


CASCADE MINE

Application to Renew:

- Resource consent (RC 97075)

November 2016

BATHURST RESOURCES LIMITED

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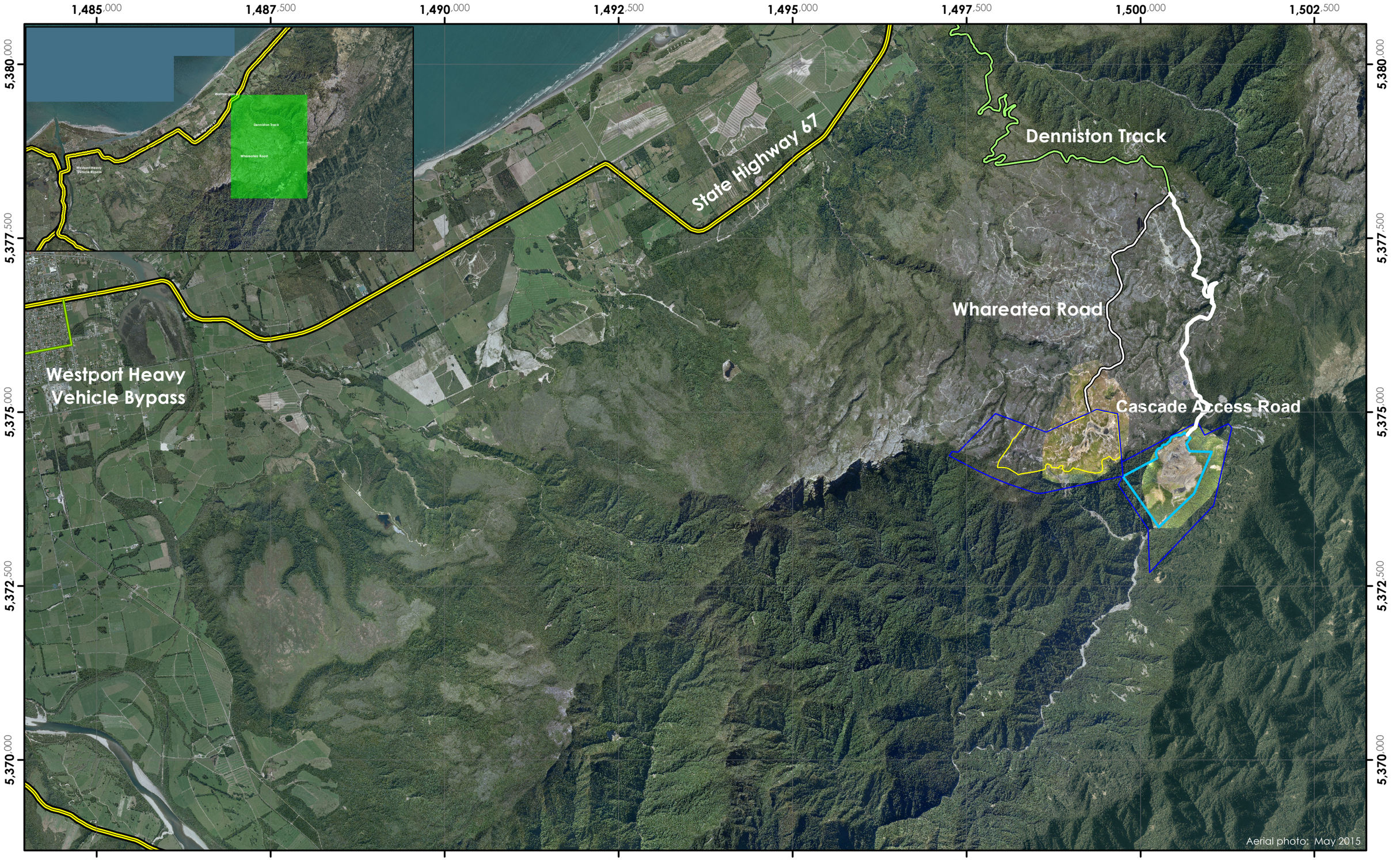
1 Introduction

The purpose of this document is to provide an assessment of the potential environmental effects associated with an application to renew resource consent RC 97075 Land Use consent issued by the Buller District Council (BDC) for mining activities at the Cascade Mine.

An assessment of environmental effects (AEE) is required to accompany any application for a resource consent under Section 88 of the Resource Management Act 1991 (RMA) or for an application to vary an existing consent. This document has been prepared in accordance with the Fourth Schedule of the RMA. It is intended that this assessment covers all those matters of relevance in respect of the Regional Policy Statement, West Coast Regional Land and Water Plan and Buller District Plan.

2 Location

The Cascade Mine is located in the Cascade Creek adjacent to the Denniston Plateau within the area consented by the resource consents granted by the BDC and the West Coast Regional Council (WCRC) and the associated Access Arrangement (AA) in respect of mining permit 41-455 granted by the Minister of Conservation.



NZGD 2000 Transverse Mercator

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Figure 1: Location Map

- Cascade AA. Aug 2014
- Cascade MP41455. Sept 2012
- Escarpment AA Boundary
- Escarpment MP 51 279 Boundary

Escarpment Mine

Escarpment Mine Location Map

Scale:	1:46,000
Drawing Number:	MgtP_010
Date:	23 November 2015
Drawn By:	T Costelloe

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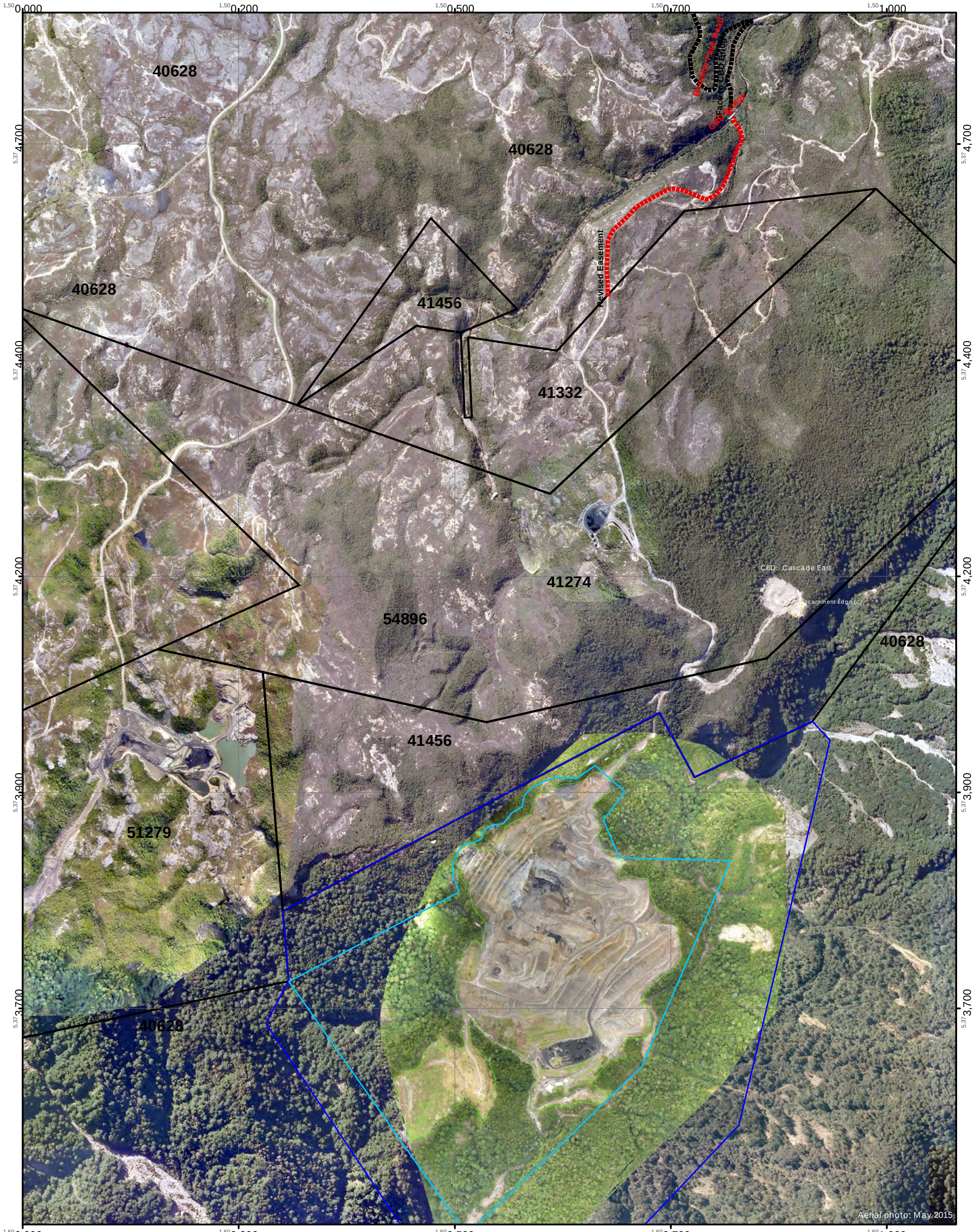

FIgure 2: Minerals Permits

3 Applicant Profile

Bathurst Resources Limited (BRL) is a publicly listed New Zealand coal mining company. Bathurst Coal Ltd (BCL) is a wholly owned subsidiary of Bathurst Resources and the consents are issued in the name of BCL.

