Only



File Number:

Consents Officer:

**PART A: DESCRIPTION OF APPLICATION:**

APPLICANT:

Kokiri Lime Company Limited

DESCRIPTION OF PROPOSED ACTIVITY:

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

LOCATION:

Sugarloaf Road / Quarry - Karangarua- Westland

**PART B: PERSON GIVING APPROVAL: (To be completed by the person giving approval)**

Full name/s	James and Debbie Scott		
Postal address	Box 40 Fox Scaur		
I am the owner of the following property: (Address of property affected by application)	RS 6432 and RS 6433 WS8A/77A- Receptor 1 RS 916 WS2C/285- Receptor 2 RS 912 WS2C/285- Receptor 3 RS 914 WS2B/1067- Receptor 5		
Primary contact person/s	James Scott		
Email address	Fox-Hec1@xtra.co.nz		
Phone number/s	Home:	03 751 0853	Business:
	Mobile:		Fax:

I have read the full application for resource consent, the Assessment of Environmental Effects, and any site plans as follows: (list documents with form numbers and dates where relevant)

I have viewed Quarry site Plans- Figure 1,2 and give my written consent on this basis, without reading the full application and AEE.

I have the authority to give approval for the application as described in the documents listed above on behalf of either all other owners/occupiers of the property identified above or the organisation identified above, and hereby do so.

Signature:

*James Patrick Scott*

Date:

10-5-20

Name (BLOCK CAPITALS):

James Patrick Scott

**NOTE: DO NOT SIGN BEFORE READING THE NOTES ON THE BACK OF THIS SHEET**



# Approval of Person Affected by an Application for a Resource Consent (under the Resource Management Act 1991)

I, James Patrick Scott  
 James Scott  being the owner

.....

of the property at:

RS 6432 and RS 6433 WS8A/77A- Receptor 1 RS 916 WS2C/285- Receptor 2 RS 912 WS2C/285- Receptor 3 RS 914 WS2B/1067- Receptor 5

*Please note: Council requires the approval of all legal owners of an affected property. A signed site plan is required to verify that the full extent of the application is understood.*

Hereby give my approval for the resource consent application relating to the following address:  
Sugarloaf Road / Quarry - Karangarua- Westland

The proposal is to:

.....

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

I do/~~do not~~ (delete one) have the authority to sign on behalf of all the other owners  occupiers  of the property (please tick one box)

The proposal has been explained to me and I understand it.

I have seen and signed a copy of the proposal, plan or diagram (as relevant).

I also understand that if I give my approval, then the Council cannot take into account any effect that the proposal may have on me, when it considers the application.

Signed: J.P. Scott Date: 10-5-20

Telephone ( day): 037510853 Fax/email: Fox-Hell@xtra.co.nz

*Please note: You should only sign if you fully understand the proposal, and if you support or have no opposition to the proposal. Council cannot accept 'conditional' approvals. If you have conditions you wish imposed on the proposal then you need to negotiate and resolve these matters directly with the applicant. If you are unsure, then do not sign.*





## Approval of Person Affected by an Application for a Resource Consent (under the Resource Management Act 1991)

I, Wade James Scott

Wade Scott

being the owner

of the property at:

(Occupier) RS 6432 and RS 6433 WS8A/77A- Receptor 1, (Owner) RS 917 WS2D/617- Receptor 6

Please note: Council requires the approval of all legal owners of an affected property.  
A signed site plan is required to verify that the full extent of the application is understood.

Hereby give my approval for the resource consent application relating to the following address:  
Sugarloaf Road / Quarry - Karangarua- Westland

The proposal is to:

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

- I do/~~do not~~ (delete one) have the authority to sign on behalf of all the other owners  occupiers  of the property (please tick one box)
- The proposal has been explained to me and I understand it.
- I have seen and signed a copy of the proposal, plan or diagram (as relevant).
- I also understand that if I give my approval, then the Council cannot take into account any effect that the proposal may have on me, when it considers the application.

Signed: Wade Scott

Date: 10.5.20

Telephone ( day): 03 7510011

Fax/email: Wadescott70@icloud.com

Please note: You should only sign if you fully understand the proposal, and if you support or have no opposition to the proposal. Council cannot accept 'conditional' approvals. If you have conditions you wish imposed on the proposal then you need to negotiate and resolve these matters directly with the applicant. If you are unsure, then do not sign.



**APPROVAL BY A PERSON  
AFFECTED BY AN APPLICATION  
FOR A RESOURCE CONSENT (SECTION 95 OF  
THE RESOURCE MANAGEMENT ACT 1991)**

Office Use Only



File Number:

Consents Officer:

**PART A: DESCRIPTION OF APPLICATION:**

APPLICANT:

Kokiri Lime Company Limited

DESCRIPTION OF PROPOSED ACTIVITY:

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

LOCATION:

Sugarloaf Road / Quarry - Karangarua- Westland

**PART B: PERSON GIVING APPROVAL: (To be completed by the person giving approval)**

Full name/s	Wade Scott		
Postal address	Cl- Box 40 Fox Glacier		
I am the owner/occupier (delete one) of the following property: (Address of property affected by application)	(Occupier) RS 6432 and RS 6433 WS8A/77A- Receptor 1 (Owner) RS 917 WS2D/617- Receptor 6		
Primary contact person/s	Wade Scott		
Email address	Wade Scott 10@icloud.com		
Phone number/s	Home:	03 751 0011	Business:
	Mobile:		Fax:

I have read the full application for resource consent, the Assessment of Environmental Effects, and any site plans as follows: (list documents with form numbers and dates where relevant)

I have viewed Quarry site Plans- Figure 1,2 and give my written consent on this basis, without reading the full application and AEE.

I have the authority to give approval for the application as described in the documents listed above on behalf of either all other owners/occupiers of the property identified above or the organisation identified above, and hereby do so.

Signature:

*Wade Scott*

Date:

10-5-20

Name (BLOCK CAPITALS):

Wade James Scott

**NOTE: DO NOT SIGN BEFORE READING THE NOTES ON THE BACK OF THIS SHEET**

**APPROVAL BY A PERSON  
AFFECTED BY AN APPLICATION  
FOR A RESOURCE CONSENT (SECTION 95 OF  
THE RESOURCE MANAGEMENT ACT 1991)**

Office Use Only



Consents Officer:

File Number:

**PART A: DESCRIPTION OF APPLICATION:**

APPLICANT:

Kokiri Lime Company Limited

DESCRIPTION OF PROPOSED ACTIVITY:

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

LOCATION:

Sugarloaf Quarry - Karangarua- Westland

**PART B: PERSON GIVING APPROVAL: (To be completed by the person giving approval)**

Full name/s	David and Robert Scott		
Postal address	3451 Haast Hwy (Rapid number HAT 3451), Karangarua 7885		
I am the owner of the following property: (Address of property affected by application)	RS 913 WS2A/1427- Receptor 5		
Primary contact person/s	David Scott		
Email address	pine_grove@xtra.co.nz		
Phone number/s	Home:	03 751 0898	Business: 03 751 0898
	Mobile:		Fax:

I have read the full application for resource consent, the Assessment of Environmental Effects, and any site plans as follows: (list documents with form numbers and dates where relevant)

I have viewed Quarry site Plans- Figure 1,2 and give my written consent on this basis, without reading the full application and AEE

I have the authority to give approval for the application as described in the documents listed above on behalf of either all other owners/occupiers of the property identified above or the organisation identified above, and hereby do so.

Signature:

*David Scott*

Name (BLOCK CAPITALS):

DAVID MATHEW SCOTT

Date:

7-5-2020

**NOTE: DO NOT SIGN BEFORE READING THE NOTES ON THE BACK OF THIS SHEET**

## Approval of Person Affected by an Application for a Resource Consent (under the Resource Management Act 1991)

I, .....  
David and Robert Scott  being the owner

of the property at:

RS 913 WS2A/1427- Receptor 5

*Please note: Council requires the approval of all legal owners of an affected property.  
A signed site plan is required to verify that the full extent of the application is understood.*

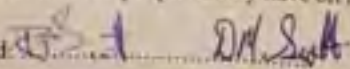
Hereby give my approval for the resource consent application relating to the following address:

Sugarloaf Quarry - Karangarua - Westland

The proposal is to:

Re establishment of Sugarloaf quarry and ongoing quarry operation for production of rock and aggregates.

- I do/do not (*delete one*) have the authority to sign on behalf of all the other owners  occupiers  of the property (*please tick one box*)
- The proposal has been explained to me and I understand it.
- I have seen and signed a copy of the proposal, plan or diagram (as relevant).
- I also understand that if I give my approval, then the Council cannot take into account any effect that the proposal may have on me, when it considers the application.

Signed:  Date: 7-5-2020

Date: 7-5-2020

Telephone (day): 037610898

Fax/email: pine\_grove@extra.co.nz

*Please note: You should only sign if you fully understand the proposal, and if you support or have no opposition to the proposal. Council cannot accept 'conditional' approvals. If you have conditions you wish imposed on the proposal then you need to negotiate and resolve these matters directly with the applicant. If you are unsure, then do not sign.*



388 Main South Rd, Paroa  
PO Box 66, Greymouth 7840  
New Zealand  
Telephone (03) 768 0466  
Toll free 0508 800 118  
www.wcrc.govt.nz

Mac Ferguson  
Kokiri Lime Co

26 August 2019

Dear Mac,

**RE-NZPM minerals permit application**

I write as Councils Director of Operations in support of your minerals permit application for the purpose of establishing an Armour Grade Protection Rock (AGPR) source at Karangarua, South Westland.

Council secured a minerals permit (MP57484) at Okuru within the World Heritage Area in Westland for the same purpose in 2015.

All infrastructure managers including Department of Conservation, Westland District Council, New Zealand Transport Agency and West Coast Regional Council have a desperate need for viable AGPR sources throughout the West Coast. There is no competing alternative source within the vicinity of your proposed site.

I attach a Council report from Junes WCRC Council meeting in support of this letter.

Please do not hesitate to call or email should you require any further information.

Kind regards,

*Randal Beal*

Randal Beal  
Director of Operations  
West Coast Regional Council  
rb@wcr.govt.nz  
021 702 591

**Appendix F**

**Photos and Old Map**



SH6 / Sugarloaf Road  
Intersection looking North



SH6 / Sugarloaf Road  
Intersection  
Looking South



Deep Drain south side- Sugarloaf access road, looking  
north west



Deep Drain north side- Sugarloaf access road, looking north



Sugarloaf access road culvert no 1 inlet from deep drain



Sugarloaf access road culvert no 1 outlet from deep drain



Access road at Scotts creek,  
culvert no:2 crossing, looking  
south west



Scotts's Creek Looking East from Sugarloaf  
Access Road



Scotts's Creek culvet no 2  
inlet





Scotts Creek- Culvert 2 Access road- Outlet



Sugarloaf Access Road, looking south west, after culvert 2, passing bay location on the right



Border Creek- Culvert 3 Access road- Crossing point- looking north west, new culvert installation required



Existing Quarry Floor- Abandoned Cars to be removed



Existing Quarry Floor and Face



Existing Quarry Floor and Face



Existing Quarry Face, rubble and rock remains from previous quarrying



Border Creek- upstream of MoW Bridge



Border Creek under MoW Bridge



MoW Bridge, looking north into quarry floor



AMENDMENTS	BY	APP'D	DATE	RECOMMENDED:
				APPROVED

COMPLD	NAME	DATE
6/4/77	J.H. Macky	11/72

**Ministry of Works  
New Zealand**

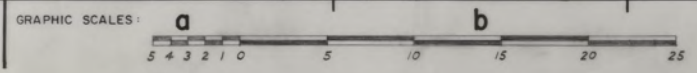
J.H. MACKY  
Commissioner

GREYMOUTH  
CIVIL  
ENGINEERING

**PROPOSED QUARRY  
RESERVE  
KARANGARUA**

ORIGINAL SCALES: APPROX. 5 CHS. TO 1 INCH.	ISSUE NO. A
FILE 19/6	SHEET NO. 1
GR. 8654	IN SHEETS 1
MICROFILMED	

PW 483  
Rev. 9/70



A2

[CH932/8t]

C61

C61

C61

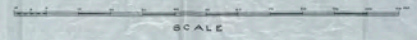
C61

**NATIVE BLOCK**  
**MANAKAI-AUA**  
 KARANCARUA & BRUCE BAY DISTRICTS  
 BLOCKS V, IX - VII, VIII, XI, XII

TASMAN SEA

KARANCARUA RIVER

MANAWAO RIVER



Surveyed by H. Wilson  
 Chief Surveyor of the  
 Department of Lands  
 Wellington, N.Z.

Field Book No. 615

C61

C61

C61

C61

C61

C61

C61

**Appendix G**

**New Zealand Archaeological Association- Archaeological Sites**



## Summary Site Record

**NZAA SITE NUMBER:** H36/3

**SITE TYPE:** Timber milling

**SITE NAME(s):**

**Record last updated:** 01/01/1984

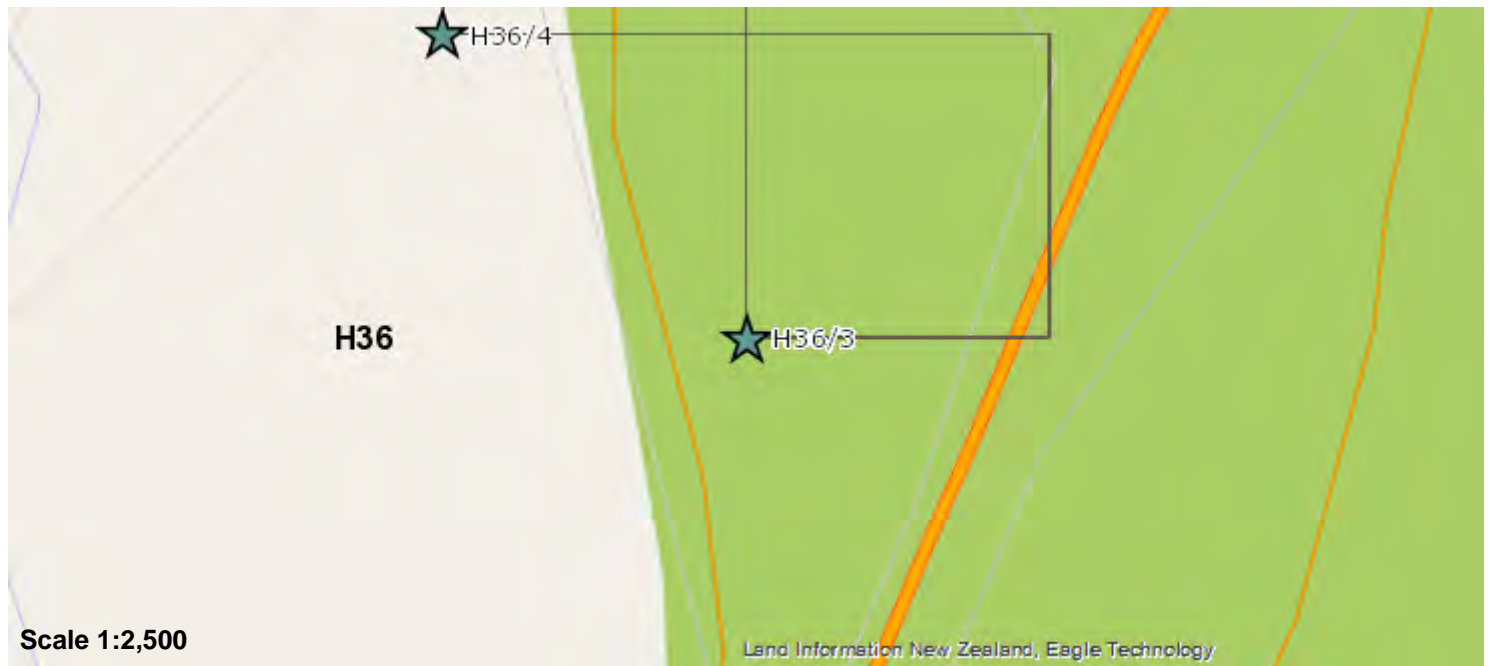
**SITE COORDINATES (NZTM) Easting:** 1343215

**Northing:** 5172277

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S78/2

**METRIC SITE NUMBER:** H36/3



**Finding aids to the location of the site**

**Brief description of the site**

SAWMILL SITE

**Condition of the site when last visited**

This report contains a summary of the information about this site held in ArchSite.

For a complete Site Record Form containing all the recorded information, please contact the ArchSite Coordinator.