Bathurst Resources has exploration and mining permits covering 10,000 hectares on the Buller Coalfield, and mining permits with operating coal mines in Canterbury and Takitimu in Southland. The Escarpment coalfield is home to some of the world's most valuable, hard coking coal which is sold into the international coal market to be used for making steel.

Bathurst Resources is focused on providing jobs and incomes for New Zealanders and investing in the long-term protection of local flora and fauna. The company has committed to protection of native species through predator and pest control in parts of the conservation estate, for the benefit of future generations of New Zealanders.

4 Project Overview

The following is a summary of the proposed activities for the Cascade Mine. BRL is seeking that the Land Use consent be for the maximum 35 year period so as to allow for any period of inactivity while the site is in care and maintenance and to enable full rehabilitation and closure of the site once mining is completed.

Activity	Details
Mine Coal	Target 60,000 T over 10 years as the price of coal recovers.
Mine Granite	125,000 Tonne over 10 years as demand determines
Footprint	Remain within existing disturbed Area 44ha.
Rate/Frequency Granite	Granite mining will be campaigned depending on need primary use is for road, site infrastructure and possibly for sale.
Access	Via existing roads (no change)
Coal Processing	Coal will be transported to Escarpment for processing. Thus eliminating the need to retain the ROM at site.
ROM	To be removed and rehabilitated and is included in the 2016 -18 Care and Maintenance Plan
Granite Processing	Crushed and screened in Pit prior to transport from site
Water Management	
Water Discharges	Currently water flowing over Cut 1 is flowing along batters and into Waterfall Creek. Following closure this water will be diverted through the Pit and into Hagan Creek. All other water controls to remain as they are.
Water Treatment	Sediment ponds to remain as they are for the life of the mine. Following closure sediment treatment system to be redesigned to minimise the footprint and recreate natural system as much as possible.
Noise and Dust	
Blasting	Frequency (Once week on average) but on an as required basis, but this will be irregular.
Dust Management	Water Cart (as required)
Hours of Operation	Intention is for 7 days week 7am to 7pm although nightshifts may occasionally be required.

HSNO	
Fuel	No fuel storage within the mine footprint, will use CSA or Escarpment as a fuel storage site and then truck to Cascade as required.
Explosives	Explosives to be stored in a HSNO compliant magazine at the CBD
Other products	Only oils and some degreasers for machinery servicing, all products to be stored in appropriately bunded areas in workshop.
Closure	
Closure criteria and Concept Plan	See Rehabilitation and Closure Plan (separate document)
Geotechnical Assessment	Required as part of Closure Plan
Other	
Numbers of Personnel	6 – 10
Crib Facilities	• Rain-Water collection for drinking. • Sanitation – portaloos although a septic tank could be used as the facility remains, it just requires a new toilet block. • Electricity via generator • Workshop to remain • No further buildings required
Emergency Services	Via existing road from Denniston and Burnetts Face Existing Helipad to remain

Table 1: Project Overview and Summary

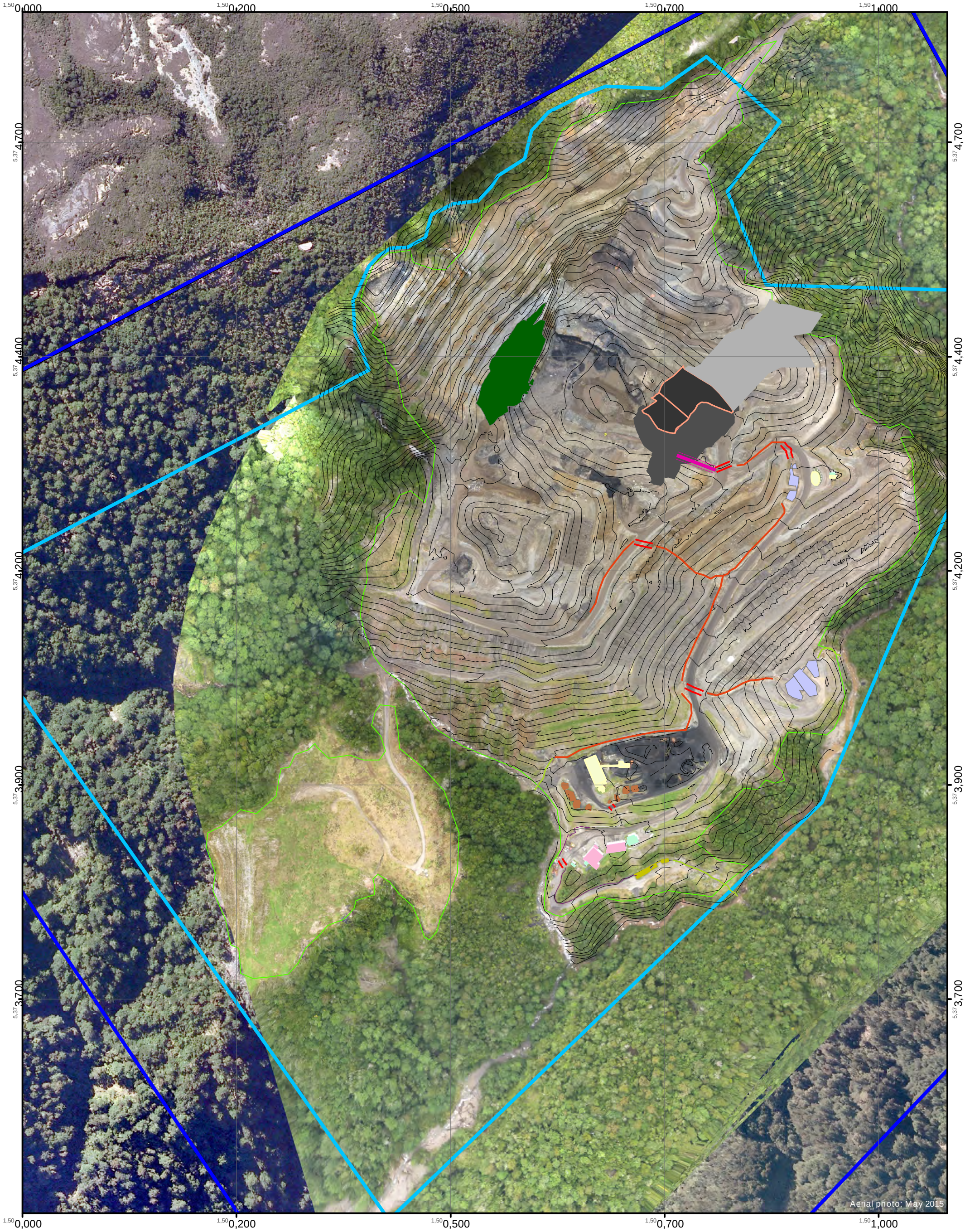

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Figure 3: Cascade Mine

Granite Location

Cut 8 Coal

Cascade AA.

Cascade MP41455

Cascade Mine

Drawn By	C Robertson
Date	11 November 2016
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Drawing Number	41455_059

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5 Background

5.1 Overview

Cascade Mine (MP41-455) has been operating from its existing location since 1923. It was initially an underground coal mine, then from the 1980's, it converted to an opencast coal mine. Since converting to opencast mining the footprint of the site has expanded in order to access the coal resources in the area. The current total disturbed footprint covers 44ha excluding the 5km access road from the end of the public road at Burnetts Face. Approximately half of the 44ha is in various stages of rehabilitation.

The access road was constructed in 1941 and at the time no consents were required. BCL has an easement with the Department of Conservation (DOC) for the use and maintenance of this road.

The area surrounding the Cascade mine consists of steep forested slopes dipping to the southeast from an elevation of 600m to 220m in the Cascade Creek. Slopes of up to 50° exist throughout the area surrounding the mine. Cut and constructed surfaces (highwalls and engineered landforms respectively) within the mine reflect the steep topography.

The Cascade Valley has been subject to a series of landslides and slips, associated with the Murchison and Inangahua earthquakes. These disturbances are naturally regenerating in forest, but they reflect the dynamic nature of the environment, its susceptibility to land movement and the resilience of the ecosystem to recover from relatively large-scale disturbance.

In 2011-12 BCL applied for and was granted consent to extend the mine footprint into the Gravel Pit block. This area is included in the 44ha total disturbance footprint. During development of the gravel pit block soil and slash was taken from the site and stored at the Coalbrookdale Box Cut (CBD) which is adjacent to the Cascade mine. This area is within the consented Coalbrookdale Mine owned by Buller Coal Limited and is not part of this application. The rehabilitation material stored at the CBD is intended to be used for rehabilitation of the Cascade mine. Further rehabilitation material is also stored at the coal storage area (CSA). This area is also part of the CBD suite of approvals and has been developed as the area for storing and loading coal for delivery from site. Until recently, the CSA also been the location for the HSNO compliant fuel storage facility.

The CBD, CSA and Cascade Mine have operated under one annual work plan (AWP) and a single bond has been issued for all three elements that are considered as one operation. This bond has been held jointly with the BDC, WCRC and DOC.

The Cascade Mine, along with the Escarpment Mine is currently in care and maintenance phase, there is one 20T digger on site and operations planned for 2016-17 include;

1. Infrastructure maintenance including water tables, ponds and roads;
2. Decommissioning of some infrastructure and contouring of areas where mining has been completed;

3. Continued rehabilitation of closed-off mining areas, including spreading of slash and soil, planting, seeding, and pest and weed control; and
4. Rehabilitation and water monitoring.