**For further information please contact:**

**ArchSite Coordinator, PO Box 6337, DUNEDIN**

**admin@archsite.org.nz**





## Summary Site Record

**NZAA SITE NUMBER:** H36/4

**SITE TYPE:** Timber milling

**SITE NAME(s):** Cain's Mill

**Record last updated:** 20/10/2006

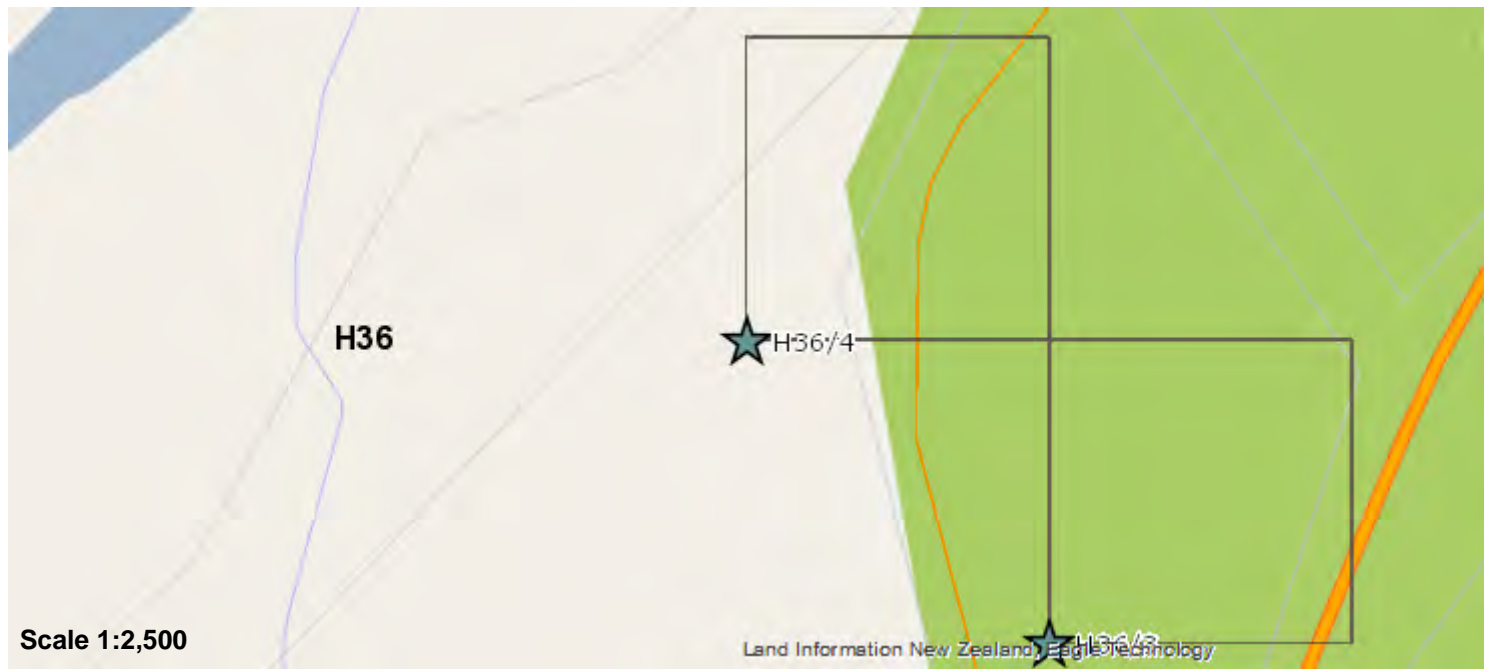
**SITE COORDINATES (NZTM) Easting:** 1343115

**Northing:** 5172378

**Source:** CINZAS

**IMPERIAL SITE NUMBER:** S78/3

**METRIC SITE NUMBER:** H36/4



### Finding aids to the location of the site

To come.

### Brief description of the site

Small conventional sawmill established to supply the needs of local farmers. Belonged to James Cain, worked c1920-1936. It worked part time with three mill workers and a yard worker. Totara was cut, steam powered. dismantled 1939.

### Condition of the site when last visited

This report contains a summary of the information about this site held in ArchSite.

For a complete Site Record Form containing all the recorded information, please contact the ArchSite Coordinator.

**For further information please contact:**

**ArchSite Coordinator, PO Box 6337, DUNEDIN**

**admin@archsite.org.nz**



## Summary Site Record

**NZAA SITE NUMBER:** H36/6

**SITE TYPE:** Transport/ communication

**SITE NAME(s):** Copland Track

**Record last updated:** 23/12/2009

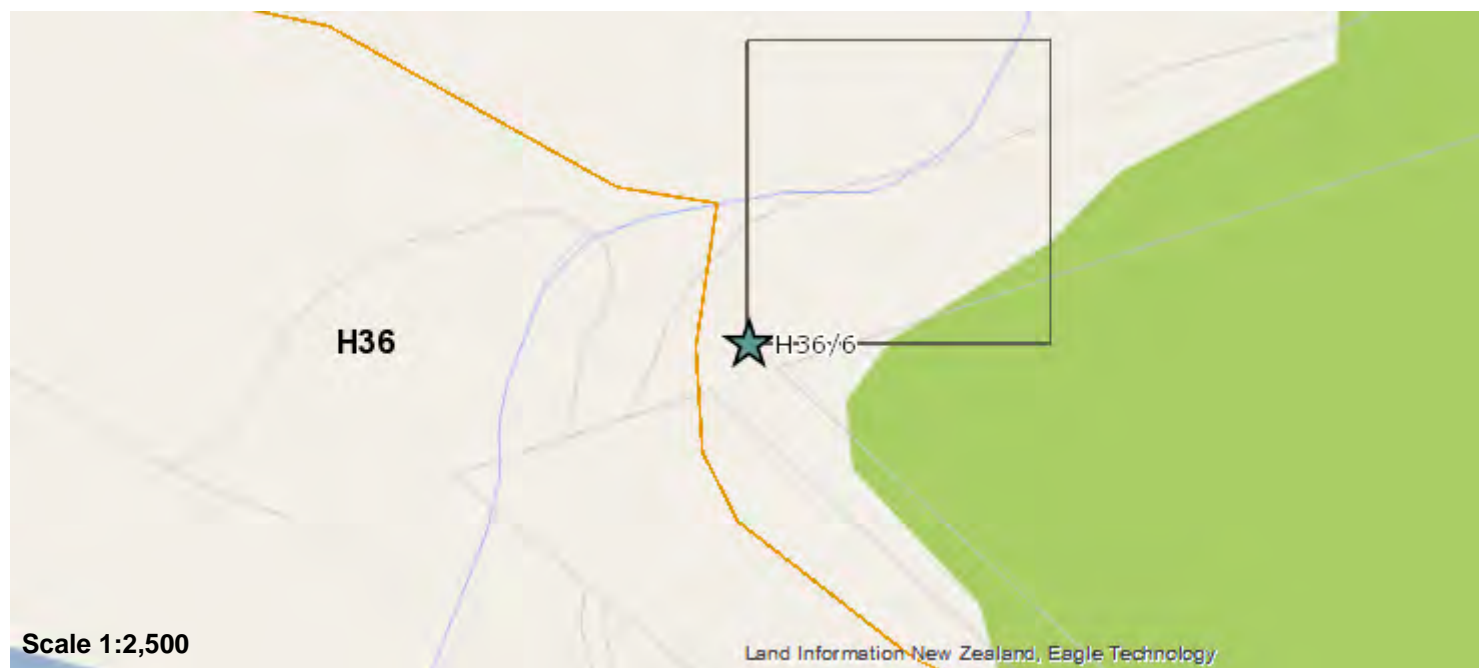
**SITE COORDINATES (NZTM) Easting:** 1342615

**Northing:** 5170277

**Source:** CINZAS

**IMPERIAL SITE NUMBER:**

**METRIC SITE NUMBER:** H36/6



### Finding aids to the location of the site

Signposted from SH6 immediately north of the Karangarua River bridge. The track is a well known DOC managed visitor track, mainly used to access the hot pools at Welcome Flat.

### Brief description of the site

Well benched track, moderate grades, through a densely forested steep river valley to the hut and hot springs at the bottom end of Welcome Flat, then on to Douglas hut. There is a mountain climb to the pass summit, highest altitude track in the country.

### Condition of the site when last visited

Good

This report contains a summary of the information about this site held in ArchSite.

For a complete Site Record Form containing all the recorded information, please contact the ArchSite Coordinator.

**For further information please contact:**

**ArchSite Coordinator, PO Box 6337, DUNEDIN**

**admin@archsite.org.nz**

**Appendix H**

**Previous Mining License and New Zealand Forest Service Land Access Agreement.**

HOKITIKA  
Land Registry Office

MINING LICENCE.....32.874.....  
Mining Act 1971

MINISTRY OF ENERGY  
MINES DIVISION  
- 8 MAR 1982  
GREYMOUTH

LICENSEE: Westland Catchment Board  
153 Tainui Street  
GREYMOUTH

FIRST SCHEDULE:

C.T. or Document Reference	AREA	Certified Description of Licence Area
	3.355 hectares approximately	<p>WESTLAND LAND DISTRICT - WESTLAND COUNTY</p> <p>All that area of land being Legal road Part R 1683, State Forest situated in Block V Karangarua Survey District as is more particularly described in the FOURTH SCHEDULE and outlined in black on the plan attached hereto.</p>

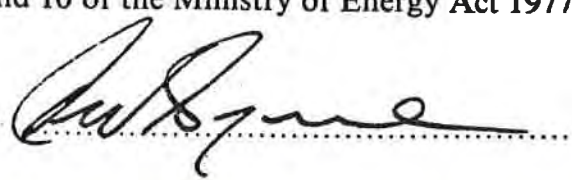
*Issued 8.3.82*

TERM: Ten years commencing on the date hereof.  
PURSUANT to the Mining Act 1971 the Minister of Energy hereby grants to the above-named licensee the exclusive right to occupy for mining purposes, the land described in the FIRST SCHEDULE hereto for the purpose of mining for the minerals specified in the SECOND SCHEDULE hereto and paying in respect of the minerals mined or drawn pursuant to this licence the royalty at the rate(s) specified in the SECOND SCHEDULE hereto.

This licence is granted for the abovementioned term SUBJECT TO the terms, conditions, reservations and provisions set out in the said Act and any regulations for the time being in force thereunder and to the additional terms, conditions, reservations and provisions specified in the THIRD SCHEDULE hereto.

Dated at Wellington this 16<sup>th</sup> day of February 1982.

Signed by Raymond William Byrne, Executive Officer, Ministry of Energy... under powers delegated under sections 9 and 10 of the Ministry of Energy Act 1977, and not revoked at the date of signing.



Licence No. ML.....32.874.....

## SECOND SCHEDULE

### MINERAL

### ROYALTY

Granite	)	10 cents per tonne sold.
	)	The royalty is to be
Schist	)	remitted so long as the
	)	rock is used for river
Greywacke	)	protection works.

The royalty shall be payable for the half-yearly periods ending 30 June and 31 December in each and every year during the term of this licence within 30 days of the 1 January or 1 July (as the case may be) immediately following the expiry of the half yearly period concerned PROVIDED THAT the royalty payable in respect of any period may in terms of section 85 (6) be reduced by the part of the annual rent paid under the licence in respect of that period and where the amount so paid exceeds the royalty, no royalty shall be payable for that period.

## THIRD SCHEDULE

1. The licensee shall pay an annual rental of .....\$20.00.....during the term of this licence, all payments in respect thereof having been made up to the last day of.....June.....next following the date of the licence, and the subsequent payments to be made by half-yearly instalments of.....\$10.00..... in advance computed from and including the first day of July or January.
- 2 The licensee shall observe and perform all the terms, conditions and provisions as specified in the attached consent of the Minister of Forests.
- 3 The natural colour and clarity of the waters shall not be changed to any noticeable extent because of silt pollution.
- 4 In all operations, a tailings retention pond shall be operated so as to prevent waste or noxious water from directly or indirectly entering any watercourse.
- 5 All proper precautions, and any specific precautions which may from time to time be required by the Ministry of Agriculture and Fisheries in consultation with the Inspector of Mines and Quarries shall be taken to prevent damage to any fishery within or adjacent to the area under licence.

- 6 The licensee shall comply with all or any written notices issued by the Westland Catchment Board regulating the disposal of water after use and discharge of material either directly or indirectly into any rivers, creeks, or waterways adjacent to the land included in the licence.
- 7 The grant of such mining a mining licence to remove rock shall in no way prejudice any river control work required by the Westland Catchment Board in any of these rivers or streams.
- 8 Where topsoil is present it shall be stockpiled and respread following bulldozing operations.
- 9 The licensee must maintain the road leading to the quarry from State Highway 6 to a standard acceptable to the Westland County Council, while quarrying operations continue.
- 10 Notwithstanding the provisions of the Mining Act 1971, the provisions of the Quarries Act 1944 and the Quarries Regulations 1959 shall also apply to the working of this licence. Quarrying operations shall be carried out in such a manner as to ensure that the surface of the land suffers as little permanent damage as possible. Worked out areas are to be progressively rehabilitated by resoiling and planting in grass or trees where practicable or otherwise rehabilitated to the satisfaction of the Inspector of Mines and Quarries in consultation with the Westland Catchment Board where this is not practicable. The quarry areas are to be left in a clean and tidy condition after quarrying has ceased.
- 11 Throughout the term of this licence the licensee shall undertake mining operations to the satisfaction of the Inspector of Mines and Quarries.

HO FS 20/5/9/109/1

Cons FS 20/10/9/32874

FSD 1 (1979)

CONDITIONS OF CONSENT BY THE MINISTER OF FORESTS IN RESPECT OF APPLICATION  
NO. 32 874 by WESTLAND CATCHMENT BOARD (hereinafter  
called "the licensee") for a mining licence.

Subject to the observance of the reservations, exclusions and conditions set  
out below and to all existing rights granted by him in respect of the State  
forest land affected by this mining privilege (hereinafter called "the land")  
THE MINISTER OF FORESTS CONSENTS to the grant by the Minister of Energy of the  
mining privilege referred to above as and to the extent more particularly  
shown in red on the attached Forest Service map.

#### CONDITIONS

##### AUTHORITY

1. This consent is given pursuant to section 26 of the Mining Act 1971 and  
is subject to the requirements of the Forests Act 1949.

##### FOREST MANAGEMENT PLAN

2. All statutory and other rights powers and duties of the Minister of  
Forests in respect of the land including in particular all prescriptions of  
every Management Plan under section 26 of the Forests Act 1949 are reserved by  
him for his consent.

EXCLUSION OF CERTAIN AREAS(Not applicable in this case)

3. Certain areas within the boundaries of the land are excluded from this consent. The general location of these areas is shown on the above-mentioned map. Before commencing operations in the vicinity of these areas being defined as that strip of land metres wide abutting the excluded areas and being generally indicated marked yellow on the above-mentioned map, the licensee must, with the Conservator, carry out an on-the-spot inspection and the Conservator may impose further and special conditions governing the licensee's operation in the said metre strip.

COMPLIANCE

4. The licensee is to comply fully with all requirements set out or implied in these conditions or notified to him by the Conservator in respect of these conditions and of their interpretation or application.

FIRST ENTRY

5. Before first entry on the land to begin operations not previously approved by the Conservator, the licensee is:

- (a) To obtain the Conservator's written approval to the licensee's proposed plan of operations, methods, machinery, road specifications, and restorative measures;
- (b) To supply a sufficient map to show the location of intended working; and
- (c) Not to depart from such approval or vary such location without further like approval.

DISTURBANCE OR REMOVAL, ETC.

6. The licensee is to ensure that in respect of the operations of the licensee and of every person entering by authority of this consent and for this licence in, on, or under the land:

- (a) Except to the extent of the licence and of this consent there is no disturbance or removal of soil, clay, sand, rock, shingle or gravel, coal or precious or other minerals;
- (b) Native birdlife, all plants, and all other natural specimens including wildlife are protected;
- (c) Except where specially authorised beforehand in writing by the Conservator, no trees or other forest produce are damaged, cut, removed or otherwise converted into possession;



- (d) There shall be no destruction, damage or modification of any archaeological site on the land (as defined by the Historic Places Amendment Act 1975);
- (e) Any artifact (as defined by the Antiquities Act 1975) found on the land by the licensee or any person on its behalf shall be promptly deposited with the Conservator, and the licensee shall notify the Secretary for Internal Affairs or the nearest public museum within 28 days of the finding thereof.
- (f) The safety of members of the public lawfully present in or on the land is reasonably protected.

#### FIREARMS, DOGS

7. Except by permit under the Forests Act 1949 no firearm, missile or other offensive weapon is to be carried or discharged on, and no dogs are to be brought onto State forest land.

#### DEBRIS, ETC

8. No person shall leave or deposit debris, litter, rubbish or other dangerous, unsightly or offensive matter in or on or otherwise pollute the land or any adjacent land vested in or occupied by the Minister of Forests, or any lake, river, stream, creek, pond or other natural waters in, on or under the land.

#### FIRE PRECAUTIONS

- 9. (a) Except under permit under the Forest and Rural Fires Act 1977 no fires shall be lit and no flammable or combustible material is to be accumulated on, in, under or near the land;
- (b) As required from time to time by the Conservator, all waste and other material from the land shall be removed or levelled out and topsoil is to be replaced so as to make the land suitable for afforestation or forest management revegetation.

#### FELLING AND DISPOSAL OF TREES

- 10. Where felling of trees has been authorised:
  - (a) The trees are to be marked, appraised, valued and logged to the approval of the Conservator at the expense of the licensee and, as directed by the Conservator, be taken and paid for by the licensee (in advance or within one month of felling) or be retained and disposed of by the Conservator;

- (b) The licensee is to ensure that all wood produce taken by the licensee as above is to the best advantage utilised or disposed of to the approval of the Conservator.

#### RESTRICTED MINING

11. In respect of forest land not reserved or excluded from this consent but at any time and from time to time designated, dedicated, set apart, used, prescribed (by Management Plan or otherwise) or intended for the following purposes;
- (a) State forest park or recreation area;
  - (b) Areas managed for indigenous regeneration, including natural regeneration;
  - (c) Exotic plantings (until ready for utilisation);
  - (d) Forest sanctuary, biological, historical or other cultural or environmental reserved areas, and water supply areas, walkways, or other amenity reservations;
  - (e) Felling or other utilisation of forest produce, airstrips, communications, building, and other services of commercial value;
  - (f) Protection as areas capable of severe erosion (including protection of revegetation or counter erosion works relating to such areas), or as areas requiring conservation for soil and water purposes or in any other respect;

no operations by way of or in service or support of prospecting or mining are to be carried out unless and until the Conservator certifies that the operations will not adversely affect any of the foregoing purposes (but subject always to the national interest in respect of especially valuable discoveries) provided that the Conservator undertakes to advise the licensee of any changes made pursuant to (a) to (f) of this clause subsequent to the issue of the consent which would affect the licensee's operations.

#### ROADS, TRACKS

- 12.(a) All of the licensee's roads, bridges, tracks, buildings and other works and erections or structures on the land -
- (i) are to be built, sited, formed or constructed and maintained to the Conservator's requirements by, for or on behalf of, and at the expense of the licensee;
  - (ii) will vest in the Minister of Forests;
  - (iii) may not without the prior written consent of the Minister of Forests be removed from the said land, dismantled, or otherwise rendered unusable;

- (iv) may on such reasonable terms as the Conservator may from time to time determine be used by for or on behalf of the Minister of Forests and other persons authorised by that Minister;
- (b) Roads, tracks, bridges, buildings and other works and erections or structures built, sited, formed or maintained on the land by, for or on behalf of any sawmiller or other holder of a forest privilege may not be used for the operations of the licensee except on such terms as the Conservator may approve;
- (c) Roads, tracks, bridges, buildings, and other works and erections or structures built, sited, formed, constructed and/or maintained on the land by, for or on behalf of the Minister of Forests may not be used for the operations of the licensee except on such terms as the Conservator may from time to time determine.

#### SECURITY, INSURANCE, COMPENSATION

13. At the option of and to the extent and in the manner required from time to time by the Conservator the licensee is to protect the Minister of Forests against all claims and liabilities arising out of the operations of the licensee and of every person entering by authority of this consent and/or this licence on the land, and is in particular to provide security in favour of that Minister in respect of:

- (a) Observation by the licensee and all persons acting for or on behalf of the licensee (including invitees of the licensee) of all conditions and requirements of this consent;
- (b) Restoration of the land into good order for afforestation operations, including revegetation;
- (c) Loss or damage of any kind suffered or incurred by the Minister of Forests;
- (d) Damage or compensation claims by third parties, whether in respect of occupier's liability or otherwise, involving the Minister.

#### TRANSFERS

14. In respect of the transfer of this licence or any interest therein:
- (a) The prior consent of the Minister of Forests shall be required;
  - (b) The conditions hereof shall apply to the transferee, subject to such modifications as the Minister of Forests may require;
  - (c) The transferor shall not by reason alone of such consent, transfer, or modifications, be released from any liability incurred in respect of the conditions of this consent.

In this condition "transfer" includes every assignment, lease, mortgage, pledge, or other disposal or dealing, whether voluntary or involuntary, and whether or not by way of succession, transmission, or other operation of law.

#### STATE FOREST LAND ACQUIRED IN FUTURE AND WITHIN THE LICENCE

15. If at any time any land over or in respect of which this licence operates other than private land is acquired as, set apart as, or deemed to be State forest land, or is approved by the Minister of Forests for acquisition, setting apart as, or deeming to be State forest land, the conditions of this consent will thereupon apply to such land and will require to be observed by the licensee.

#### CONSERVATOR

16. In this consent, "Conservator" means the Conservator of Forests for the Conservancy in which the land or any part thereof is situated.

#### USE OF WATER

17. It shall be a condition of this consent that before any water is discharged or released from mining operations, it is to pass through a settling area and is to be released on a gradual fashion or flow and the waste discharge to, or disturbed water caused by the operation of this licence in the stream over a minimum period of 8 hours does not contain more, or cause to occur more, than 80 mg per litre of solid material and that the method of discharge, or operation of this licence, shall be such that 75 metres (82 yards) down stream of the discharge point of effluent, or disturbed water from this operation, shall be thoroughly mixed with at least 30% of the stream flow.

#### EXTRA CONDITIONS

18. Pursuant to clause 13 hereof the licensee shall prior to commencing mining operations effect and keep in force a fire insurance policy initially for an amount of not less than five thousand DOLLARS (\$5,000) for damages and/or firefighting costs arising from the licensee's operations. The policy shall include a clause indemnifying the New Zealand Forest Service for any and all fire damage suffered by adjoining owners arising out of or resulting from mining operations in respect of all land in this licence.

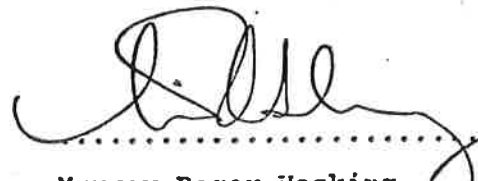
Application: 32 874  
WESTLAND CATCHMENT BOARD

HO FS 20/5/9/109/1  
Cons FS 20/10/9/32874

- 19. Access over the land is to be preserved to the public at all times. The licensee shall erect suitable signs advising those present on the land of any dangers they may encounter as a consequence of the licensee's operations.
- 20. A protective screen of at least 10m of vegetation is to be maintained between the quarry operations and State Highway 6.
- 21. The term of this consent shall be for a period of 10 years from the date of the granting of the licence.

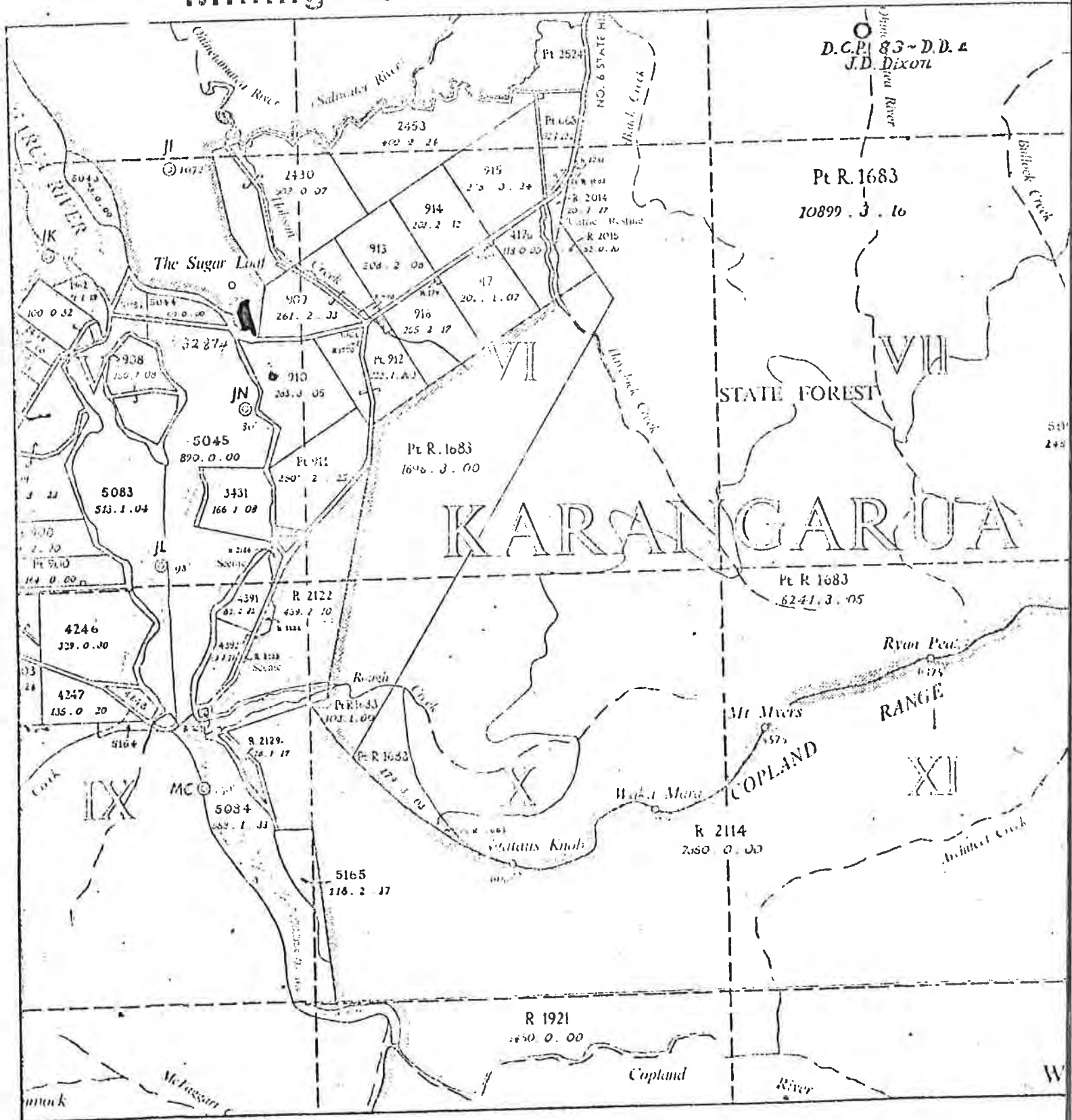
Dated this 17th day of August 1979

SIGNED for and on behalf of THE MINISTER OF FORESTS)  
 by MURRAY ROGER HOSKING, Assistant Director, )  
 Production Forest Management in the New Zealand )  
 Forest Service pursuant to a written delegation )  
 from the Minister of Forests under the Forests Act )  
 1949. )



Murray Roger Hosking  
 Assistant Director,  
 Production Forest Management

# Mining on State Forest Land



## Locality Map

Application No. 32-874 - Applicant WESTLAND CATCHMENT BOARD  
 Type MINING - Ranger District SOUTHERN  
 Blk(s) Y - Survey District(s) KARANGARUA  
 File 20/10/9/32-874 State Forest KARANGARUA S.F. 9 County WESTLAND

Scale: 63:360

FOURTH SCHEDULE

Commencing at a peg being 30.52 metres on a bearing of 107° 46' 00" from the northwest corner of R S 910, then on a bearing of 336° 52' 17" for a distance of 287.97 metres then on a bearing of 18° 31' 10" for a distance of 61.05 metres then on a bearing of 56° 47' 05" for a distance of 40.00 metres then on a bearing of 153° 41' 46" for a distance of 431.09 metres then on a bearing of 287° 44' 16" for a distance of 137.30 metres to the commencement point.

169°50'

Karangarua S.F. 9

LOCALITY PLAN H36  
32 874

metemateo River

270 000

5 740 000

2 250 000

5081  
655 000

Hunts Beach  
S.F. 38  
R.1647

Hunts Beach  
S.F. 38

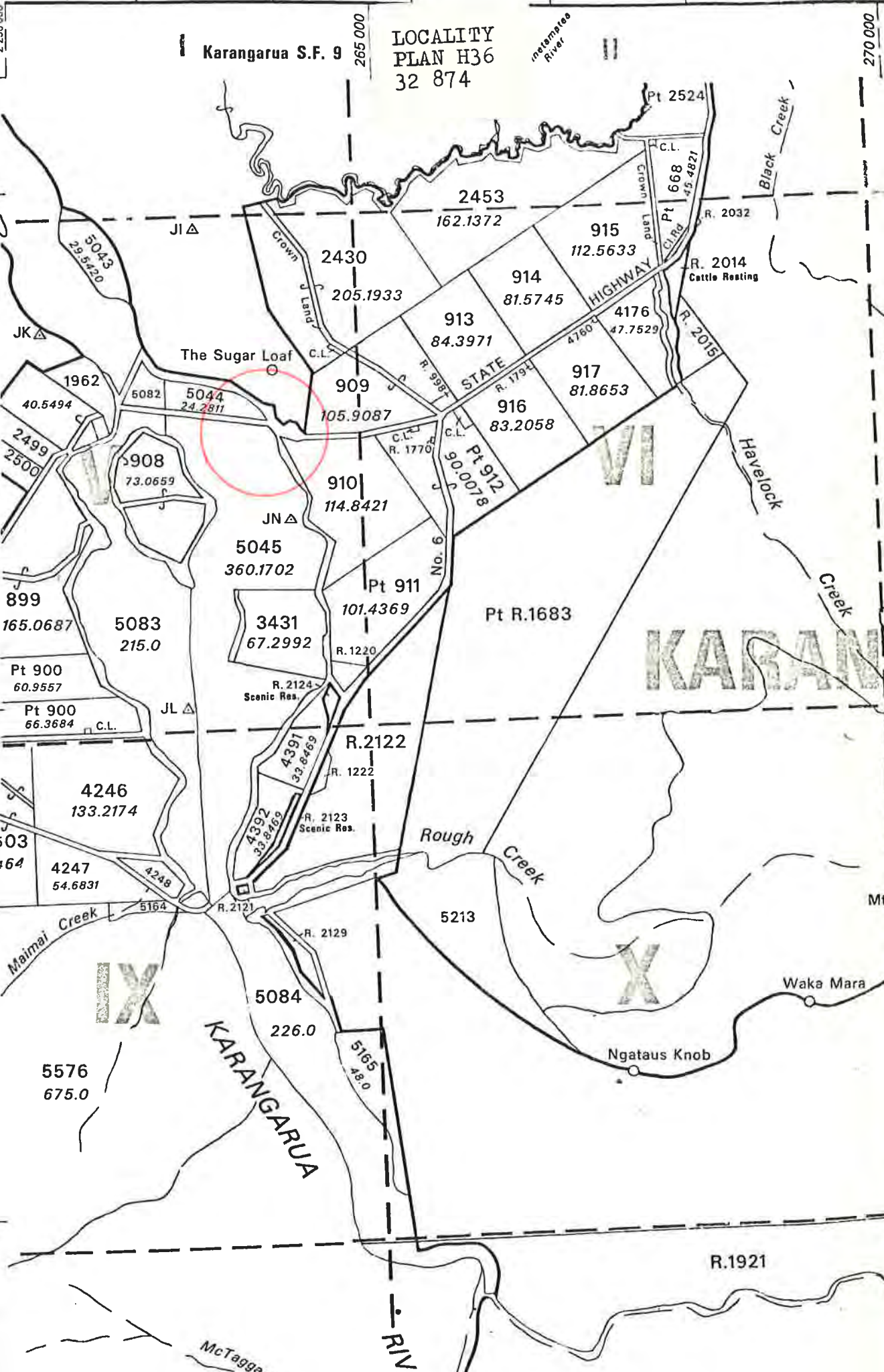
650 000

Pt 2503  
119.7464

645 000

35'

5 730 000



KARANGARUA

KARANGARUA

KARANGARUA

McTaggart RIVER

R.1921

McTaggart R.

McTaggart R.

Mt

Waka Mara

Ngataus Knob

Rough Creek

Havelock Creek

Black Creek

The Sugar Loaf

Maimai Creek

Hunts Beach

VI

IX

X

JK Δ

JK Δ

JK Δ

JL Δ

JN Δ

JL Δ

Crown Land

C.L.

C.L.

C.L.