5.2 Future for Cascade Mine

BCL has identified that there is at least 60 000T of high quality coking coal within the existing mine footprint that will be economically viable to recover once the international coking coal price stabilises.

In addition to the coal resource, and more importantly for the sustainability of the BRL Buller coalfields projects, is the accessible granite resource within the existing footprint. This granite is currently exposed and accessible and once mined would be available for road maintenance and construction at the Escarpment Mine and any other mines sites on the Denniston Plateau yet to be consented and developed. Alternatively, this granite could be sold to other interests in the Buller region as there is a general lack of locally sourced good quality weed-free granite.

This granite source is ideal for road construction and maintenance, primarily due to its mechanical qualities, non-acid forming properties and proximity to its end use. In addition, the Escarpment consent and AA conditions require all material brought to site to be weed-free. Obtaining weed-free road construction material in the Buller area is extremely difficult due to most riverbeds and quarries either being weed infected or adjacent to weed infected areas. The close location coupled with the suitability of material and the lack of weeds make this ideal for road construction and maintenance purposes, both from a physical and cost efficiency perspective.

5.3 This Resource Consent Application

BCL currently holds the following resource consents from the BDC and WCRC and approvals from DOC associated with the Cascade Mine.

Reference	Approval Type	Agency	Expiry Date
RC 97014/1	Land Use	WCRC	11-Nov-17
RC 97014/2	Water Permit	WCRC	
RC 97014/3	Discharge Permit	WCRC	
RC 13081/1	Land Use (Hagan CK)	WCRC	11-Nov-17
RC 13081/2	Water Permit (Take and use water from Mill Creek)	WCRC	
RC 13081/3	Discharge Permit (Discharge to Hagan and Mill CK)	WCRC	
RC 97075	Land Use	BDC	14-May-17
EAS 0043	Concession (Road)	DOC	14-May-17
MP 41 455	Mining Permit	NZPAM	14-May-17
MP 41 455	Access Arrangement	DOC	14-May-17

Table 2: Cascade Mine: summary of approvals

This application and AEE is for renewal of RC 97075 and covers the activities associated with a land-use application. The WCRC consents RC 97014/1-3 and RC 13081/1-3 expire on 11 November 2017. An application for renewal of these consents will be submitted to the WCRC at least 6 months prior to their expiry.

5.4 Other consenting requirements for the Cascade Mine

5.4.1 Minerals Permit

Cascade Mine operates under Minerals Permit MP41-455. This permit allows for coal and other minerals. This permit expires on 14 May 2017 and BCL has applied to NZPAM for renewal to enable continued access to the mineral resources within this area. There are no issues anticipated with approval of this permit extension.

5.4.2 Access Arrangement

DOC has granted an Access Arrangement (MP 41 455) (AA) providing access to the site for the purposes of mining. BRL applied and got agreement from DOC in August 2016 to vary the AA so that the term is tied to the Minerals Permit and will therefore be extended with the extension of the MP. Unfortunately despite a verbal and emailed agreement, DOC has not yet signed the variation. They have stated that they intend to approve it, but it hasn't been a priority. We anticipate that the AA will be signed and once approved can be provided to the BDC.

There are a suite of conditions attached to the AA to manage the effects of the activity on those matters that DOC has responsibility for managing. Through this consent application BCL is seeking to align the conditions of the RC with the AA as much as possible. A copy of the AA is provided in Attachment 4.

5.4.3 Wildlife Act Permit

During the development of the Gravel Pit block, DOC granted a Wildlife Act Permit (WC36887 FAU) to allow for the incidental disturbance and harm to absolutely protected species caused by mining activities. Given that the planned activities do not include any disturbance beyond the existing disturbed footprint, DOC has indicated that a Wildlife Act permit is not required for ongoing activities within the existing footprint.

5.5 Coalbrookdale and Escarpment Mines and Consents

Buller Coal Limited also owns the permits and approvals for the Escarpment and Coalbrookdale mines. Activities at the Coalbrookdale site are associated with the storage of soil and slash, storage of fuel, and loading of coal for trucking from the Denniston Plateau. All of these activities are covered by separate resource consents and are not the subject of this application.

6 Site Description and Effects

6.1 Ecology

6.1.1 General overview of ecology

A survey of the general area was undertaken in 2012 (Nichol 2012) as part of the RC and AA variation applications to extend the Cascade Mine into the Gravel Pit block. This survey describes the general ecology of the Cascade Valley and more specifically the ecological significance of the Gravel Pit block.

During the Escarpment Mine consenting and management plan development process, Buller Coal undertook extensive ecological studies of the Denniston Plateau and surrounding areas. These surveys were undertaken to describe the general ecosystem and determine the presence and abundance of rare or endangered species and the significance of the area. Some of the information obtained during these studies is also relevant for this consent application. Although the Cascade Mine is not located on the Denniston Plateau, it lies immediately adjacent and some species occupy both ecosystems to varying extents.

6.1.2 Overall Significance

The Nichol study and further analysis (Ryder 2012) determine that the Gravel Pit extension area triggered the significance criteria in the Buller District Plan, however this was based on disturbance of six hectares and the primary indicator of significance was the presence of great spotted kiwi rowi habitat. While the Cascade Mine sits within an area that may trigger some of the Buller District Plan significance criteria, there is no further disturbance of any new areas planned at the site, there are no ecological values within the existing footprint and consent application area that trigger any of the significance criteria in the Buller district Plan. Further to this, there are unlikely to be any effects on the significant ecological values in the wider Cascade Creek area from the activities at the site that are the subject of this consent application.

6.1.3 Vegetation

Nichol (2021) identified six forest types when undertaking the Gravel Pit extension surveys. The mixed beech-southern rata forest was the most common and immediately surrounds the Cascade Mine. The other forest type that may border the mine site is the mixed beech pole stand forest. This forest is associated with areas of historic disturbance (forestry or slips) and reflects the forest types that can be expected to eventually colonise the site following closure.

The surrounding vegetation is predominately mixed beech – southern rata forest. Silver beech dominates over red and/or hard beech in this association, while southern rata is an important component, especially on ridges or locally elevated sites. Rimu (*Dacrydium cupressinum*) is emergent above this canopy in places while kamahi

(*Weinmannia racemosa*) and quintinia (*Quintinia acutifolia*) dominate the subcanopy. Mountain neinei (*Dracophyllum traversii*), *Pseudopanax colensoi* and *Metrosideros parkinsonii* and pokaka (*Elaeocarpus hookerianus*) are common elements within the subcanopy also. Halls totara (*Podocarpus hallii*) is not uncommon and is an important forest component within this association below the haul road.

The shrub layer typically includes *Archeria traversii*, weeping mapou (*Neomyrtus pedunculata*), *Myrsine divaricata* and broadleaf (*Griselinia littoralis*). *Metrosideros parkinsonii* is abundant in places within the shrub tier. The ground tier includes *Astelia aff. nervosa*, kiokio (*Blechnum novae-zelandiae*), *Blechnum procerum*, filmy ferns and mosses.

6.1.4 Fauna

The Cascade Valley contains important habitat for diverse avifauna.[1] The Nichol survey (2012) identified 20 bird species in proximity of the upper areas of the Gravel Pit block. Identified species include rifleman, Western weka, South Island kaka, fernbid and pipit. At least one great spotted kiwi pair is known to reside in the forest vegetation between the Cascade Mine site and the CBD.

Kiwi surveys have been undertaken (Fraser and Coad) as part of the baseline kiwi surveys for development of the Escarpment Mine. A summary of this work is provided in the Escarpment Mine Kiwi Management Plan (Attachment 2). In summary kiwi are present throughout the Cascade Valley and a pair living immediately adjacent to the Hagan Creek area have been radio tagged and their territory mapped. Information from 3 years of monitoring shows that this pair are resident immediately adjacent to the mine. Based on these results to date, and provided there is no further expansion to the footprint, there is unlikely to be any measureable effect from the proposed operations on kiwi populations in the Cascade Valley.

General forest bird surveys were also undertaken as part of the Escarpment mine baseline studies, and are discussed in the Other Fauna Management Plan. This plan describes the general avifauna found in the locality. There is no evidence to suggest that the continued operation of the mine within the current footprint will have any further adverse effects on avifauna populations in the Cascade Valley.

Nichol (2012) found one forest gecko during the surveys associated with the gravel pit extension application. A follow up survey did not find any more individuals, although given the cryptic nature of these animals and the time of year this was not unexpected. Based on the extensive studies that Buller Coal has commissioned for the Escarpment mine on the Denniston Plateau[2], all three gecko species (Forest, West Coast Green and Nelson geckos) all use the broad range of habitats on the Denniston Plateau (sandstone pavement/prostrate vegetation, shrubland and forest) it is possible that all gecko species are present throughout the forest ecosystem in the Cascade Valley. As the rehabilitated areas recover, geckos are likely to return to the site. There is no evidence to

[1] Nichol R, 2012. Vegetation and Flora Assessment, Snail, Avifauna, Kiwi and Bat Survey. Cascade Mine.

[2] Tonkin and Taylor (2016) Escarpment Mine – Annual Salvage and Monitoring Report (2015).

suggest that continued operation of the mine within its current footprint is likely to have an adverse effect on the gecko populations in the Cascade Valley.

6.1.5 Waterways

The waterways including Cascade Stream are heavily impacted from historic underground mining discharges[3] upstream of the Cascade Mine site. As a consequence of the acid mine drainage there are very limited aquatic values within the main stream[4] within the proximity of the Cascade Mine.

6.1.6 Human impacts

During construction of the original underground mine in the 1920's timber from the surrounding area was harvested for use as pit props, mine workers huts and to construct the original timber flume that washed coal down the Cascade Creek to the Buller River where it was loaded on to coal trains and carted to Westport for export.

6.1.7 Weeds and Pests

There are few weeds present within the Cascade mine site, primarily because of the absence of an adjacent weed source and attention to ongoing weed control over the years. Gorse and some exotic grasses are present and these have most likely been transported to the site on vehicles. Gorse has spread into the Cascade Creek and is most likely present all the way down the catchment. The gorse seed may have also been washed down into the Cascade via waterways from the Denniston Plateau where there is also a long history of disturbance. BCL has an ongoing weed surveillance and control programme and provided that forest regenerates across the site, weeds pose little threat to the long term viability of the ecosystem.

Possums, goats and to a lesser extent deer are also present in the Cascade Valley. OSPRI undertakes regular aerial and ground control for possums as part of the TB vector control program.

Goats are present throughout the Buller region in general and are regularly seen in the Cascade Creek. They have posed a threat to the rehabilitation in the past and continue to do so, although recent changes in the rehabilitation strategy have meant that goats are now less of a threat to the ongoing rehabilitation program at the Cascade mine. Management of the impact of goats is discussed in more detail in the Rehabilitation and Closure Plan.

6.1.8 Denniston Biodiversity Enhancement Area

As a condition of the both the Escarpment Mine resource consents and AA, Buller Coal has established and is funding a biodiversity enhancement project over approximately

[3] Regular monitoring (22 samples) from the Cascade Creek above the mine site has a median pH 3.6 (22 samples, Std Dev. 0.13) and median acidity 49 with Std. Dev. 9.9. Recordings of dissolved metals are also elevated guideline and expected background levels.

[4] Nichol (Jan 2012) conducted surveys of the Cascade Stream and some of its tributaries.

4,500ha on the Denniston Plateau and its buffer areas. This area includes the true right of the Cascade Creek catchment and the area covered by the Cascade Mine. This enhancement project establishes resources for ongoing weed, pest and predator monitoring and control. This biodiversity enhancement work is being undertaken by DOC and includes weed, pest and predator monitoring and control.

6.2 Landscape

CM is situated on the true right bank of Cascade Creek and the surrounding area includes steep forested slopes dipping to the southeast from an elevation of 440m to 220m in the Cascade Creek. Natural slopes of up to 50° exist throughout the area surrounding the mine, and cut and constructed surfaces (highwalls and engineered landforms respectively) reflect the steep topography.

Although the site is within a natural setting, the Buller District Plan the Cascade Creek or the site is not an outstanding natural feature or landscape (See 11.1 Buller District Plan).

6.3 Geology

6.3.1 General Description

CM is located within a fault angle depression adjacent to Cascade Creek on the eastern margin of the Denniston Plateau. The basement rocks in the area are argillite and greywacke of Ordovician age Greenland Group and porphyritic granite of the Lower Cretaceous Karamea Batholith. The Pre-Tertiary basement rocks are deeply leached.

6.3.2 Faulting

The Mt William Fault is the main structural feature within the Cascade region forming as a splay off the Paparoa Tectonic Zone. It is a reverse fault, trending NNE-SSW, steeply inclined dipping southeast at 60-70 degrees. Available data indicates throw increases from north to south, from about 100 to 120m north of the Cypress Mine, to greater than 700m, opposite the Cascade Mine workshop. Throw continues to increase south towards the Buller River.

Figure 4 View of the Mt William fault looking south. Basement quartz porphyry on the left has been thrust overtop of coal.

Many normal faults dissect currently mined areas with throws ranging from 5 to 20m. Dips are typically in the range of 49 to 72 degrees with the majority falling between 60 to 65 degrees. Dip direction is highly variable ranging from south to east with many faults changing by 30 to 50 degrees along strike, generally striking sub-parallel to the Mt William Fault. Many faults with throws in excess of 15m can be identified on old underground mine plans. However most smaller faults have not been defined. Deformation along the fault trace of larger faults generally extends 15 to 20m beyond the mapped fault trace. For normal faulting within the Buller Coalfield, this extent of deformation is quite high and has probably been induced by over thrust loading from the Mt William Fault creating subsidence and extension within the foot wall.

The Boundary Fault is the most significant normal fault within the Cascade mining area, with a throw in excess of 100m, forming the western coal limit for the current Cascade open pit operation, observed fault trace dips are relatively constant ranging from 58 to 65 degrees, however dip direction is highly variable.

Figure 5**:** Stylised cross section through Cascade facing North East. Photo taken in 2012

6.3.3 Seismic Hazard Assessment

Cascade Mine is in an area characterised by moderate seismic hazard due to its close proximity to the Pacific and Australasian plate boundary. Many faults that are potential earthquake sources have been recognised in the vicinity of the mine. The faults are characterised by return periods of more than 10 000 years, making the likelihood of any one of these faults rupturing during the life of the high wall extremely low. Two faults that have particular significance to seismic hazard at the site are the Kongahu Fault, which is predicted to be capable of producing the most severe shaking at the site, and the Alpine Fault, which is recognised as being capable of producing the largest earthquakes in the region (Mw 8.0) and has a high likelihood of occurrence. The Kongahu Fault is located at the western margin of the Denniston Plateau and is thought to be capable of generating earthquakes of up to Mw 7.5. However, the interval between large surface-rupturing earthquakes is interpreted to be in the order of 10 000 years (NZ active faults database), and the probability of experiencing one of these events during the life of the mine is very low.

The Alpine Fault is thought to rupture every few hundred years, generating earthquakes of up to about Mw 8.0. Given that the distance between the site and the nearest point on the Alpine Fault is in the order of 60 km, the peak ground acceleration affecting the mine is relatively modest, though the duration of shaking is expected to be long (up to about 2 minutes).

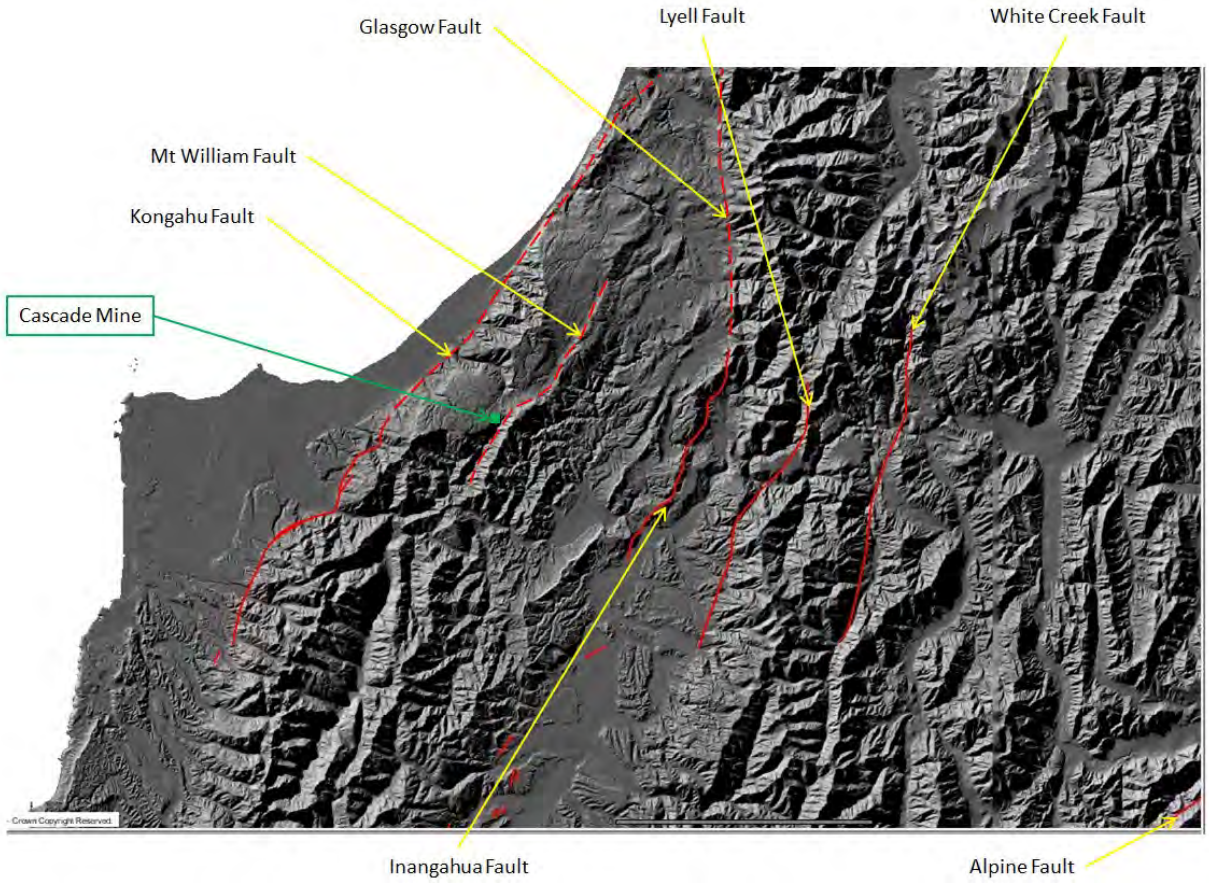


Figure 6 Active Regional Faults (sourced from NZ active faults database).