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**Appendix I**

**Controller and Auditor General Report**



B.29[19b]

## Inquiry into procurement of work by Westland District Council at Franz Josef

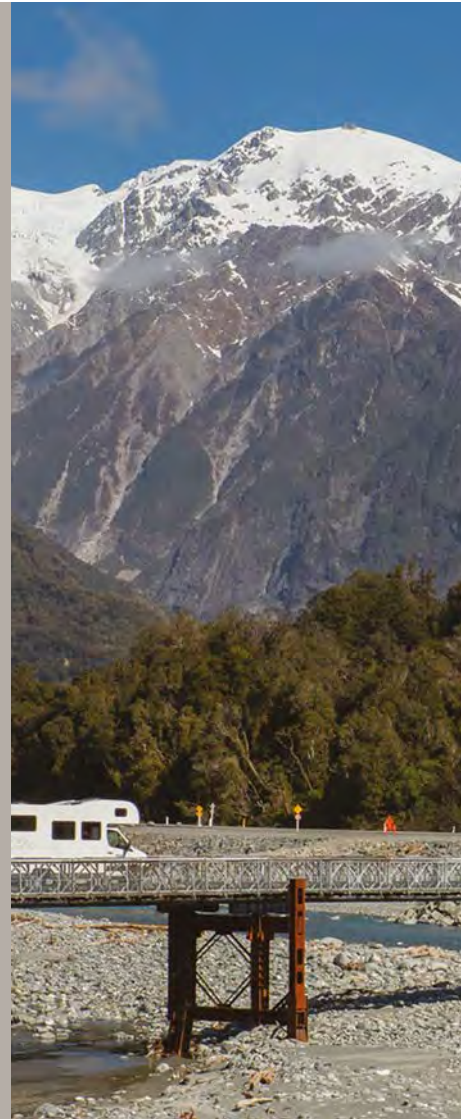


Photo acknowledgement:  
©mychillybin Julie Fitz-Gerald

# Inquiry into procurement of work by Westland District Council at Franz Josef

Presented to the House of  
Representatives under section 20 of  
the Public Audit Act 2001.

March 2019

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# Auditor-General's overview

E ngā mana, e ngā reo, e ngā karangarangatanga maha o te motu, tēnā koutou.

This report concerns a decision of the Westland District Council (the Council) to carry out work at Franz Josef to protect the town's wastewater treatment plant from flooding. The work was carried out on an urgent basis and resulted in the construction of a new 700-metres-long stopbank on the bank of the Waiho River.

In this report, we acknowledge the serious nature of the flood risk the Council was dealing with, and the motivation of the elected members who were driving the decision to act in the community's best interests.

However, we have serious concerns about what was done in this case.

Our concern is not that the Council decided it needed to do something to address the flood risk. Our concern is about the way the Council went about making that decision, the apparent confusion or disagreement among the elected members about what had been agreed, and about the way the decision was subsequently carried out.

We also have serious concerns about the extent to which some of the elected members lost sight of the fact that their role is to govern, not manage, and that their drive to get things done needed to be balanced by an understanding of the importance of doing things right.

This report identifies numerous examples of poor decision-making and poor procurement practice. They include the lack of any proper risk analysis or consideration of alternative options, the failure to seek expert advice on either the immediacy of the flood risk or whether building a stopbank was the right response, an inadequate planning and procurement process for a project of this type and scope, an apparent disregard for legislated decision-making requirements, and a failure to consult those affected by the work until the work was already under way.

Underlying all these concerns is a fundamental question about whether the construction of a stopbank was authorised in the first place. Council records show an agreement to carry out maintenance on an existing flood embankment, not to construct a new stopbank.

## **What Westland District Council did**

Faced with what some of the elected members believed to be an imminent flood risk, the Council decided to carry out urgent maintenance work on a floodbank to protect the town's wastewater treatment plant from flooding. At the same time, it decided to carry out work to address ongoing non-compliance with the plant's



discharge consent. This work involved spending an estimated \$1.3 million of public money.

As it turned out, rather than carrying out maintenance work on the floodbank, the Council effectively built a new stopbank. The proposed work to address compliance issues with the wastewater treatment plant was not carried out at all, although we understand it was completed later.

### **What was wrong with what Westland District Council did**

The decision that urgent work was needed was based on an assessment by two of the elected members that the wastewater treatment plant was in imminent danger of flooding. That assessment was effectively endorsed by the Council as a whole without confirmation from anyone with relevant expertise and without any expert review of the Council's proposed response.

Potential contractors were identified and approached by one of the elected members using his business and personal connections, rather than by Council staff following a procurement process suitable for a project of this size and significance to the community.

Work then began on constructing the stopbank without any plans being drawn up, without any engineering input, without consulting with affected parties, and without considering the effect constructing a stopbank might have on the flood risk posed by other parts of the river.

Not only did the Council not seek advice from any external experts, it did not properly involve its own staff until work was already under way.

The first stage of the work was carried out without any clear contracting arrangements in place, and without any certainty about who was responsible for managing the work on the ground or for matters such as health and safety, compliance with the Resource Management Act 1991, or quality control.

The lack of proper contracting arrangements for the first stage of the work means it is uncertain what recourse the Council will have, if any, if the stopbank fails due to a design or construction flaw.

When some of the elected members tried to raise concerns about the scope of the work, aspects of the Council's decision-making process (such as the lack of involvement of Council staff), and disquiet in the community about perceived conflicts of interest, these concerns were effectively dismissed or minimised.

All of this is unacceptable.

## What Westland District Council should have done

The decision to take steps to prevent the town's wastewater treatment plant from flooding was a decision the Council was entitled to make. However, before making that decision:

- The Council should have got advice, from either its own staff or appropriately qualified external advisers, about whether its concerns about an imminent flood risk were valid.
- Assuming the concerns were valid, the Council should have got advice from suitably qualified advisers on whether a stopbank was an appropriate and cost-effective solution. This was particularly important because a decision had not yet been made about whether the wastewater treatment plant would remain at its current site in the long term.
- The Council should have considered, or sought advice on, its decision-making obligations under the Local Government Act 2002 – in particular, the requirement to assess the significance of the decision, to weigh up the costs and benefits of other options, and to consider the views of those likely to be affected by, or interested in, the decision.
- The Council should have considered, or sought advice on, whether it needed consent for the work, or any part of it, under the Resource Management Act and the extent to which the proposed work could legitimately be classed as emergency works under that Act.
- All of the elected members needed to have a clear understanding of the rationale for the decision and the scope of the work that was being contemplated.

For councils, these sorts of decision-making requirements are not just a matter of common sense. They involve both legal and good practice requirements. As with any public organisation, a council is exercising public powers. It is the essence of the rule of law that public powers must be exercised in accordance with the law.

In the case of councils, being able to demonstrate that decisions are made lawfully and for the benefit of the community is all the more important because a council is collecting and spending the community's money, and because the only opportunity the community has to influence who makes decisions on its behalf is at local government elections every three years.

The discipline imposed by the decision-making requirements of the Local Government Act is therefore essential in holding councils to account. These requirements are, in effect, the building blocks for democratic and responsible

decision-making in local government. Bypassing them where they are perceived to be unnecessary or inconvenient is not an option.

### **Why we do not accept Westland District Council's justification**

The justification we have been given for much of what happened is that the work was urgent and elected members had to step in because Council staff were not available.

We do not fully accept either of these arguments. In particular, we are concerned at the extent to which the sense of urgency appears to have clouded good judgement.

There is no doubt that the wastewater treatment plant was at risk of flooding. It had flooded the year before, with serious consequences for the town. But the Council had no expert basis for assuming that history was about to repeat itself or that, if it was, a stopbank was the most appropriate or cost-effective solution to the problem.

Even if we accept that the concerns about an imminent flood risk were valid, it does not justify the approach the Council took. Building a new stopbank – if that is, in fact, what the Council agreed to do – is not a “quick fix”. It requires careful planning, engineering expertise, a clear understanding of resource consent requirements, and consideration of the effect that building a new stopbank would have on an already volatile river. All of these crucial steps were missing.

### **Why the end does not justify the means**

The question of whether the construction of a stopbank was properly authorised and whether it was the right thing to do, is no longer of any practical relevance. The stopbank has been built and, although several of the elected members voiced their concerns at the time, the Council, in effect, endorsed the decision to build it.

We acknowledge the genuine motivation of all of the elected members we spoke to, to try to address their concerns about the flood risk to the wastewater treatment plant in what they believed to be an efficient and cost-effective manner.

The point has also been repeatedly made to us that, so far at least, the stopbank has achieved its intended purpose of protecting the wastewater treatment plant from flooding.

However, none of this makes what the Council did right. The end does not justify the means.

A council that is contemplating spending \$1.3 million of public money to construct a reasonably significant piece of infrastructure needs to be able to show that the decision to spend the community's money was based on something more than an assessment of risk by two of the elected members, and that all those who had a right to be involved were properly involved in the decision-making process.

It is the essence of good governance that a governing body can demonstrate to its stakeholders that a decision has been well made and their money has been well spent.

In this case, unfortunately, the Council can do neither.

Nāku noa, nā,

A handwritten signature in black ink, appearing to read 'JMR Ryan', with a stylized flourish at the end.

John Ryan  
Controller and Auditor-General

1 March 2019

# 1

## Introduction

### Why we carried out an inquiry

- 1.1 On 5 July 2017, Westland District Council (the Council) approved work for the Franz Josef wastewater treatment plant (the wastewater plant) at an estimated cost of \$1.3 million. The work was described as maintaining the flood embankment and developing a new infiltration gallery. The infiltration gallery is the part of a wastewater plant through which wastewater is filtered before discharging into the environment.
- 1.2 Within days of the decision, concerns were raised about the Council's procurement of the work and whether the Council had appropriately managed any potential conflicts of interest.
- 1.3 These concerns came from members of the public, Franz Josef business and community groups, and others in the local government sector. The concerns included the Council not following a proper procurement process, awarding a contract without a tender process, and one of the elected member's business or personal connections having influenced the choice of contractors.
- 1.4 These types of concerns can undermine trust and confidence in a Council's decision-making processes. After making initial enquiries with the Council, we decided a formal inquiry was necessary to better understand what happened.

### What our inquiry covered

- 1.5 In our terms of reference, we said that we would look at the Council's procurement of the work for the wastewater plant, including:
  - how the Council determined that emergency works were needed;
  - the procurement and contract management practices adopted by the Council for the work;
  - how any potential conflicts of interest were managed; and
  - any other related matter that the Auditor-General considers it desirable to report on.
- 1.6 Our inquiry has focused on the work directly connected to the Council's decision on 5 July 2017.
- 1.7 The Council has been working to address problems with wastewater management in Franz Josef for some time. This has included considering options for replacing or upgrading the wastewater plant and, at one point, running a procurement process to identify a preferred provider for a particular option that was ultimately not pursued by the Council. This work is outside the scope of our inquiry and we have not investigated it. However, this report does refer to aspects of this work where it provides important context for our inquiry.

## What we did

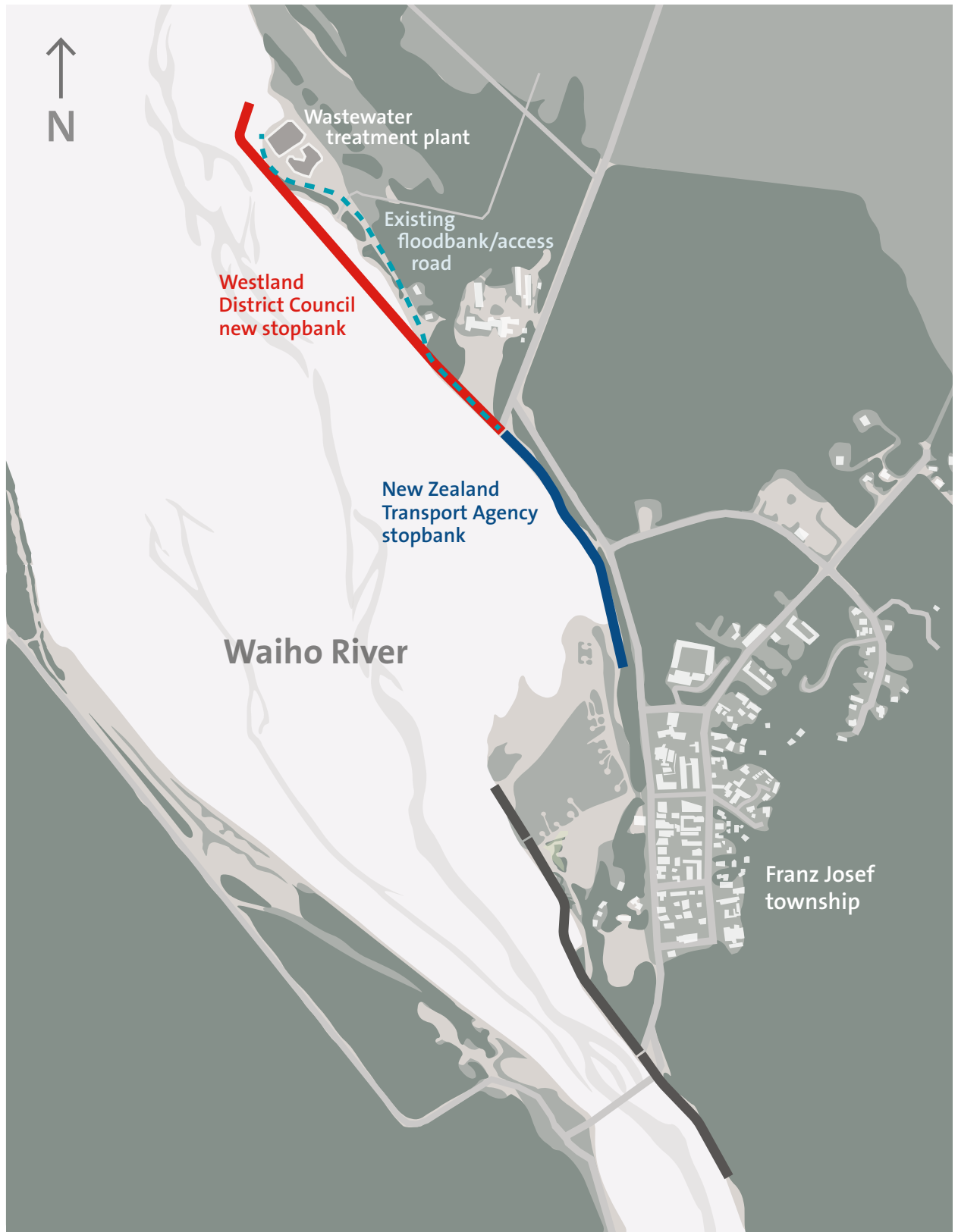
- 1.8 We travelled to the West Coast and met with several elected members of the Council (including Mayor Bruce Smith and Councillor Durham Havill), senior Council staff, and the Chief Executive of the West Coast Regional Council (the Regional Council). We also visited the wastewater plant site at Franz Josef.
- 1.9 We met with or spoke to other key individuals, including the General Manager of Westroads Limited (a wholly owned subsidiary of the Council), the Council's Acting Chief Executive, who was in the role from April to November 2017, and the Council's former Chief Executive, who ended her term in April 2017.
- 1.10 We also received and reviewed information from the Council, Westroads Limited, and the New Zealand Transport Agency (NZTA).

## Structure of this report

- 1.11 In Parts 2 and 3, we provide background information about the wastewater plant, why it is at risk of flooding, and why it needs to be upgraded. We also explain the complex situation that the Council was facing in making decisions about upgrading the wastewater plant because of uncertainty about the long-term future of Franz Josef at its current location.
- 1.12 In Parts 4 and 5, we describe what happened in the days leading up to the Council's decision to carry out urgent work at the wastewater plant, and the decision itself, which was made at an extraordinary meeting of the Council on 5 July 2017.
- 1.13 In Part 6, we describe what the work involved, how it was carried out, and some of the issues that arose along the way. In Part 7, we briefly outline the contracting arrangements the Council entered into for the work. We have provided summaries or observations about our findings at the end of each of these Parts.
- 1.14 In Part 8, we summarise the end result of the work, how much it cost, and where things currently stand with regard to a replacement wastewater plant. In Part 9, we summarise our overall findings.

## Westland District Council's new stopbank along the Waiho River

This map shows the new stopbank that Westland District Council built, which is next to the existing New Zealand Transport Agency stopbank.



## Background

- 2.1 Our inquiry was into a decision made by the Council to carry out work to protect the Franz Josef wastewater plant from flooding by the Waiho River.
- 2.2 The wastewater plant was built in the late 1970s, and is owned and operated by the Council. The wastewater plant consists of two oxidation ponds situated west of Franz Josef and next to the Waiho River. An infiltration gallery discharges treated wastewater into the river.
- 2.3 There is a history of problems associated with the wastewater plant, including ongoing non-compliance with the terms of its discharge consent and concerns about flood risk.
- 2.4 Because of Franz Josef's flood-prone and earthquake-prone location, the Council and the Franz Josef community as a whole are also facing difficult decisions about the long-term future of the town.
- 2.5 In this Part, we describe these and other challenges the Council was facing when it decided to carry out the work.