Given its locality in an area of recorded seismic activity, the mine infrastructure and site activities could be affected by strong ground shaking. Open pit high walls have been found to exhibit a high degree of stability when subjected to strong shaking in large magnitude earthquakes i.e. M_w > 7 (Refer Open Pit Design Guidelines 2009). Natural slopes which have failed during strong ground shaking are believed to have experienced localised topographically-induced amplification of peak ground motions, which do not generally occur to the same extent in high walls. However, the potential effects of earthquake induced ground motion are normally evaluated, relative to stability or deformation criteria, as part of slope design.

6.4 Human Uses and History

6.4.1 Mining

The site has a history of mining dating back to 1923. Approval of this application will enable the continuation of mining at a site that has almost 100 years of mining history. The access road to the Cascade Mine was constructed in 1941, prior to this access was via a walking track from Burnetts Face. Nothing remains of the original mining infrastructure. Originally the site was worked from underground with a small miner's camp established in the Mill Creek area, most likely near where the ROM is now situated. A summary of the history of the Cascade mine is attached (Attachment 4).

6.4.2 Current Public Use and Access

To maintain worker and public safety and ensure compliance with the Health and Safety at Work Act (2015) and the Health and Safety at Work (Mining Operations and Quarrying Operations) Regulations (2016) BCL sought that the Department of Conservation close the land to the general public. Consequently, there is no public access to the site beyond the CSA.

7 Description of the Activities

BCL intends to maintain the existing infrastructure and site and to mine the coal remaining under the existing zig-zag ramp (cut 8). There is approximately 60,000T of coal in this area. Accessing this coal will require overburden to be moved that will be used to establish a long-term landform suitable for final rehabilitation.

There is a significant granite resource within the existing footprint available for mining (125,000 tonne). The location of this granite is shown in Figure 3. This material will be mined for use as road and infrastructure development material.

7.1 Mine Planning

Detailed mine plans will be developed once all consents are issued. The designs will be dependent on the equipment used to undertake the mining and the rate at which the material is required.

The intention is to use the overburden that needs to be moved to access the coal to assist with formation of the final landform below the zig-zag ramp. Placing overburden in this area will also provide further stabilization of any surfaces in this area.

7.1.1 Granite Resource

Mining the granite from the proposed location will eliminate the over height benches within this area. This granite displays extremely good material characteristics and is very stable. Figures 7 and 8 show the location of the granite block to be mined and the before and after profile.

The granite is non-acid forming with a net acid producing potential in the order of 0 to 5kg H_2SO_4/Tonne.

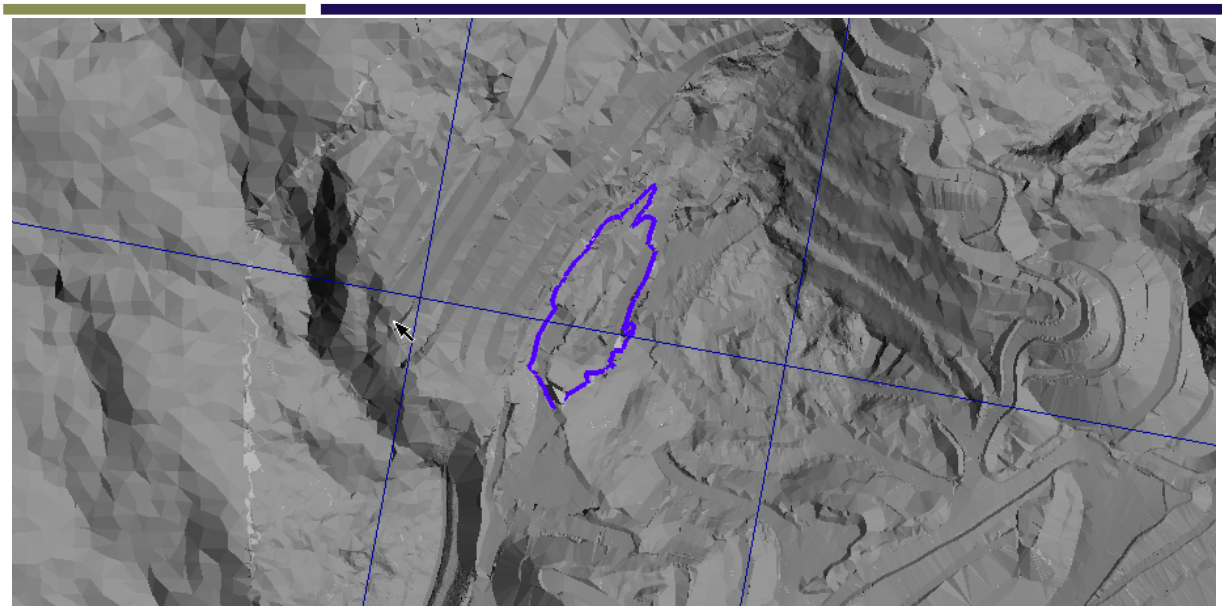


Figure 7: Location of granite resource to be mined

Figure 8: Cross section of Cascade highwall showing existing profile (blue) and once granite extraction is completed (black).

7.2 Closure Plan

Figure 9 shows the conceptual final life of mine (LOM) closure plan. The objective is to create a stable landform that is not inconsistent with the surrounding environment that will support recovery of a natural ecosystem.

The detailed designs will be determined once mining is completed. Final geotechnical assessment and overburden availability and movement will determine the detailed designs. The waterways shown on the plan are the most logical water flow paths that ensure that water is quickly moved from the site.

Geotechnical assessments of the existing and planned mine sequencing will dictate the final height and slope of some of the landform areas. Some of the material from the zig-zag ramp that will need to be moved to access the coal will be used to buttress some areas such as the north eastern corner of the site.

The plan shows two possible access routes to the site, the final location of the access road will be determined by the amount of overburden material moved and the final geotechnical assessments.

All roads will eventually be ripped and planted. This is the last piece of work on exiting the site as once ripped access to the site will only be available by foot. Therefore all rehabilitation, weed control and site works need to be completed to the satisfaction of the land-owner (DOC) before this will occur.

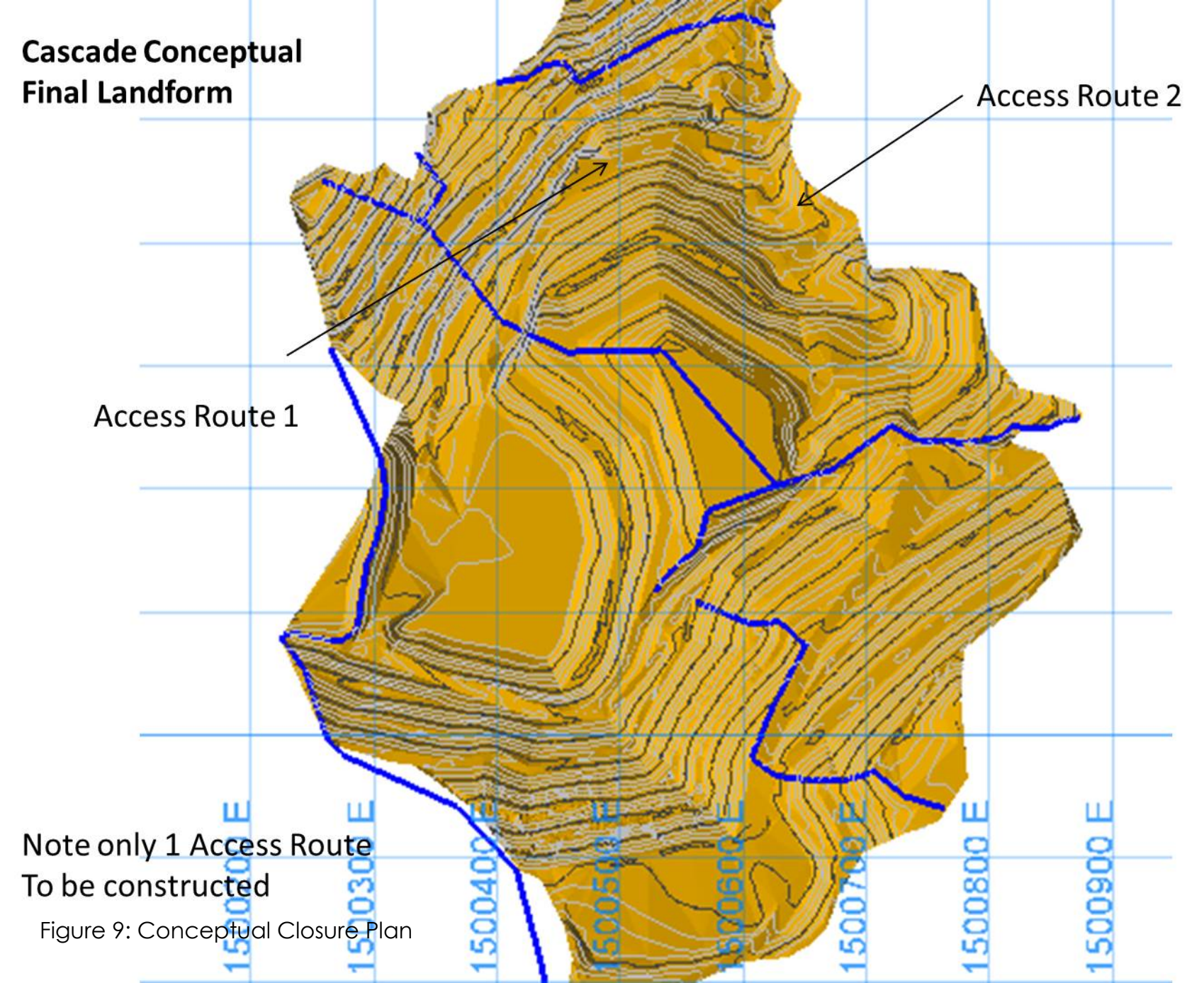


Figure 9: Conceptual Closure Plan

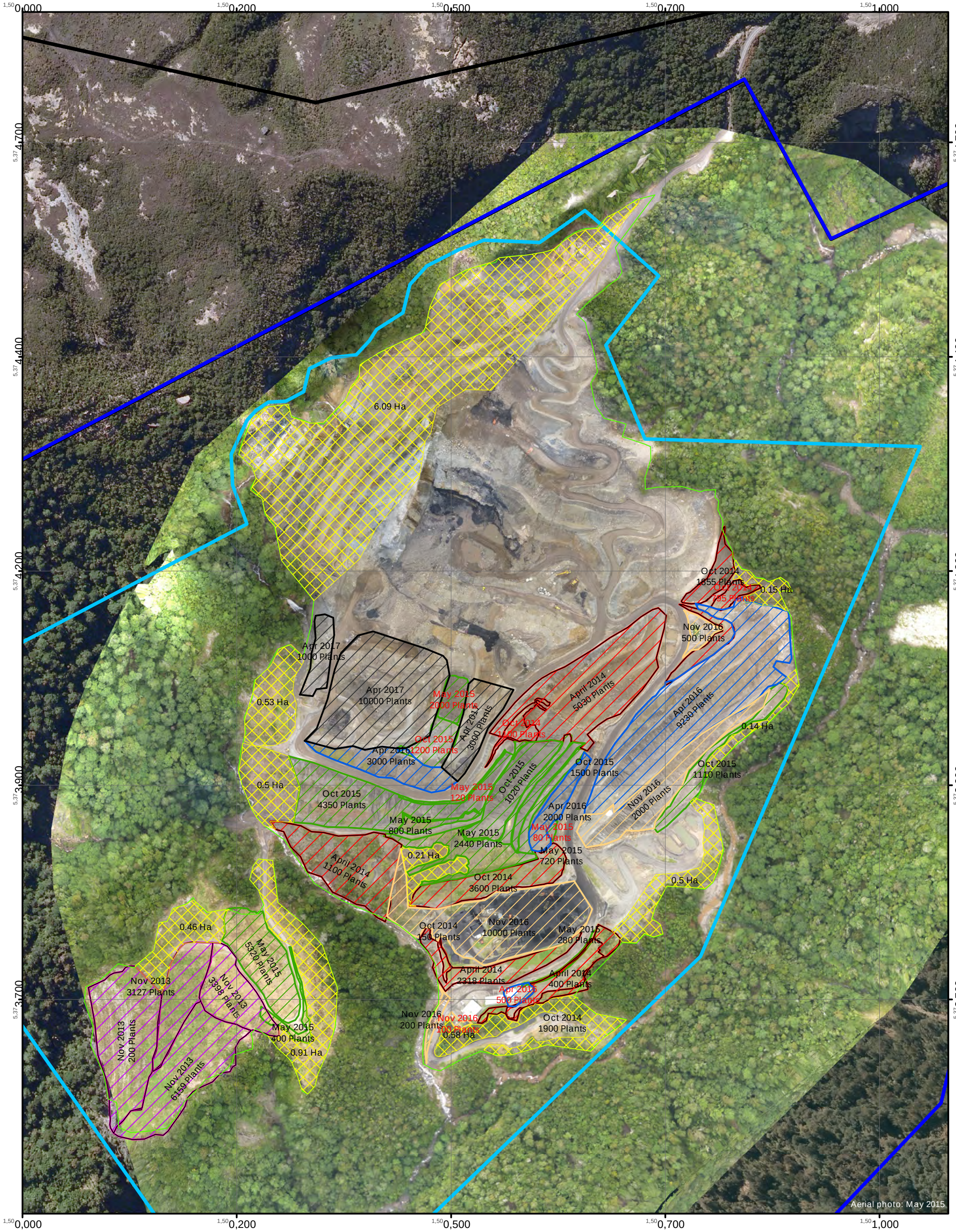
7.3 Rehabilitation

Approximately half of the site has had some rehabilitation work undertaken to date. Figure 10 shows the extent of rehabilitation that will be completed by the end of the 2016/17 Annual Work Plan period. These areas have been planted with locally sourced native plants containing a mix of herbaceous and woody species. Some of these areas may require some further in-fill planting depending on the plant survival rates.

Rehabilitation strategies and techniques are described in detail in the Rehabilitation and Mine Closure Plan that is attached to this application. This plan will be reviewed and updated as required. The rehabilitation objectives at the Cascade Mine as articulated in the Plan are;

1. Establish stable landforms that have physical and chemical characteristics that enable the development of self-sustaining indigenous ecosystems;
2. Establish self-sustaining ecosystems similar in plant and animal species diversity and function to indigenous ecosystems adjacent to the site that enable the constructed landforms to blend into the adjacent landscape;
3. Reinstate stable drainage patterns that create a natural hydrological regime that can accommodate anticipated peak flows;
4. The water quality leaving the site shall at least match the natural background levels of the catchment;

It is anticipated that the long-term outcome from implementing this RMCP will create a site that blends into the surrounding environment from both a physical and ecological perspective.



NZGD 2000 Transverse Mercator

File: 02_Cascade_Rehab.mxd

BATHURST RESOURCES LIMITED

Legend

- 2013 Planting and pre 2013
- 2014 Planting
- 2015 Planting
- 2016 Autumn Planting
- 2017 Planned planting
- 2017 Planned contouring and planting
- No planting
- Area of Disturbance, 44.1Ha

Cascade Mine Rehabilitation

Drawn By	C Robertson
Date	25 May 2016
Scale	1:4,000
Drawing Number	41455_023

N

Figure 10: Rehabilitation areas completed and planned for care and maintenance (Date and number of plants)

7.4 Infrastructure

There is currently a staff lunch room, workshop and three-bay pole shed on site. Drinking water comes from a rain-water system. While the site is in care and maintenance and no staff are permanently on site there is a single porta-loo for occasional visitors and when maintenance work is undertaken.

When operations recommence an ablution block may be re-installed to the satisfaction of the District Council, alternatively further portaloos may be available for staff. This will depend on the extent of work being undertaken and the number of people on site.

7.5 ROM (Coal processing site)

The existing ROM is planned for removal during the 2016-17 financial year and will not be replaced. Any coal mined will be taken ex-pit for processing at the Escarpment Mine site.

The granite will be crushed and screened in the mine pit and either taken to the CSA for on-trucking or directly to the end-use location.

7.6 Hazardous Substances

7.6.1 Fuel

There is no intention to store fuel on site. A fuel storage area has been in operation at the CSA and although this has been removed, if required it could be re-instated at this site. Alternatively fuel will be stored at the Escarpment Mine. Any fuel required for the Cascade operation would be transported to site via a fuel truck.

All machine refueling would be undertaken at least 10m from any waterway and a spill kit would be present at all times.

Any fuel temporarily stored at Cascade, such as in a mobile 1000l fuel trailer would be parked in a bunded facility.

There is an emergency response procedure that covers fuels spills at both the Escarpment and Cascade sites and all staff are trained in dealing with fuel spills as part of the induction process.

7.6.2 Other chemicals

BCL does not anticipate using large volumes of chemicals on site. There may be a requirement for some oils and degreasers for use in the vehicle workshop. There is a HSNO compliant bunded storage area in the workshop where all hazardous materials are stored.

7.6.3 Explosives

Any explosives used on the site will be stored at the CSA. Previously a HSNO compliant explosives magazine was located at this site. This has been removed now that the site is in care and maintenance but will be returned if required. This site is the most appropriate as it meets all safety requirements, is secure and away from all other operations.

8 Socio-Economic Considerations

8.1 Cultural Considerations

The Cascade Mine falls within the rohe of Te Rūnanga o Ngāti Waewae. While BCL is unaware of any sites of significant cultural interest within the footprint of this consent a copy of this application has been forwarded to Te Rūnanga o Ngāti Waewae for their information and feedback.

8.2 Financial Benefits

BCL has obligations to rehabilitate the existing site and has a plan in place to do so. By enabling further extraction of the granite and coal resources within the existing footprint creates further revenue and also enables movement of material to construct a more stable landform that is easier to rehabilitate and will fit better with the existing landscape.