### **The flood-prone Waiho River**

- 2.6 The Regional Council has described the Waiho River as “among the most difficult New Zealand rivers to manage”. The riverbed is building up with gravel and sediment at a rapid rate. This process, referred to as “aggradation”, reduces the capacity of the river's channels when flooded and makes the river very hard to predict and control. The river can switch course rapidly under flood conditions and quickly threaten neighbouring properties and land.
- 2.7 Many studies have tried to understand the dynamic nature of the flood hazards posed by the Waiho River. In 2014, the Council commissioned a report that focused specifically on the risks to the wastewater plant. The report found that:
  - the location of the wastewater plant made it extremely vulnerable to damage by large floods;
  - there was a very high chance that by 2019 the Waiho River would break its banks and inundate the wastewater plant, and a reasonable chance that this would happen before 2016; and
  - ongoing aggradation could eventually lead to the river carving a permanent channel through the site of the wastewater plant.



## **Wastewater treatment plant flooded in March 2016**

- 2.8 The wastewater plant was protected from the Waiho River by a raised access road that followed the natural curve of the land and riverbed. Because it was raised, the access road provided some river protection, but it was not a stopbank.
- 2.9 In March 2016, the flood risk became a reality. The Waiho River flooded and burst its banks near the wastewater plant. The river swept through the wastewater ponds and nearby properties, and 186 people had to be evacuated. Sewage flowed into the river. The ponds were severely affected by the flood. Council staff estimated “near 80% damage to the earthworks and the treatment process”.
- 2.10 Immediately after the flood, NZTA rebuilt the breached section of the raised access road.

## **Environment Court orders a replacement plant in November 2016**

- 2.11 For several years, the wastewater plant had been periodically discharging non-compliant effluent into the Waiho River. The wastewater plant was often overloaded due to increased tourism to Franz Josef. There were also ongoing problems with the infiltration gallery.
- 2.12 The Regional Council had issued several abatement notices and, in 2015, took enforcement action against the Council for continued non-compliance. The enforcement action resulted in an Environment Court order in November 2016 that required the Council to, among other things, have a fully operational replacement plant by 30 April 2018.

## **Options for a new wastewater treatment plant**

- 2.13 By the time the Environment Court order was made, the Council had already received a detailed report from Opus International Consultants Limited (Opus) on options for a new wastewater plant.
- 2.14 The report compared several options based on either oxidation ponds or a compact “high rate wastewater treatment plant” at different locations. The report recommended a mechanical plant located out of the flood hazard zone and very close to the residential/commercial-zoned area of the town.
- 2.15 The Council received the Opus report not long before the October 2016 local government elections. Public interest in what needed to be done about upgrading the wastewater plant was high. The Council decided to wait until after the local government elections before deciding how to respond to the report.

## The long-term future of Franz Josef – the Tonkin + Taylor report

- 2.16 At the same time as the Council was considering what to do about its wastewater plant, broader discussions were also taking place in the community about how to respond to the significant flood and earthquake risks faced by Franz Josef.
- 2.17 In March 2017, the Regional Council, with funding from central government, had engaged Tonkin + Taylor Limited and Ernst & Young to identify and assess options for managing the flood and earthquake risks (the Tonkin + Taylor report). A wide range of options were explored, including moving the town to Lake Mapourika. These broader discussions complicated the decisions that needed to be made on how to fix the town's immediate wastewater problems.
- 2.18 The Council received a confidential draft of the Tonkin + Taylor report in June 2017 just before it made the decision we are inquiring into. The report was made public in October 2017. The published report presented three packages of options. All options involved relocating the wastewater plant.

## Summary

- 2.19 In summary:
- The Waiho River is notoriously flood-prone and difficult to manage.
  - Because the wastewater plant is located next to the river, it was at permanent risk of flooding.
  - The wastewater plant was flooded in March 2016, causing significant damage to the plant and expense and disruption to the community.
  - As a result of ongoing non-compliance issues, the Environment Court ordered the Council to decide on a replacement for the wastewater plant by the end of 2016, and to have a fully operational replacement wastewater plant by 30 April 2018.
  - Because of the flood risk, the Council's consultant engineers had advised that the wastewater plant had to be replaced by a plant outside of the flood hazard zone.
  - The Tonkin + Taylor report into managing the natural hazard risks faced by Franz Josef had also recommended relocating the wastewater plant.
  - The Council had decided to postpone making a decision about the wastewater plant pending the outcome of the local government elections in October 2016.

# 3

## The new Council's approach to Franz Josef's wastewater problems

- 3.1 The local government elections in October 2016 resulted in a largely new group of elected members.
- 3.2 The wastewater plant, and options for a new plant, had been hot topics in the election. The Council, after the October 2016 elections, was immediately faced with decisions about the wastewater plant.
- 3.3 The Environment Court order that was issued in November 2016, just after the elections, required the Council to decide on a replacement for the wastewater plant by the end of that year. There were decisions that needed to be made in the short term as decisions about the replacement plant were being made and implemented. How should the immediate non-compliance issues be addressed? And what, if anything, needed to be done to protect the current wastewater plant from the Waiho River?
- 3.4 Some significant staff changes also took place during the first half of 2017.
- 3.5 In this Part, we describe:
  - the Council's early discussions and decisions on both long-term and short-term solutions for the wastewater plant between October 2016 and June 2017; and
  - the staff changes at the Council that occurred during this time.
- 3.6 This information provides useful context for understanding later events and the Council's decision on 5 July 2017.

### **Westland District Council's choice of oxidation ponds instead of a mechanical plant**

- 3.7 A Council meeting was held on 24 November 2016 where Council staff presented a report outlining various options for a replacement wastewater plant.
- 3.8 Based on the report that had been prepared for the Council by its consultants, Opus, Council staff recommended a new, high-rate, mechanical plant. The Council rejected this recommendation on the grounds that it was too expensive. The Council decided that lined oxidation ponds were the preferred option for a replacement wastewater plant.
- 3.9 Although the Council's decision to go with oxidation ponds went against expert advice, it was consistent with earlier community feedback, which generally supported oxidation ponds.
- 3.10 According to media reports of the meeting, the Council's discussion focused on oxidation pond options and touched on the need for better river protection at the current site. However, the Council did not decide on the location of the ponds or any river protection work. A few days after the Council's meeting, members of the Franz Josef community were told that Council staff were working on possible locations and would be consulting with the community.

- 3.11 There is evidence to suggest that, at this point, some elected members were already considering the option of expanding the wastewater plant at its current site and building a stopbank to protect it.
- 3.12 In the run-up to the local body elections, the current Mayor had advocated for adding another pond to the existing wastewater plant and building river protection. He had provided cost estimates for this work in a Facebook post, which included estimates supplied by potential contractors. Two of the named contractors had also been elected to the Council in October 2016 (Councillor Graeme Olson and Councillor Durham Havill).
- 3.13 A staff email dated 14 November 2016 records that “elected members have a view about building a stopbank around the ponds and then consider the site [to be] future safe”. However, it was not clear from the email who the elected members were or how many of them were in favour of this option.

### **Discussions on short-term issues facing the current wastewater treatment plant**

- 3.14 Elected members continued to discuss the wastewater plant and possible river protection work in the months that followed. However, it is unclear exactly what was discussed or agreed. The relevant minutes from meetings between December 2016 and April 2017 are often vague and without accompanying reports or papers.
- 3.15 Through a combination of the minutes and information we received from staff and elected members, we can surmise, in general terms, that during this period:
- The Council was concerned that the current wastewater plant required remedial work and it wanted to keep some oversight of this work.
  - Councillor Havill, in his role as responsible for the Three Waters portfolio, often took a leading role in discussions at the Council table, including updating the Council on the ponds. Councillor Havill was also involved in getting quotes for work.
  - The Mayor and Councillor Havill visited the wastewater plant regularly and raised concerns about the flood risk directly with staff.
  - At its meeting on 15 December 2016, the Council discussed the need for river protection for the wastewater plant. The Council agreed that to consult with affected members of the community about “extending the rock wall” as a priority and the implications for their rates. It is not clear what extending the rock wall would involve, or what consultation, if any, took place with the community.

## Plan to strengthen existing embankment and build new infiltration gallery

- 3.16 At a meeting on 22 June 2017, Council staff presented a report to the Council to advise it on planned work at the wastewater plant.
- 3.17 The report provided background information on the problems facing the wastewater plant, including the history of non-compliance with resource consents, the Environment Court order, the damage caused by the March 2016 flood, and problems with the infiltration gallery.
- 3.18 The report informed the Council about upcoming actions on the wastewater plant as follows:
- The existing ponds will be maintained (this will include strengthening the existing damaged stop bank) and a new infiltration gallery will be developed.*
- This action will ensure compliance with the current resource consent and will leave Council with the ability to consider adding enhanced treatment methods to the wastewater at the ponds.*
- Future decisions on the pond locations and other treatment options can be made once final decisions are made on the future growth direction of Franz Josef.*
- 3.19 The report did not seek approval or direction from the Council. The report was simply presented for information. This might have been because it was anticipated that the work would fall within the Chief Executive's financial delegation. If there was any discussion at the Council meeting about the nature of the work required, this was not recorded in the minutes.

## The Mayor's statement about proposed work

- 3.20 The day before the 22 June 2017 Council meeting, the Mayor had said publicly that machinery would be working in the riverbed the following week, building a gravel wall to protect the ponds and access to them.
- 3.21 It is not clear what the basis for these statements was, as the report presented to the Council the next day did not describe the work the Council was proposing to carry out in this way. The focus of the report was on protecting the ponds and addressing compliance concerns in the short term, while decisions were being made about the future of Franz Josef and the location of the ponds in the long term. The report talked about strengthening the existing damaged stopbank, not building a gravel wall.
- 3.22 Correspondence between the Council's then Acting Chief Executive and a member of the Franz Josef community the day after the Council meeting also shows that Council staff were anticipating repairs to the existing flood embankment, not a new wall.

## Staff changes during the first half of 2017

- 3.23 The first half of 2017 saw some significant, and sometimes turbulent, Council staff changes and resignations.
- 3.24 In February 2017, the Council's then Group Manager: District Assets, who was responsible for managing the Council's infrastructural assets (including wastewater), went on leave after the Serious Fraud Office started an investigation. His position remained vacant until late May 2017, when an Acting Group Manager was appointed. The Group Manager: District Assets resigned in June 2017.
- 3.25 In April 2017, the Council's Chief Executive resigned. An Acting Chief Executive was immediately appointed. He was an experienced Chief Executive and had previously been the Council's Chief Executive between 1998 and 2012. The Acting Chief Executive continued in the role until November 2017, when a new permanent Chief Executive started.
- 3.26 Other staff resignations about this time included the Council's Three Waters engineer.
- 3.27 The resignations of the Group Manager: District Assets and the Chief Executive are not directly relevant to our inquiry. However, we mention them because they were unsettling for staff and the Council. It might have also affected the continuity of advice to the Council on the wastewater plant.

## Summary

- 3.28 In summary, by late June 2017:
- The Council had rejected advice from external consultants and staff to replace the oxidation ponds with a mechanical plant. The Council decided to stick with the option of lined oxidation ponds. However, the Council had not yet decided whether these would be located at the same site as the current wastewater plant or elsewhere.
  - Some elected members, including the Mayor, supported the idea of expanding the wastewater plant at the current location and building a stopbank for flood protection.
  - The Council had discussed the need for protecting the current wastewater plant.
  - The Council was anticipating work to the existing flood embankment (that is, the raised access road) and infiltration gallery, while longer-term decisions were being made about the future of the wastewater plant. Council staff had described this work as strengthening or repairing the existing flood embankment.
  - There had been some significant staff resignations during the first half of 2017. However, by late June, an Acting Chief Executive had been in office for three months and an Acting Group Manager: District Assets had been appointed. However, the Council did not have a full complement of asset management staff.

# 4

## Events leading up to Westland District Council's decision

- 4.1 In this Part, we describe events that occurred in late June to early July 2017 in the days leading to the Council's decision on 5 July 2017 to carry out urgent work.
- 4.2 We outline how a few elected members became concerned about the risk of an imminent flood and went about finding a solution.
- 4.3 There are no written records of these events. The following account is therefore based solely on the recollections of those involved, primarily the Mayor and Councillor Havill.

### Concern about imminent flood risk

- 4.4 At some point before the end of June 2017, one of the elected members, Councillor Graeme Olson, contacted the Mayor and Councillor Havill. He told them he had seen that the Waiho River was aiming towards the wastewater ponds and that, if the Council did not act quickly, they would lose the ponds the next time the river flooded.
- 4.5 On approximately 1-2 July, the Mayor and Councillor Havill took a helicopter ride over the Waiho River to view the situation. Their assessment was similar to Councillor Olson's. They believed the river had shifted to the north and was now moving directly towards the ponds. They told us they recognised the risk to Franz Josef and to tourism in the area if the river burst its banks near the wastewater plant again.

### The Mayor and Councillor Havill's proposed solution

- 4.6 Following the helicopter ride, the Mayor and Councillor Havill discussed what could be done to protect the ponds. We were told that Councillor Havill's proposal was for a straight stopbank, approximately 120 metres in length and higher than the existing flood embankment that protected the wastewater plant. The Mayor supported this idea and asked Councillor Havill to source contractors for the job.
- 4.7 Councillor Havill first contacted the only locally based contractor with a large bulldozer. After some discussion, this contractor said that he was not available to do the work.
- 4.8 Councillor Havill then approached his brother, Geoff Havill, who is an employee of Blakely Mining Limited (Blakely Mining). Through his private business interests, Councillor Havill also had an existing business relationship with the Director and owner of Blakely Mining, Edward Blakely.
- 4.9 Councillor Havill told us that Blakely Mining had a Caterpillar D11 bulldozer that had been working at a gold mine on the West Coast and was in Greymouth for repairs. He said he understood that the bulldozer was to return to Christchurch

after the repairs were finished. The company gave Councillor Havill a confirmed hourly rate for the bulldozer, an estimate of the hours needed to do the work, and the cost for shifting the bulldozer to Franz Josef.

- 4.10 Councillor Havill then sought a second contractor to place “rock armour” (or “rip rap”) on the stopbank to protect it from erosion from the river. Councillor Havill approached MBD Contracting Limited (MBD) and negotiated a price for this work.

### **The Mayor announces the proposed work on Facebook**

- 4.11 On 2 July 2017, the Mayor announced the work he and Councillor Havill had planned in a video posted on his Facebook page. In the video, the Mayor and Councillor Havill described the work, and said that equipment, including a “big bulldozer”, would be on site the next week.
- 4.12 They described the work as including:
- straightening the existing flood embankment, raising its height, and placing rock armour on it;
  - building a “very big soakage pit”; and
  - needing to build a much larger third pond.
- 4.13 On the video, the Mayor said that the Regional Council had “been good” and that they had said that anything the Council did in the river was “not a problem”.
- 4.14 The Regional Council told us that the Mayor’s Facebook post was the first it knew about the work.

### **The Acting Chief Executive advises that Council approval is necessary**

- 4.15 About the same time as the Facebook post, the Mayor and Councillor Havill met with the Council’s Acting Chief Executive. They told him that the Council would be hiring Blakely Mining to do the work and that, based on Councillor Havill’s discussions with the contractors, the cost of the work was estimated to be \$1.3 million.
- 4.16 We understand that the amount quoted was based on information provided to Councillor Havill by Blakely Mining and MBD. We also understand that it was intended to cover all of the work outlined in the Mayor’s video posted on his Facebook page (see paragraph 4.12).
- 4.17 The Acting Chief Executive told the Mayor and Councillor Havill that the amount quoted for the work exceeded his financial delegation and that Council approval was needed.



- 4.18 The Acting Chief Executive called an extraordinary meeting of the Council for 5 July 2017 to discuss and approve the proposed work.

### **Our observations on the events leading up to the Council's decision**

- 4.19 It appears that the Mayor, Councillor Olson, and Councillor Havill were genuinely concerned about the flood risk posed by the Waiho River and wanted to protect the Council and the community's assets.
- 4.20 The Mayor and Councillor Havill reached their own view that urgent action needed to be taken and what that action should be. No Council staff or river engineers were involved in their assessment.
- 4.21 After deciding what needed to be done, Councillor Havill approached contractors directly and negotiated arrangements with those companies. These discussions were done verbally and there are no records from the time. No Council staff were involved.
- 4.22 The work the Mayor and Councillor Havill announced on the Mayor's Facebook page went further than flood protection. It included expanding the wastewater plant to address problems with its capacity and infiltration gallery. It was essentially a proposal to develop the wastewater plant at its current site and build improved river protection.

## Westland District Council's decision on 5 July 2017

5.1 An extraordinary meeting of the Council was held on 5 July 2017 to discuss the concerns that had been raised about an imminent flood risk and the Mayor and Councillor Havill's proposed solution.

5.2 A report was prepared for the meeting by the Acting Chief Executive.

5.3 The meeting was attended by all but two of the elected members. The Acting Chief Executive and the Group Manager: Corporate Services also attended. No staff from the Council's District Assets Team were asked to attend.