Based on existing cost scenarios, granite mined from Cascade can be processed and delivered on-site at Escarpment for less than half the price of material sourced from anywhere else. This estimate doesn't take into account the environmental benefits of using material close to source with relatively few, if any weeds. In addition, the quality of the granite sourced from Cascade is significantly better than any other available material, leading to an efficient use of the natural resources.

8.3 Financial Contribution

BCL is not offering any financial contribution to the Council as part of this consent application. This is an application for renewal of consents for an existing operation. There will be no further development of new areas or creation of infrastructure that could require a financial contribution.

8.4 Employment Opportunities

The site will directly employ 6 to 10 staff. In the periods when the Cascade Mine is not operating they work at Escarpment. It is anticipated that the site will share management systems and technical staff with the Escarpment mine, including the Mine Manager and the site senior executive (SSE).

9 Adverse Effects and measure to avoid, remedy or mitigate

This application is for the renewal of an existing resource consent with the only modification being the addition of mining a different mineral within the existing consented footprint. This application is not seeking to extend the existing footprint nor change the nature of the activities. Conversely, rehabilitation and site remediation are continuing, thereby reducing the overall existing effects. The consent application is seeking approval for activities that will in time result in a final landform that will enable establishment of a self-supporting ecosystem.

The detail outlined in the attached rehabilitation and mine closure plan and in the Annual Work Plan demonstrate how BRL intends to avoid, remedy and mitigate the ongoing adverse effects associated with the site activities and expedite closure of as much of the site as possible.

9.1 Noise

The nearest dwelling is more than 3 kilometres in a direct line from the edge of the consent boundary and is approximately 200m altitude higher than the mine site. Therefore the likelihood of nearby dwellings being affected by noise from mining operations is minimal.

While the site generates noise from vehicles, machinery and the occasional blast, this noise will not travel beyond the confines of the Cascade Valley. The noise appears to be intermittent enough so that the nearby fauna is not adversely affected, although this has not been quantified.

A pair of great spotted kiwi have been monitored living immediately adjacent to the mine site for at least the last three years and when first caught were within 200m of active operations. These birds remain in the same location and are in good health. This species is known for being evasive and if disturbed will move from their existing location.

9.2 Dust

During dry periods vehicles operating at the site can create dust. This is managed through the use of a water cart. This is unlikely to be a significant issue given the small vehicle fleet anticipated for the site.

9.3 Water and Sediment Run-off

BCL has installed a water and sediment management system for the Cascade Mine that is effective in achieving its stated objectives. The details of this are included in the annual work plan and water management plan.

The objectives of the water management plan are;

- Construct and maintain sediment ponds so that they have adequate capacity to cope with rainfall events to meet compliance with resource consent conditions;
- Construct and maintain drains including clean water diversion drains to manage water on the site, including during heavy rain events
- Establish a water treatment system including use of water treatment products (coagulants and flocculants) to improve water quality leaving the site.
- Establish roles, responsibilities and actions to manage water at the site;
- Describe a post-closure water management system.

With the removal of the ROM and minimal activity on site, there is currently no requirement to use water treatment products to improve water quality. This may change if operations recommence, and on-site monitoring will determine this.

Water quality is not a matter that should be considered under this consent application and will be addressed through the WCRC consents that will be submitted in May 2017.

10 Affected Parties

As part of the previous consent variation application for the Gravel Pit block, BDC identified DOC as a potentially affected party. BCL has provided a copy of this AEE and application to both DOC and Te Rūnanga o Ngāti Waewae and is seeking approval from both parties.

As the Crown entity responsible for managing the land, DOC has a regulatory role approving any variation to the management plans and the AWP. A joint bond is currently held in the interests of all three regulatory authorities

11 Policy Analysis

In considering the application to renew the land-use consent, we have primarily had regard to the requirements of the Buller District Plan. We have assumed that the Buller District Plan has been developed to be consistent with the RMA and the heirarchy of plans and policy satements. We have therefore focused our policy analysis on the provisions of the Buller District Plan.

11.1 Buller District Plan

The BDC has notitifed a plan change to the Buller District Plan that includes a review to many of the objectives and policies that are relevant to this applicaton. At the time that this application was submitted the plan change was not operative. A planning report had been issued with recommended changes to the notified plan and hearings had been held. However a final decision on the Plan had not been

issued. Therefore until such time that the change is fully operative we have referred to the operative District Plan (28 January 2000) and made reference to the notified changes where relevant. In considering this application, priority should be given to the operative plan.

Section 4.5: Mineral Resources

4.5.4. Objectives

4.5.4.1. To enable people and communities to provide for their economic and social wellbeing through the efficient utilisation and development of mineral resources.

4.5.4.2. To safeguard the life supporting capacity of air, water, soil and ecosystems and avoid, remedy or mitigate adverse effects from the use and development of mineral resources.

The following table identifies the relevant policies and how these have been addressed in this consent application.

Operative BDC Plan Policy		AEE Reference
4.5.5.1.	*The adverse effects of activities related to the utilisation of mineral resources shall be avoided, remedied or mitigated.*	Section 6
4.5.5.2.	*The rehabilitation of mining sites shall be required where practicable.*	Section 7.3
4.5.5.3.	*Co-ordination and liaison with the West Coast Regional Council shall be maintained on matters relating to mining activities where water resources and soil conservation are affected.*	An application to renew the remaining consents will be lodged with the WCRC in May 2017. BCL is seeking that processing of this application be placed on hold until all aspects of the application can be considred together.
4.5.5.4.	*To enable the investigation of the District's known mineral potential and the utilisation of mineral resources of regional significance while safeguarding the life supporting capacity of air, water, soil and ecosystems and ensuring the adverse effects of activities related to the investigation and utilisation of mineral resources are avoided, remedied or mitigated.*	Not relevant to ths application
4.5.5.5.	*To require mineral resource related activities to incorporate measures to protect water quality and ecosystems, and provide for the rehabilitation of disturbed areas to generally their original condition or another suitable condition as approved by Council.*	Sections 7.2 and 7.3
4.5.5.6.	*When rehabilitation plantings are carried out pursuant to a resource consent, preference should be given to the use of indigenous species where appropriate, with a further preference for local genetic stock where indigenous species are to be used.*	Section 7.3
4.5.5.7.	*To ensure that in locations where there are known mineral resources of regional significance that the presence of minerals is a*	Not relevant to this application.

	relevant consideration in decision making by encouraging other land use or subdivision activities which would have the effect of rendering unusable known mineral resources of regional significance and which have the ability to locate elsewhere to do so.	

Table 3: Buller District Plan - policies

4.8 Ecosystems and Natural Habitats

4.8.6.1. To protect areas of significant indigenous vegetation and significant habitats of indigenous fauna and to recognise their importance to the character and quality of the natural and physical environment and to the wellbeing of the people and communities in Buller.

While the Cascade Mine lies within a natural ecosystem that could be considered to trigger some of the significance criteria listed in Policy 4.8.7.4. The whole area is public conservation land and has therefore an element of protection afforded by the nature of the status of the land. The site itself is an active mine site and this application is for the continued operation of this site within the existing disturbed footprint. There are no activities associated with this consent that will have an effect that is more than minor on any of the significant values that are outside of the mine site footprint.

4.9 Landscapes and Natural Features

Objective
4.9.3.1. To protect the distinctive character and unique values of outstanding landscapes and natural features.

Policy
4.9.4.1. *To discourage activities which would significantly alter the character of outstanding landscapes.*

The proposed activity is within the Rural Character Area (Section 5.3) area and is therefore not an outstanding natural landscape. The plan also notes that rules provide for the prospecting, exploration and mining of mineral resources within the Rural Character Area, subject to compliance with standards and District wide rules.

4.11 Hazardous Substances

Objective
4.11.5.1. To encourage and promote the safe and efficient handling and disposal of hazardous substances throughout the District.

A condition of the consent (3) requires that the operation comply with any requirements of the Hazardous Substances and New Organisms Act 1996. Section 7.6 of this AEE describes how this will be achieved.

Rule 5.3.2.4.4 determines that mining and incidental earthworks are determined to be restricted discretionary activities with the matters overwhich discretion is restricted are listed below with relevant reference to the sections in this AEE

Operative BDC Plan: Matters of Discretion for Rule 5.3.2.4.4	AEE Reference
5.3.2.4.3.1. Location of access points, tracks and mine roads.	Figure 3
5.3.2.4.3.2. Distance and gradient of mined land to boundaries.	Figure 3
5.3.2.4.3.3. Effects on waterbodies, wetlands and riparian margins.	Section 6
5.3.2.4.3.4. Total area of disturbance and effects of bulk and location of stockpiling and buildings.	Section 7
5.3.2.4.3.5. Hours of operation.	Section 4
5.3.2.4.3.6. Protection of areas of significant indigenous vegetation or significant habitats of indigenous fauna identified using the criteria in Policy 4.8.7.4 as a guideline.	Section 6
5.3.2.4.3.7. Effects on indigenous flora and fauna and the life supporting capacity and functioning of indigenous ecosystems.	Section 6
5.3.2.4.3.8. Effects on outstanding natural features and landscapes.	Section 6
5.3.2.4.3.9. Effects on cultural, archaeological and historic sites.	Sections 6 and 8
5.3.2.4.3.10. Site restoration, rehabilitation or revegetation.	Sections 7.2 and 7.3
5.3.2.4.3.11. Noise control, including vibrations.	Section 9
5.3.2.4.3.12. Use, storage and transportation of hazardous substances.	Section 7.6
5.3.2.4.3.13. Financial contributions relating to landscaping, land restoration and roading.	Section 8
5.3.2.4.3.14. Impacts on public access, including recreation.	Sectuib 6.4.2

Table 4: Buller District Plan – restricted discretionary matters for consideration

7.8 Noise Standards

These standards have been referred to and reflected in the proposed conditions of the consent. The variation from the original consent (RC 970075) is to establish consistency in the conditions with the standards in the District Plan.