5.4 In this Part, we describe:

- the information provided to elected members for the meeting;
- what they discussed; and
- what they approved.

### Information provided to the elected members

5.5 The report that the Acting Chief Executive prepared for the Council's meeting largely repeated information from the report that had been prepared for the Council's previous meeting on 22 June. That report had advised elected members about proposed work at the plant, including a plan to strengthen the existing flood embankment and to build a new infiltration gallery.

5.6 Attached to the Acting Chief Executive's report was a confidential version of the Tonkin + Taylor report (see paragraphs 2.17 and 2.18).

5.7 On the immediate situation facing the wastewater plant, the Acting Chief Executive's report stated only that:

- *The bed of the Waiho River is continuing to aggrade, and its current level is close to the level of the land upon which the ponds are located.*
- *The infiltration gallery needs to be upgraded and enhanced.*

5.8 The report recommended that the Council approve the development of a new infiltration gallery and maintenance of the flood embankment at an estimated cost of \$1.3 million. It did not describe what work was needed to "maintain the flood embankment". There is no reference to the type of work that had been announced in the Mayor's Facebook video (that is, straightening the embankment, raising its height and adding rock armour, or building a third pond).

5.9 The Council was told that this work would be funded "from the \$1.5 million allocated to the Franz Josef Waste Water Treatment project". This was a reference to a funding allocation for "Franz Josef – New WWTP" in the Council's 2017/18 annual plan.

- 5.10 The report stated that the approval was needed urgently because “specialised machinery (a D11 bulldozer) is currently available on the West Coast, and is intended to be relocated back to Canterbury this week.”
- 5.11 The report went on to explain that machinery “of this size is required to undertake the proposed work in a cost and time efficient manner.” The report did not discuss whether there were other methods or options available to address an imminent flood risk.

### **What the elected members discussed**

- 5.12 The Council's discussion on the work is not recorded in detail but, based on the meeting minutes, appears to have been wide ranging. The minutes record that the following topics were discussed:
- *The current risk and protecting Council's assets*
  - *Funding*
  - *Shifting the sewerage ponds*
  - *The potential for a flood*
  - *The options for Franz Josef*
  - *Extension of the Rating District*
  - *Providing assurance to the Franz Josef Community*
  - *The importance of having the infrastructure available to cater for the large amounts of tourists in Franz Josef/Waiau.*

### **What the elected members approved**

- 5.13 At the end of its discussion, the Council approved the work as recommended, which was simply to:
- develop a new infiltration gallery; and
  - maintain the flood embankment.
- 5.14 Councillor Havill declared a conflict of interest and did not participate in the decision, although he was involved in the discussion leading up to the decision.
- 5.15 The other elected members were obviously aware of the video the Mayor had posted on his Facebook page. We were told by some members that the Council resolution was passed on an assurance that the work the Council carried out would be limited to maintenance of the existing flood embankment and that it would not go as far as building a new wall. This assurance was not recorded in the minutes.

## Our observations on the Council's decision

- 5.16 Our detailed comments on the Council's decision-making process and its obligations under the Local Government Act 2002 are in Part 9. At this stage, we make the following observations.
- 5.17 Very little information is provided about what the proposed work was going to involve. The brief description of the work in the report and minutes appears to be the same as work that had already been planned and outlined to the elected members at the Council's meeting on 22 June 2017, although there is no direct reference to this earlier planned work.
- 5.18 Council staff had not been involved in the planning or design of the proposed work, and no engineering advice had been sought or received. It is not clear whether all of the elected members were aware of this when they were asked to approve the work.
- 5.19 The decision to carry out the work was made without consulting the Regional Council or other parties that might be affected by the work (such as iwi and NZTA).
- 5.20 There was no business case, risk assessment, or analysis of alternative options.
- 5.21 There does not appear to have been any discussion of what consents, if any, might be needed for the work under the Resource Management Act 1991. There is no reference to the work being considered emergency works under that Act.
- 5.22 The report the Acting Chief Executive prepared for the meeting briefly touched on the risks posed by the Waiho River and the minutes from the meeting show that the elected members were concerned about the potential risks to the wastewater plant. However, the stated urgency appears to have been more about the availability of the bulldozer than an imminent flood risk.
- 5.23 The Council was asked to provide its urgent approval for the work on the understanding that the bulldozer was available for only a short time before it needed to return to Canterbury. Despite this apparent urgency, the bulldozer remained in Franz Josef for many months after completing the stopbank work.

# 6

## How the work was carried out

- 6.1 Events moved quickly following the Council's decision. The bulldozer arrived on site on 8 July 2017 (three days after the Council meeting) and work started on 14 July 2017.
- 6.2 The work was carried out in two stages:
- The first stage involved using the bulldozer to shift riverbed gravel to build a stopbank.
  - The second stage involved completing the stopbank and placing rock along the river side of the stopbank to protect it from erosion.
- 6.3 The work took about four months to complete. It resulted in the construction of 700 metres of rock-protected stopbank on the bank of the Waiho River, and raising the level of a 250-metre length of the existing flood embankment. The proposed work on the infiltration gallery was not carried out during this time but we understand it has since been completed.
- 6.4 In this Part, we describe how the work was carried out and some of the issues and concerns that arose along the way, in particular:
- discussions between the Council and the Regional Council about the steps the Council needed to take to comply with the Resource Management Act;
  - apparent confusion or misunderstanding about the scope of the work; and
  - a proposal the Mayor put forward part-way through the implementation process to use the bulldozer to carve out a new pond for the wastewater plant.

### **Appointing Westroads Limited to act as head contractor**

- 6.5 On 6 July 2017, the day after the Council meeting, the Acting Chief Executive called the General Manager of Westroads Limited (Westroads) to ask that Westroads act as head contractor for the work.
- 6.6 Westroads is a wholly owned subsidiary of the Council. It operates as a general contractor, specialising in water utilities maintenance, roading, waste management, and parks and reserves.
- 6.7 We discuss Westroads' role and contracting arrangements in Part 7.

### **West Coast Regional Council's request for information about plans for the work**

- 6.8 On the same day (6 July 2017), the Chief Executive of the Regional Council emailed the Council to say he had seen the Mayor's Facebook post (from 2 July 2017), and asked for clarification of the Council's intentions.

- 6.9 He said that, when the two Councils had last discussed the matter, the Council had been planning only minor work to ensure that the oxidation ponds operated as best they could while a more permanent solution was arrived at.
- 6.10 He said that the Regional Council understood the Council's decision to carry out flood protection work but needed to understand the scope of what the Council was planning so that the Regional Council could advise what consents were needed and provide advice (if required) about stopbank design.
- 6.11 He also pointed out that there was potential for the Council to operate under the Regional Council consent that allowed rock extraction from the riverbed. His email ended: "Keen to help where we can and make sure that things are done within the bounds of the RMA, really want to be on the same page and avoid any issues that could arise from any proposed works."
- 6.12 In his response, the Council's Acting Chief Executive explained that the Council had agreed "to repair the wall" and "to restore a working disposal gallery". He said the Council's sole intent was to protect what the Council had there and to make it compliant, and that the ponds would need to be there for at least three years and up to at least 10 years, depending on the options chosen from the Tonkin + Taylor report.
- 6.13 The two Chief Executives agreed to meet.

### **Concern raised about bulldozer working without a consent**

- 6.14 Their meeting took place on 10 July 2017. We were told that the Mayor joined the meeting for a time. It was agreed that, following the meeting, the Council would submit a plan for the work.
- 6.15 In the meantime, the bulldozer had already arrived on site. On 12 July, the Regional Council sent a reminder about the agreement the Council had made to submit a plan. On 14 July, the bulldozer began work.
- 6.16 On 16 July, the Mayor posted three videos on Facebook of the bulldozer in action. According to the Mayor in the first video, the bulldozer had been on site for a couple of days and the basis of the wall was starting to be formed. The first and third videos show both Councillor Havill and the Mayor on site.
- 6.17 On the same day (16 July), in response to a concern from a member of the community, one of the elected members emailed the Acting Chief Executive to ask him to confirm whether the Council had a consent for the work.

- 6.18 The Mayor, rather than the Acting Chief Executive, replied to this email. He said the Chief Executive of the Regional Council had advised that the Council could use the Regional Council's consent, which was in permanent place for river work.
- 6.19 Further discussions took place the following day (17 July 2017) between the two Councils. Later that day, the Chief Executive of the Regional Council emailed his staff and copied in staff at the Council. The email said that the Mayor had confirmed that, once the Council had finished the gravel base for the work, it would stop work and wait until the design work for the stopbank had been done and consents sorted before carrying out any further work.
- 6.20 It was also noted in the email message that the Council's Acting Group Manager: District Assets was now involved in the project and that he would be going to Franz Josef the next day with consultants from Opus. They planned to meet with Regional Council staff later that same day to discuss next steps.

### **West Coast Regional Council asks for the bulldozer work to stop**

- 6.21 On 19 July 2017, staff from the Regional Council visited the site and asked the bulldozer operator to stop work.
- 6.22 In an email to the Council, the Chief Executive of the Regional Council said this was because the Regional Council had not yet received a plan for the work. He explained that:
- Even if the Council was proceeding with the work under the "emergency works" provisions in the Resource Management Act, it was still required to notify the Regional Council and apply for the necessary consents.
  - A key point of the consent process was engaging with potentially affected parties, namely Te Runanga o Makaawhio, the Department of Conservation, and NZTA.
  - In regard to NZTA, the consultation would need to cover "tying into their asset" (that is, joining the Council's stopbank to the existing NZTA stopbank) and undertaking work adjacent to the NZTA stopbank.
- 6.23 The reference to the emergency works provisions in the Resource Management Act is a reference to section 330 of that Act. The significance of section 330 is that, if properly invoked, it allows a local authority to take preventive or remedial action (for example, to prevent loss of life or serious damage to property) without first obtaining a resource consent, although a consent must be obtained retrospectively. Carrying out work that requires a consent without first obtaining one is otherwise unlawful.

- 6.24 As well as reminding the Council of its obligations under the Resource Management Act, the Regional Council also asked for assurances about the scope of the work the Council was planning to carry out under the emergency works provisions. The Chief Executive explained that this was because the bulldozer driver had told Regional Council staff that, once he had finished work on the stopbank, he would be moving to the site of the wastewater plant to begin work there.
- 6.25 By inference, we understand this to mean that the Regional Council wanted confirmation that the work the Council was planning to carry out in reliance on the emergency works provisions (and therefore without first obtaining a resource consent) was the work necessary to prevent the wastewater plant from flooding – not, for example, work related to upgrading the wastewater plant itself.
- 6.26 The Chief Executive of the Regional Council suggested that, as a way forward, the Council’s Acting Group Manager: District Assets should come to the Regional Council’s offices the next morning to work through the plan with Regional Council staff, including river engineers.
- 6.27 The Mayor sent a response to this email in which he accused the Regional Council of failing to act to protect important assets from flooding and of hiding behind the Resource Management Act. He said that, if the ponds flooded again, the Regional Council would be held responsible.

### **Westland District Council prepares plan and design**

- 6.28 On 20 July, the day after Regional Council staff had asked the bulldozer driver to stop work, the Council’s Acting Group Manager: District Assets met with Councillor Havill to discuss his design for the work and to prepare a written plan. Up to this point, there was no plan for the work, and the proposed design for the stopbank had not been committed to paper.
- 6.29 Following this meeting, the Acting Group Manager: District Assets prepared a drawing detailing the earthworks design of the stopbank, which he sent through to the Regional Council later that night.
- 6.30 The completed drawing showed a new straight stopbank connecting with the existing NZTA stopbank and extending 700 metres downriver, past the wastewater ponds and with rock armour on the stopbank’s river side. We were told that the drawing was for the purpose of resource consent application, but by default it became the construction design.
- 6.31 Some modifications were later made to Councillor Havill’s original stopbank design as the result of discussions with Regional Council staff.



## **Consultation with the New Zealand Transport Agency**

- 6.32 On 21 July 2017, the Acting Group Manager: District Assets emailed NZTA to request permission to “tie” the Council’s new stopbank to NZTA’s existing stopbank.
- 6.33 NZTA approved the Council’s plans on 27 July, subject to certain conditions and design modifications. These included:
- the Council ensuring that the existing floodbank was raised to the same level as the Council’s new stopbank; and
  - the Council continuing to raise the whole stopbank in response to rising riverbed levels.

## **Notification of emergency works**

- 6.34 On 21 July, the Chief Executive of the Regional Council emailed the Acting Group Manager: District Assets to confirm that the Council was required to notify the Regional Council, in writing, of the emergency works within seven days of the work commencing. The Council then had 20 days within which to apply for resource consent.
- 6.35 On 24 July, the Council formally notified the Regional Council that it had “initiated emergency works in the Waiho River to protect Westland District Council owned utility and roading infrastructure, including the Franz Josef wastewater treatment plant” and that the work was being done under section 330(1)(b) of the Resource Management Act (as emergency works).

## **Project Manager appointed**

- 6.36 In late July 2017, the Acting Chief Executive contacted a former employee of the Council to ask for his help with the project. The former employee had previously worked as Operations Manager at the Council and is a qualified engineer. On 27 July, the Mayor, Councillor Havill, and the Acting Group Manager: District Assets met with the former employee to discuss help the Council needed with putting contracts in place and with the Council’s application for a resource consent. Up to this point, there was nothing in writing with either Westroads (the Council’s appointed head contractor) or either of the companies subcontracted to carry out the work.
- 6.37 The former employee was appointed as Project Manager and started work on 31 July.

## Concerns raised about the scope of the work and the procurement process

- 6.38 A Council meeting was held on 27 July 2017. This was the first Council meeting since the 5 July 2017 decision.
- 6.39 By this time, questions were already being asked by members of the community and elected members themselves about the Council's procurement process and about why a new stopbank was being built, rather than the Council simply working to strengthen the existing floodbank.
- 6.40 The minutes of the 27 July meeting recorded that the Council discussed progress on the work at this meeting. However, no detail of that discussion is recorded in the minutes.
- 6.41 According to a report in the *Hokitika Guardian*, concerns were raised at the meeting by several of the elected members about both the scope of the work and the Council's procurement process.
- 6.42 The *Hokitika Guardian* also reported that the Mayor advised at the meeting that an estimate had been sought for carving out a new oxidation pond at the site of the wastewater plant.

## The Mayor's proposal to use the bulldozer to carve out a third pond

- 6.43 On 1 August 2017, the Mayor emailed the other elected members to tell them the Council had received a quote of \$100,000 for the bulldozer to carve out a new three-hectare pond at the site of the wastewater plant.
- 6.44 He said the work would need to be carried out within the next five days, as the bulldozer was due to head to Wanaka after that and that, if the Council went ahead with building a third pond now, this meant the total cost of the protection work, including the new pond, would still be less than the \$1.3 million approved by the Council at the 5 July meeting.
- 6.45 He said that a new pond could be completed and properties protected for under \$2 million. He compared this to the figures quoted in the Opus report for alternative pond sites that started at upwards of \$3.75 million.
- 6.46 In response to questions from some of the elected members, the Mayor sent out another email in which he said the decision to carve out a new pond was not a "done deal" and that he was seeking a consensus from the elected members for this work. He said there were potential cost savings to the Council in carrying

out the work while the bulldozer was on site but that, if there was no consensus among the elected members, a special meeting would need to be called or the work postponed until a later date.

- 6.47 On 3 August, the Regional Council notified the Council that it would need to submit an application for resource consent by 21 August 2017. At the same time, the Regional Council asked the Council to confirm that the work it was doing under the emergency works provisions of the Resource Management Act would be limited to the earthworks required to form a gravel bank, and that it would not include rock armouring or the creation of more oxidation ponds.
- 6.48 On 4 August 2017, discussions took place between Council staff and the Project Manager and a meeting was held between the Acting Chief Executive, the Mayor, and Councillor Havill. Following these discussions it was agreed that the proposed creation of an additional pond would be outside the scope of the work agreed to by the Council at its 5 July 2017 meeting.
- 6.49 The Mayor emailed the other elected members to say that there was no consensus for his idea of using the bulldozer while it was at the site to carve out a third pond, and that if a decision was made in the future that the ponds were to be extended in their current location, this would be a separate project.
- 6.50 On 15 August, the Council confirmed to the Regional Council that the emergency works would not include the creation of more oxidation ponds but that it would include rock armouring.

### **Westland District Council applies for retrospective resource consent**

- 6.51 On 18 August, the Council submitted its application for a retrospective resource consent. The application stated that the purpose of the work was to prevent flooding of land behind the stopbank, including existing and proposed wastewater treatment infrastructure and developments on private property.
- 6.52 On 7 September, the Regional Council notified the Council that its application for resource consent could proceed without public notification. However, the Council would need written approval from the Department of Conservation, [NZTA], and Te Runanga o Makaawhio.

### **Completion of the work**

- 6.53 The work was completed in early November 2017.
- 6.54 The Council has told us that it has subsequently received a resource consent for the work.

## Unauthorised work at the wastewater treatment plant

- 6.55 In May 2018, part way through our inquiry, we were told that the bulldozer, which, contrary to expectations, was still in Franz Josef, had carried out earthmoving work at the wastewater plant site and cleared some vegetation.
- 6.56 At this point, Council staff were well advanced on a project for an improved pond system at the current wastewater plant site. However, the Council was yet to formally approve the project and consult the community. We wanted to understand why work at the site had begun.
- 6.57 When we asked for an explanation, the Council confirmed that the bulldozer “had entered the site of the wastewater plant and cleared some vegetation”, but said that “it had not been instructed by Council staff to do so”. We were told that very little damage had been done and that it had been decided not to pursue the matter further. We were also told that the Council had not received any invoice or made any payments for this work.
- 6.58 It seemed inherently unlikely to us that the company that owns the bulldozer, or the bulldozer driver, would have carried out work without having been instructed by someone at the Council to do so. So we asked more questions to try to find out who, if not Council staff, had instructed the bulldozer driver to do the work and whether any elected members were involved.
- 6.59 The Council’s response was that it did not know who had instructed the bulldozer driver, but we were told again that instructions had not come from Council staff and that there had been no previous discussions between Council staff and Blakely Mining (the employer of the bulldozer driver). We were told the Council was “unsure” whether any elected members had been involved in any discussions with Blakely Mining about this work.

## Our observations on the way the work was carried out

- 6.60 Our detailed comments on the way the work was carried out are in Part 9. At this stage, we make the following observations.
- 6.61 Work proceeded on the ground before any plans or designs had been drawn up, before any contracts were entered into, and before the Council had confirmed with the Regional Council what consents the Council would need under the Resource Management Act. As a result, staff from both Councils had to work in “catch up” mode after the work had already begun to ensure that the design and construction of the stopbank would be “fit for purpose” and would qualify for resource consent.
- 6.62 It is not clear who was actually managing the work on the ground during the early stages.

- 6.63 We found no evidence of the Council turning its mind to its obligations under the Resource Management Act until the work was already under way. In particular, we found no evidence of the Council seeking advice on the extent to which it could rely on the emergency works provisions of the Resource Management Act or the Regional Council's existing resource consent until the work was already under way.
- 6.64 There is disagreement among the elected members about the scope of the work the Council had decided to carry out. The minutes of the Council meeting on 5 July 2017 record that the Council had resolved to maintain the existing flood embankment and develop a new infiltration gallery. The day after the Council meeting, when asked to clarify the Council's intentions, the Acting Chief Executive told the Regional Council the sole intent was to protect what the Council had there and make it compliant. This is consistent with what is recorded in the minutes of the meeting. In the event, the Council built a new 700-metres-long stopbank. Several of the elected members have told us this was not what they agreed.
- 6.65 The bulldozer, which the Council had been advised was available for only a short time, remained at the site for at least seven months after the work had been completed. In May 2018, the bulldozer was used to carry out work at the site of the wastewater plant. It is not clear what the purpose of this work was or who authorised it. The Council was still in the process of deciding whether the wastewater plant should remain at its current location.
- 6.66 The Council told us that no Council staff were involved in instructing the bulldozer driver to carry out this work, but has been unable to confirm whether any of the elected members were involved in the unauthorised work.

## The contracting arrangements

- 7.1 The work was carried out in two stages:
- The first stage involved using a Caterpillar D11 bulldozer to shift riverbed gravel to build a stopbank.
  - The second stage involved completing the stopbank and placing rock along the river side of the stopbank to protect it from erosion.
- 7.2 The first stage was carried out by Westroads, as head contractor, using two subcontractors – Blakely Mining and South Island Plant Hire Limited (South Island Plant Hire).
- 7.3 The second stage was carried out by MBD under a direct contract with the Council.
- 7.4 In this Part, we explain:
- how these contractors were appointed to carry out the work;
  - the contracting arrangements entered into by the Council; and
  - how the contracts were managed.

### **The first stage: Westroads Limited appointed to act as head contractor**

- 7.5 We were told that, the day after the 5 July Council meeting, the Acting Chief Executive called the General Manager of Westroads to ask it to act as “head contractor” for the work.
- 7.6 Westroads is a wholly owned subsidiary of the Council. It operates as a general contractor, specialising in water utilities maintenance, roading, waste management, and parks and reserves.
- 7.7 The appointment of Westroads had not been discussed at the Council meeting. We were told that the appointment was necessary because there were no Council staff with capacity to manage the work at the time.

### **Terms of the contract with Westroads Limited**

- 7.8 It is not clear what the Council asked Westroads to do at the time it was appointed. There are no records of their discussions and a written contract was not entered into until 11 September – by which time the work Westroads was responsible for had already been completed. For the time that Westroads was appointed as head contractor for the work, the agreement it had with the Council was verbal only.

- 7.9 Under the terms of the contract that was retrospectively signed, the agreement between Westroads and the Council was:
- Westroads was required to provide a Caterpillar D11 bulldozer for the purpose of building a gravel stopbank as shown in a drawing attached to the contract. (The drawing was the one made by the Acting Group Manager: District Assets on 21 July, after talking to Councillor Havill).
  - The Council was required to pay an “all-inclusive” hourly rate for the provision of the bulldozer, plus “actual and reasonable transport, establishment, and disestablishment costs and costs of setting out the work”.
  - The parties agreed a nominal schedule of machines hours needed to complete the work and a time frame within which it needed to be completed.
  - The Council was responsible for obtaining the necessary resource consents for the work.
- 7.10 Because the contract was signed retrospectively, it is not clear whether the contract accurately recorded the parties’ understanding of their respective responsibilities at the time the work began or what was recorded simply reflected what happened in practice.

### **The subcontracts**

- 7.11 Two different companies were involved in the subcontracting arrangements. They were Blakely Mining, one of the companies Councillor Havill had spoken to when the Mayor asked him to source contractors for the work, and South Island Plant Hire.
- 7.12 Those we spoke to – including Westroads – were not able to explain the relationship between these two companies or which of them had actually been contracted to carry out the work. We were not provided with any written contracts with either company. Apart from one invoice – from South Island Plant Hire to Westroads – there is nothing in writing with either company.
- 7.13 The general assumption among those we spoke to seems to be that Westroads contracted Blakely Mining to carry out the work. However, it was South Island Plant Hire that invoiced Westroads for the work, not Blakely Mining.
- 7.14 Our understanding is that the bulldozer is owned by South Island Plant Hire but is operated by Blakely Mining. Our assumption is that Westroads effectively subcontracted the work to South Island Plant Hire, and that South Island Plant Hire had a separate arrangement with Blakely Mining in relation to hiring the bulldozer driver. However, because there are no written contracts, the arrangements between Westroads, Blakely Mining, and South Island Plant Hire are unclear.

## Payment terms

- 7.15 We understand the rate South Island Plant Hire charged Westroads for the bulldozer was the rate Councillor Havill had negotiated when he spoke to Blakely Mining.
- 7.16 Westroads on-charged the amount invoiced by South Island Plant Hire to the Council and added a 5% management fee. We were told this was Westroads' standard management fee. The management fee was not recorded in the head contract between the Council and Westroads and appears to have taken the Council by surprise.

## The second stage: Appointment of MBD Limited

- 7.17 The second stage of the work involved completing the earthmoving work, including correcting the slope of the stopbank and placing rock along the river side of the stopbank to protect it from erosion.
- 7.18 As noted in Part 6, by the time the first stage of the work was complete (9 August 2017), the Council had appointed a Project Manager. The Project Manager's responsibilities included putting in place and managing the necessary contracts. Westroads' involvement therefore ended once the first stage of the work was complete. The second stage was managed by the Project Manager.
- 7.19 The contractor appointed to carry out the second stage of the work was MBD. We were told that MBD is one of the leading companies on the West Coast involved in the supply and placement of rock. MBD also owns a nearby quarry at Whataroa. MBD was one of the companies approached by Councillor Havill when sourcing contractors for the work.

## Terms of the contract with MBD Limited

- 7.20 The Council entered into a written contract with MBD on 31 August 2017.
- 7.21 Under the contract, the Council agreed to pay MBD an all-inclusive rate per tonne for the supply and placement of rock, and an all-inclusive rate per hour for the hire of excavators and a dump truck. Our understanding is that these rates are the rates Councillor Havill had agreed with MBD.
- 7.22 The contract described the work to be done, including drawings and the payment terms. The basic format of the contract between the Council and MBD was the same as the one between the Council and Westroads, but it was much more comprehensive.



- 7.23 The contract identified the personnel at MBD who would be responsible for the work and their respective roles and responsibilities for matters such as health, safety and the environment, traffic management and site supervision, compliance with the contract specifications, and quality control. It also included a detailed contract management plan.
- 7.24 MBD began work on 4 September 2017 and the work continued into early November 2017.

## **Our observations on the contracting arrangements**

### **No competitive process**

- 7.25 There was no competitive process for sourcing contractors for the first stage or the second stage of the work. In effect, the contracting arrangements the Council entered into simply reflect the arrangements made by Councillor Havill when he first approached Blakely Mining and MBD before the Council meeting.
- 7.26 A competitive tender or request for proposal process is the most obvious way an organisation can ensure that it is getting value for money when buying goods or services. There are circumstances in which adopting a competitive process might not be possible or necessary – for example, when work is highly specialised and there is only a limited pool of potential suppliers, when council staff have recently tested the market and have a good understanding of the availability of suppliers and what constitutes competitive pricing, or when the work is urgent and there is no time to test the market.
- 7.27 In this case, it is unclear whether the Council's decision not to carry out a competitive procurement process was justified.
- 7.28 In the case of the first stage of the work, this is because it appears the Council simply accepted the advice of the Mayor and Councillor Havill that the work was urgent and that a bulldozer of the type and size operated by Blakely Mining was needed to do the job. No advice was sought from Council staff or external advisers to verify either of these points. Council staff were also not consulted about the availability of other suppliers that might be capable of carrying out the work or whether the quotes Councillor Havill had received for the work were competitive.
- 7.29 As a result, it is unclear whether the Council's decision not to carry out a competitive process was justified.
- 7.30 The second stage of the work did not begin until two months after the Council made its decision. That meant the Council had time to at least seek comparative quotes or expressions of interest from other potential contractors, even if the work was considered urgent.

- 7.31 The Council gave us several reasons why it did not do this. It told us that MBD owns the only local source of rock, other suppliers of rock would have been more expensive, and the Council would not have got such a good deal if it had followed a tender process because MBD would have known it was the only company that would tender and could have priced accordingly.
- 7.32 There was general agreement among those we spoke to that MBD is one of the leading contractors on the West Coast and that Councillor Havill obtained a good price from MBD for the rock armour work. However, there are other suppliers of rock and contractors on the West Coast, including the Regional Council.
- 7.33 Therefore, as with the first stage of the work, it is not clear whether the Council's decision not to carry out a competitive process for the second stage was justified.

### **Appointment of Westroads**

- 7.34 With hindsight, it is not clear what benefit the Council received from appointing Westroads to act as head contractor.
- 7.35 Under the terms of the contract Westroads and the Council entered into retrospectively, Westroads was appointed to act as the head contractor and was responsible for providing the bulldozer and getting the stopbank built. However, it is not clear whether the arrangement recorded in the contract records the parties' understanding at the time, or what was actually happening "on the ground".
- 7.36 Westroads had not been involved in planning the work or negotiating with the subcontractors, and the arrangements it entered into with the Council and the two subcontractors appear to simply reflect what Councillor Havill had agreed with Blakely Mining.
- 7.37 It is also unclear what Westroads did in a practical sense. We heard different views about this. Westroads said that it acted as the Council's "eyes and ears" in Franz Josef. Others told us that Westroads did not end up doing anything. Despite the different views, and the lack of certainty about the contracting arrangements, it appears Westroads was, for a short period, acting as an intermediary between the Council and the bulldozer driver, and keeping an eye on how the work was progressing.
- 7.38 By the end of July 2017 though, the Council had contracted an engineer to oversee the stopbank work, including the bulldozer work, and to manage the contracts. Westroads was no longer required. Westroads was involved, in a practical sense, for only 2-3 weeks.
- 7.39 We were told that Westroads was appointed because it was the Council's normal practice to appoint Westroads to carry out work of this type and because there

were no council staff available at the time to manage the work. It is also possible that, when the Acting Chief Executive first approached Westroads, the intention was for Westroads to have a bigger role in managing the work. However, once the Council appointed its own Project Manager, Westroads' involvement was no longer considered necessary.

- 7.40 The appointment of Westroads might have made sense in the short term but, with hindsight, it is not clear what benefit the Council got from appointing Westroads to act as head contractor for the work or, conversely, how much Westroads understood about what it was being asked to do and the nature of the risk it was undertaking.

#### **Lack of written contracts for the first stage of the work**

- 7.41 The first stage of the work, involving Westroads, Blakely Mining, and South Island Plant Hire, was carried out without any written contract between Westroads (as head contractor) and the Council. There were also no written contracts entered into with either of the subcontractors or any written records (such as emails or draft documents) of any matters relating to the negotiation of these arrangements.
- 7.42 The lack of written contracts, or indeed any sort of agreement in writing, during the first stage of the work meant that, had something gone wrong (for example, in relation to the quality of the work or a breach of the Resource Management Act), it would have been difficult to determine who was legally liable.
- 7.43 The lack of written contracts for the first stage of the work might also be a problem after completion of the work. As there are no written contracts with either subcontractor, should any problems arise with respect to the quality of the work that was carried out, it is unclear what recourse (if any) either the Council or Westroads will have.

## The end result

- 8.1 In this Part, we briefly summarise what the work achieved, how much it cost, how the Council intends to fund it, and what is now happening with a replacement wastewater plant.

### Improved flood protection

- 8.2 The work resulted in the construction of 700 metres of rock-protected stopbank on the bank of the Waiho River, and the raising of the level of a 250-metre length of the existing flood embankment.
- 8.3 We were told that the new stopbank provides improved flood protection for the wastewater plant and other property adjacent to the stopbank. The Council and the Regional Council staff we spoke to believe the new stopbank will provide 10-20 years of flood protection for the wastewater plant at its current location.

### Costs

- 8.4 The work, including the development of a new infiltration gallery, had been estimated to cost about \$1.3 million. Based on information provided to us, the Council spent \$1,228,151 (excluding GST) on contractors for the new stopbank.
- 8.5 This figure does not include the cost of the Council's Project Manager, costs associated with its application for retrospective resource consent, or the cost of developing the infiltration gallery. The infiltration gallery had been part of the original scope of the work but was not completed at the time.
- 8.6 The Council is responsible for the ongoing maintenance and, where necessary, the raising of the new stopbank to compensate for rising riverbed levels.

### How the stopbank has been paid for

- 8.7 The Council has paid for the new stopbank using funds originally allocated to the Franz Josef Waste Water Treatment Project. The Council had allocated \$1.5 million to this project in the 2017/18 financial year, which was to be funded by a loan.
- 8.8 The Council's original plan was for the loan used for a new wastewater plant to be serviced and repaid by means of a targeted wastewater rate on the Franz Josef community.
- 8.9 As part of the 2018 review of the Council's long-term plan, elected members were alerted to the need to consider a special targeted rate on properties that directly benefited from the stopbank. However, this idea does not appear to have progressed.

- 8.10 In the absence of a special targeted rate, the loan used to pay for the new stopbank is currently serviced by all properties in Westland connected to the Council's wastewater system.

### **Update on upgrade of wastewater treatment plan**

- 8.11 With the new flood protection in place, the Council has pursued the idea of keeping the wastewater plant in its current location and upgrading it.
- 8.12 In December 2017, it was announced that the Council would receive \$1.9 million from the Tourism Infrastructure Fund on the basis of this proposal.

## Our overall findings

- 9.1 It is clear from all those we spoke to that there was genuine concern about the Waiho River and the risk it posed to the wastewater plant and neighbouring properties. The flood risk had been known for many years, but it was increasing over time due to ongoing riverbed aggradation. At the same time, the Council needed to decide on both short-term and longer-term solutions for the wastewater issues in Franz Josef.
- 9.2 It is important to acknowledge the complexity of the challenges the Council was facing, the real threat posed to the wastewater plant by the Waiho River, and the fact that the decision to take steps to manage the flood risk was a decision the Council was entitled to make. It is not what the Council decided to do that has concerned us in our inquiry, but the way that decision was made and carried out.
- 9.3 We have already identified many of our concerns in this report. In this Part, we have summarised our overall findings and concerns:
- The scope of the work – whether the work that was carried out went further than what was authorised.
  - The Council’s decision-making process – whether it was up to the standard required of public organisations.
  - The involvement of the Mayor and Councillor – whether, as elected members, they involved themselves inappropriately in operational matters.
  - Councillor Havill’s conflicts of interest.

### The scope of the work

- 9.4 Our first major concern relates to the scope of the work and whether, in constructing a new stopbank, the Council has gone further than what was envisaged in the resolution that authorised the work.
- 9.5 The minutes of the Council’s 5 July meeting record that the Council approved work to “maintain the flood embankment” (that is, the raised access road) and “develop a new infiltration gallery” for the wastewater plant. The completed work involved building a significant 700-metres section of new stopbank. No work was carried out at the time in relation to the infiltration gallery.
- 9.6 We heard different opinions among elected members about whether the new stopbank was authorised by the Council’s resolution. Some believe it was. Others disagree and objected at the time to the extent of the work.
- 9.7 We accept that there might have been an element of genuine confusion about what the Council was proposing to do. This was in part because the option of building a stopbank had previously been raised at the Council, and in part because of the urgency with which the decision was made. The messages being sent to the

community by the Mayor's Facebook page about the scope of the proposed work might also have led to confusion.

- 9.8 However, in our view, the extension the Council built to the existing floodbank went well beyond the ordinary meaning of "maintenance" of an existing asset – which is what the resolution authorised.
- 9.9 The resolution did not expressly authorise either a new stopbank or an increased height for the existing floodbank. We accept that a maintenance design could involve some extensions (both linear and vertical) to the existing floodbank. However, the language of the resolution, and the details in the report that was provided to the Council to explain and support the proposed work, do not provide any basis for a significant extension to the floodbank or the construction of a new stopbank.
- 9.10 A secondary but nonetheless important point is that other work that was approved as part of the same resolution and that was necessary to ensure that the wastewater plant complied with the conditions of its resource consent (namely, the development of the infiltration gallery) was not carried out at the time. Therefore, it had to be carried out, presumably using other funds, at a later date.
- 9.11 Whether the construction of a stopbank was properly authorised, and whether it was the right thing to do, are questions that probably no longer have any practical relevance. The stopbank has been built and, even though some of the elected members voiced their objections at the time, the decision to build it has, in effect, been endorsed by the Council. The point has also been repeatedly made to us that, so far at least, it has achieved its intended purpose of protecting the wastewater plant from flooding.
- 9.12 None of this makes what the Council did right. A decision to carry out urgent work to maintain an existing asset and to ensure that it is legally compliant is fundamentally different in nature and scope from a decision to build a significant new asset, although the amount of money involved in this case might have been the same.
- 9.13 The construction of a stopbank, by its nature, required engineering input, an assessment of the potential impact on other parts of the river, and consultation with affected parties. It also triggered potentially different legal requirements under both the Local Government Act and the Resource Management Act, and there were issues that needed to be considered about ongoing maintenance costs.
- 9.14 Had the Council intended from the start to build a new stopbank, these and other relevant matters should have been fully considered at the time the decision was being made, not only after work was already under way. We do not accept

that doing things properly would have slowed the construction process in any significant way.

- 9.15 Acting outside the scope of a council decision is a serious matter. A council is a collective decision-making body. Unless given explicit authority to do so, neither council staff nor individual elected members of a council (including the Mayor) have any authority to make commitments or to take executive action on behalf of a council or to vary the decision a council has made.
- 9.16 Acting outside of the scope of a council decision also triggers potentially serious legal consequences for both the council and any individuals involved. A detailed analysis of these consequences is beyond the scope of this report, but it is worth highlighting some of the main ones. They include:
- Legal proceedings to injunct the council.
  - Potential invalidation of the council's insurance cover.
  - For individuals involved (staff or elected members), if their actions result in civil or criminal proceedings being brought against the council, for example, under the Resource Management Act, potential personal liability.
  - If individuals are found to be personally liable, potential "disavowal" of their actions by the council, meaning the council could refuse to indemnify them in respect of any legal costs or penalties they incur on the grounds that their actions were not authorised by the council in the first place.

### **Westland District Council's decision-making process**

- 9.17 Our second major concern relates to the Council's decision-making process.
- 9.18 Our assessment about whether the Council's decision-making process was adequate has been complicated by the fact that, as already noted, there is disagreement within the Council about what the Council's decision actually was (that is, whether it was a decision to carry out urgent maintenance work on an existing asset or a decision to build what was arguably a significant new asset).
- 9.19 Whatever the decision though, the process the Council followed when making it was, in our view, inadequate both at the time, and even more so, in retrospect, once the scope of the Council's undertaking became clear. We also have doubts about whether the Council's decision-making process complied with the requirements of the Local Government Act.
- 9.20 Any good decision-making process involves at least these basic stages:
- identifying that a decision needs to be made;
  - gathering relevant information to better understand the situation;



- identifying options; and
  - weighing the evidence and choosing a preferred option.
- 9.21 For councils, these stages are not just good practice or “nice to haves”. They are explicit legal requirements. The Local Government Act sets out several principles and requirements for good decision-making that all councils are required to comply with. These include:
- The principle that a council should conduct business in an open, transparent, and democratically accountable manner.
  - The principle that a council should provide opportunities for Māori to contribute to decision-making processes.
  - The requirement for a council to seek to identify all reasonably practicable options and assess their advantages and disadvantages.
  - The requirement for a council to consider the views of those likely to be affected by, or interested in, the decision.
- 9.22 Councils are also required to have a Significance and Engagement Policy that sets out how they will assess the significance of each decision, and how and when communities will be engaged on different types of decisions.
- 9.23 These requirements apply to every decision a council makes – big or small. The Local Government Act recognises the need for proportionality and gives councils broad discretion to decide how to comply in a way that is proportionate to the significance of the particular decision. But councils must turn their mind to how they will comply with each of the requirements.
- 9.24 It is not uncommon to hear decision-making requirements in the Local Government Act and other similar legislation being dismissed as unnecessary regulation or “red tape”. Public sector decision-making requirements can cause particular frustration for those who are used to running their own businesses or being answerable to only a relatively small group of shareholders or other stakeholders.
- 9.25 But public sector decision-making is different. Public organisations are accountable to the communities they serve and, as we have said in other reports, every public organisation is exercising public power. The essence of the rule of law is that public power must be exercised in accordance with the law. Complying with the requirements of the Local Government Act and any other legal requirements when making decisions is not optional.
- 9.26 For councils, being able to demonstrate that decisions are being made lawfully and for the benefit of the community is all the more important because the

council is collecting and spending the community's money, and because the only opportunity the community has to exercise control over those making decisions on its behalf is at the triennial local government elections.

- 9.27 The discipline imposed by the decision-making requirements of the Local Government Act is therefore essential in holding local authorities to account. These requirements are, in effect, the building blocks for democratic and responsible decision-making in local government.
- 9.28 Many of the concerns we have about the Council's decision-making process in this case have already been identified in our report. It is not necessary for us to repeat all of them in detail here. However, it is worth repeating the main ones.
- 9.29 The Council did not seek or receive any expert advice to inform its decision. For example, advice on the nature and immediacy of the risk facing the wastewater plant or whether the proposed work was an efficient or effective response to that risk.
- 9.30 There is no evidence that other options for emergency measures were considered, even if those options were only about reducing the risk in the short term.
- 9.31 There was no business case to support the work.
- 9.32 The work had potentially significant consequences for other organisations, property owners, and local iwi. However, the Council did not talk to or consult anyone about the plan until after it had been approved.
- 9.33 There is also no record of the Council considering the views of those likely to be directly affected by, or interested in, the decision – in particular, NZTA and the Regional Council.
- 9.34 There is no record of the Council considering its decision-making obligations under the Local Government Act, including its significance and engagement policy, during the course of its decision. However, we recognise that the failure to consider the significance and engagement policy might have been because, at the time, not all those making the decisions realised that the proposed work was potentially significant.
- 9.35 There is no record of the Council turning its mind to whether it could rely on the emergency works provisions of the Resource Management Act to justify carrying out the work without first obtaining a resource consent. However, that failure might have been because not all those making the decisions were aware of the scope of the proposed work and the implications this had in terms of the Council's compliance with the Resource Management Act.
- 9.36 We acknowledge that the Council clearly had a wide-ranging discussion before making its decision. We also acknowledge that some of the issues the Council would have needed to take into account before making its decision are likely to

have been canvassed during that discussion or at previous Council meetings, where issues relating to the wastewater plant and/or flood risk were discussed.

- 9.37 However, the fact remains that the Council cannot provide adequate evidence to us or the community that a proper and lawful process was followed and that, when making the decision to carry out the work, all relevant factors were taken into account and all relevant options considered and weighed. In our view, where their money is being spent, the community is entitled to better than that.

### **Involvement of the Mayor and Councillor Havill**

- 9.38 Our third major concern relates to the role played by the Mayor and Councillor Havill in driving the decision to build the stopbank and sourcing contractors to build it.
- 9.39 There was a general acceptance, based on expert advice, that the Waiho River posed a significant and increasing flood risk to the wastewater plant as a result of aggradation of the river. However, the assessment that there was an imminent flood risk that needed to be addressed as a matter of urgency was made by two of the elected members — the Mayor and Councillor Havill. It was the Mayor and Councillor Havill who then came up with the proposed solution – a stopbank — and Councillor Havill who sourced and negotiated arrangements with potential contractors.
- 9.40 Therefore, it was effectively on the basis of the views of two of the elected members that the Council committed \$1.3 million for what become reasonably major infrastructure work.
- 9.41 The close involvement of elected members in driving and implementing the Council's decision to build the stopbank has led to inevitable concerns about the blurring of lines between governance and management. As we discuss in more detail in the next section, these concerns have been particularly acute in the case of Councillor Havill, because of his close personal connections with some of those subsequently engaged by the Council to carry out the work.
- 9.42 Any number of good practice guides make the point that, for an organisation to function well and to be able to account properly to its stakeholders, there needs to be a clear distinction between those governing the organisation and those managing it. This principle applies generally across all sectors and all types of organisations.
- 9.43 The role of managers is to carry out the day-to-day operations of the organisation. The role of the governing body is to ensure that systems and processes are in place that shape, enable, and oversee the management of an organisation.

- 9.44 In practice, the separation between governing bodies and management might not always be black and white. For example, when an organisation is facing particularly challenging issues, it might be necessary and appropriate for the governing body to become more closely involved in operational matters.
- 9.45 However, the general rule is that clear roles and responsibilities make the differing interests of management and governance transparent and foster effective decision-making. There is a need to guard against the risk of those governing becoming too closely involved in operational decisions because it limits their ability to then hold management to account.
- 9.46 The Local Government Act draws a clear distinction between the roles of governance and management. The role of elected members is to govern, not to manage. Elected members have no executive authority, except as specifically delegated to them, and have no authority to instruct council staff or those carrying out work on behalf of the council.
- 9.47 The Mayor and Councillor Havill told us that when they became concerned there was an imminent flood risk, the reason they had to get personally involved and take on the role of sorting out the problem was because the matter was urgent and there were no staff available at the time to deal with it. We do not accept this.
- 9.48 We acknowledge the disruption at the Council resulting from the resignations of the previous Chief Executive and the Group Manager of the District Assets Team. We also acknowledge that the District Assets Team was under-resourced at the time. However, by early July 2017, when these events took place, the Council had an experienced Acting Chief Executive who had been in his role for three months and who was a former Chief Executive of the Council. The Council also had an Acting Group Manager: District Assets, who had been in the role for two months.
- 9.49 It is not clear to us why the Mayor and Councillor Havill did not simply refer their concerns, proposed solution, and names of potential contractors to the Acting Chief Executive, and leave it to him and Council staff to determine (a) whether the work was necessary, (b) what needed to be done, and (c) who should be engaged to do it. We do not accept that it was necessary or appropriate for the Mayor or Councillor Havill to involve themselves in the way that they did, however well-intentioned they might have been.
- 9.50 It is often in the nature of those elected to local government that they have knowledge, skills, and experience that might be of value to the Council, coupled with a strong sense of community service and a drive to fix problems and improve the well-being of the communities they represent. These attributes are to be welcomed and encouraged. We have no issue with elected members sharing their

knowledge, experience, and connections with Council staff, where it is in the interests of the community to do so.

- 9.51 However, members of the Council are elected to govern, not manage. They must be conscious of the line between governance and management and be aware when they are crossing it. This is not just for the sake of the Council, but for their own sake. Elected members need to be aware at all times that their functions are limited to collective governance, and that none of them (including the Mayor) has any executive authority except in instances where Council specifically delegates that authority.
- 9.52 Elected members who overstep the line between governance and management risk not only undermining relationships within the Council, and the ability of the Council to account effectively to the community. They also risk personal liability for their actions.

### **Councillor Havill's conflicts of interest**

- 9.53 Our fourth major concern relates to Councillor Havill's conflicts of interest.
- 9.54 Councillor Havill is a long-standing business associate of Edward Blakely, who is the Director and owner of Blakely Mining, one of the subcontractors for the work. Councillor Havill's brother was the driver of the bulldozer. Councillor Havill is also a part owner of Aratuna Freighters Limited, which is one of the main suppliers of fuel to companies on the West Coast, including Blakely Mining and MBD.
- 9.55 It is Councillor Havill who, along with the Mayor, made the call that emergency works were necessary and that the bulldozer operated by Blakely Mining was needed to do the work.
- 9.56 When these views were subsequently presented to the Council for discussion and approval, Councillor Havill declared a conflict of interest. Although Councillor Havill took part in the discussion, he did not take part in the vote. Despite declaring a conflict of interest and stepping aside from the decision, concerns have persisted that people close to him have benefited from contracts he effectively negotiated.
- 9.57 Allegations about conflicts of interest involving elected members of local authorities are a matter of particular concern to this Office because – aside from a general interest in matters relating to good governance and probity – the Auditor-General has a specific role in investigating concerns about financial conflicts of interest.
- 9.58 Financial conflicts of interest are governed by the Local Authorities (Members' Interests) Act 1968. Under that Act, an elected member who discusses or votes on a matter in which they have a financial interest, risks committing a criminal offence and, if convicted, is automatically disqualified from office. The Act also

prohibits elected members from benefiting financially from contracts with their council, except in specific circumstances.

- 9.59 Part of our inquiry, therefore, required us to consider whether Councillor Havill had breached the Local Authorities (Members' Interests) Act and, if so, whether prosecution was warranted.
- 9.60 We have concluded that the nature of Councillor Havill's conflicts of interest in this case were not financial, and that he did not breach the Local Authorities (Members' Interests) Act. This is because the concept of a financial interest in this Act applies only where it can be shown that the elected member personally stands to lose or gain financially, either directly or indirectly (for example, through a business they own). We found no evidence in our inquiry that Councillor Havill stood to gain any personal financial advantage as a result of his involvement in the procurement process.
- 9.61 Nonetheless, Councillor Havill did have conflicts of interest of a non-financial nature as a result of people close to him standing to gain financially. This means that, even though he declared a conflict of interest, his close involvement in the procurement process remains a matter of concern.
- 9.62 As already explained, that concern has to do with the fact that Councillor Havill is a member of the Council's governing body, not its management or operational staff. Elected members are there to govern, not manage, and need to understand the difference and when they are crossing the line.
- 9.63 In Councillor Havill's case, however, respecting the line between governance and management was all the more important because of his connections with the companies involved and the concerns those connections would inevitably trigger. Those concerns were compounded by the fact that there was no form of competitive tender process, and that the contracts that were awarded simply recorded the terms Councillor Havill had negotiated. To all intents and purposes, Councillor Havill negotiated and entered into contracts with people he knew on behalf of the Council.
- 9.64 We accept that, in offering his expertise and business connections, Councillor Havill was genuinely motivated by a desire to act in the community's interests, and believed his solution for addressing a long-standing problem was the right one. However, that does not justify him involving himself in the way that he did.
- 9.65 In particular, we do not accept that it was necessary or appropriate for him to approach any of the contractors directly, or that Council staff could not have managed the procurement process without his personal involvement.

- 9.66 Councillor Havill's failure to recognise the concerns his involvement would inevitably trigger has caused concern within the community about the fairness of the Council's contracting processes, and led to speculation that the contracts that were awarded were awarded on the basis of personal connections, rather than on merit.
- 9.67 Whether these concerns are valid or fair to any of the companies and individuals involved is another matter, and to some extent, beside the point. For an entity exercising public power and spending public money, it is not enough for its decision-making processes to be fair. They must also be seen to be fair.
- 9.68 If a council wishes to retain the community's confidence, it must understand the importance not just of behaving fairly, but of being seen to behave fairly.
- 9.69 By failing to recognise and understand this important principle and the concerns his involvement would cause, Councillor Havill has unfortunately undermined the trust and confidence some members of the community have in their Council. He has also risked both his own reputation and that of the Council.

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