11.2 Notified Amendments to the Buller District Plan

The following objectives and policies in the notified plan change are relevant to this application.

Hazardous Substances

These principle of the notified plan is to defer to the HSNO Act for management of hazardous substances to avoid duplicatoin of regulation.

Objective 1 – Hazardous Substances

Policy 1 – Avoiding Duplication

Policy 2 – Managing use of Hazardous Substances

The activities proposed in this application are consistent with the HSNO Act and provisions of the Operative and notified District Plan.

Mineral Resources

Objective

Mineral Extraction Activities

To enable mineral extraction activities that provide economic and social benefits to the community, in a manner that avoids, remedies or mitigates adverse effects on the environment.

Policies

Policy 1 - Known Mineral Resources

To acknowledge the importance of known mineral resources in the district by, where appropriate, discouraging the establishment of activities or developments that are likely to compromise access to these mineral resources deposits.

Policy 2 - Managing Adverse Effects

To manage mineral extraction activities in order to ensure that operations avoid, remedy or mitigate adverse effects on the ecological, landscape, heritage and amenity values, and network utilities and regionally significant infrastructure. of surrounding areas and on the amenity values of existing residential areas.

Policy 3 – Incompatible Land Uses

To manage conflicts between the effects of mineral extraction activities and other land uses, by ensuring that new development and sensitive activities that are incompatible with the effects of mineral extraction activities, are not established close to existing extractive activities industries.

Policy 4 - Rehabilitation

To ensure that during and after mineral exploration and extraction activities, sites are progressively rehabilitated to enable the establishment of a land use appropriate to the area, and to enable remediation of adverse effects of the activity.

There is no significant deviation from the existing plan and this application addresses all these matters.

The Natural Environment

Objectives

Objective 1– Protection of Significant Indigenous Vegetation and Habitats

To enable appropriate subdivision, use and development within areas of where significant indigenous vegetation and significant habitats of indigenous fauna are protected. where indigenous biodiversity is maintained.

Objective 2 – Protection Preservation of Natural Character of Waterbodies, Wetlands and their Margins

To enable appropriate subdivision, use and development of waterbodies, wetlands and their margins where adverse effects on significant natural character is preserved, and ecological, recreational, amenity, and cultural values are maintained. avoided or mitigated.

Objective 3 – Enabling Reasonable Use of Land

To recognise the economic, social and cultural well-being of people, and in particular the rural community, depends on, amongst other things, making effective and efficient reasonable use of land.

Objective 5 – Public Access

To maintain and enhance public access to and along waterbodies where it is practicable and achievable.

Objective 6 – Protection of Outstanding Natural Features and Landscapes

To enable appropriate subdivision, use and development where the characteristics and values adverse effects on areas of Outstanding Natural Features and Landscapes are protected. avoided or mitigated.

Policies

Significant Indigenous Vegetation and Habitats

Policy 1 – Protection Through the Resource Consent Process

Policy 3 – Protection of Significant Indigenous Vegetation, and Habitats and Wetlands

Policy 4 – Efficient Land Use and Development

Policy 5 - Minimal Impact Activities

To provide for activities which have less than minor effects on significant indigenous biodiversity values.

Policy 6 – Protection of Waterbodies, Wetlands and their Riparian Margins

Policy 8 – Public Access

Policy 11 – Protection of Outstanding Natural Features and Landscapes

The objectives and policies seek to protect and manage the natural resources of the District through sustainable use and preventing inappropriate uses. The policies encourage use of mineral resources where their effects on the natural ecosystems, land and water can be avoided remedied or mitigated. There is a clear direction that adverse effects on indigenous biodiversity, water quality, amenity values, natural character, values of significance to Ngai Tahu and indigenous biodiversity should be avoided, remedied or mitigated. The policies set out specific matters to consider when determining effects on natural character and amenity values.

Overall, it is considered that this applicatoin accords with the policy direction and objectives of the operative and proposed Buller District Plan.

12 The Resource Management Act

The Supreme Court in Environmental Defence Society Inc v New Zealand King Salmon Company Limited (2014) (NZKS) made findings that were confined to plan changes, however a number of its general findings in the NZKS decision apply equally to resource consent decisions. In particular in relation to this consent application:

… the NZCPS gives substance to pt 2's provisions in relation to the coastal environment. In principle, by giving effect to the NZCPS, a regional council is necessarily acting "in accordance with" pt 2 and there is no need to refer back.

Where a plan's provisions are settled, clear and direct in relation to the relevant matters, and have been prepared in a way that specifically gives effect to the relevant provisions of the higher order planning documents, there would appear to be less need (or no need) to consider Part 2 for resource consents. Irrespective of the requirement in s104 for consideration to be subject to Part 2, where plan provisions are settled and relevant, and have been tested in relation to the higher order planning documents (including Part 2), the focus should be on consideration of the particular plan provisions and the reconciliation or weighting of the direction provided by those provisions.

For the purposes of this application we have taken the same approach whereby, unless the District Plan is silent or contrary to the purpose and principles of the RMA, a discussion on how this application meets the provisions of the RMA can be considered to have been addressed in Section 11.

13 Consent Conditions Discussion

A land-use consent (RC970075) for the Cascade Mine was granted on 8 October 1997 for:

- the removal of overburden from pillars left by earlier underground mining
- exposure of seams which are excavated by hydraulic excavators and then hauled by truck to a separate storage facility
- replacement of mining overburden on mined areas
- restoration and revegetation of mined areas

A significant variation to this consent was granted on 9 August 2012 (RC970075a) to enable extension of the existing mine to include the Gravel Pit block. The conditions of consent were subsequently amended to reflect the nature of the variation.

BCL has proposed a revised set of conditions (Attachment 3) based on the conditions of consent granted in 2012. Only minor changes have been made to these conditions to try and establish better consistency with the DOC AA. The 2012 conditions are presented with amendments and in some cases, where necessary an explanation.

Notable changes to the conditions include;

- Inclusion of a Bond condition that provides for a joint bond between BDC, WCRC and DOC. – This condition is based on the Escarpment Mine resource consent conditions (RC 10193/1-16, RC10/70 A-H).
- Amendment of the management plan framework so that one plan is required that covers both rehabilitation and closure. This is consistent with the DOC AA and reduces duplication by having separate plans.

All other changes are relatively minor changes to reflect the nature of the activities and to establish better consistency with the DOC AA and other recently approved consent conditions.

14 Management Plans

A draft of the revised Rehabilitation and Mine Closure Plan has been attached to this application to support the information provided herewith. Upon grant of the resource consents sought in this application and the pending application to the WCRC, BCL will amend and resubmit the Rehabiltaiton and Closure Management Plan to reflect any changes to the consent conditions.

15 References

Buller Coal Ltd – Escarpment Mine Great Spotted Kiwi Management Plan (ESC-ENV-PLN-006-V2.0)

Buller Coal Ltd – Escarpment Mine Other Fauna Management Plan (ESC-ENV-PLN-010-V2.0)

Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd *[2014] NZSC* 41

Nichol, R (January 2012) Water Quality Sampling; Vegetation and Flora Assessment; Snail, Avifauna, Bat and Lizard Survey. Cascade East Development. Prepared for Cascade Coal Ltd.

Nichol, R. (March 2012) Vegetation and Flora Assessment, Snail, Avifauna, Kiwi and Bat Survey Cascade Mine, Denniston Plateau. Prepared for Resource and Environmental Management, Nelson Ltd.

Ryder (2012). Buller Coal Limited: Cascade Coal Mine – Ecological Description : Terrestrial Flora, Vegetation and Fauna. Report prepared for Buller Coal Limited. Ryder Consulting Limited April 2012.

Tonkin and Taylor Ltd (2016). Escarpment Mine – Annual Lizard Salvage and Monitoring Report (2015). Prepared for Bathurst Resources Ltd. Job Number 28355.006

Attachment 1: Cascade Mine Historical Account

(Source unknown)

Mill Creek Camp (Date unknown)

HISTORY AND WORKING DETAILS

The Westport-Cascade Company was formed in 1923. It was a co-operative with 13 shareholders. The mine was to exploit a 30' coal seam (Adams).

The initial idea was to use an aerial cableway but that was too expensive. So a flume to carry the coal 7½ miles to a siding of the railway beside the Buller river was planned instea (Adams).

A water-powered sawmill was set up at the site of the mine and the first 3 miles of the flume was completed only to have sections washed out in 1926 or 1927. A Mr. A. Hunter had the contract to repair the damaged sections and went on to build a further 3 miles. The last mile was built by Mr. H. Lowther, the company's overseer (N.Z.Coal').

The flume was small but could handle 8 tons an hour. Because of the gentle grade the flume often worked 24 hours a day.

The men stationed along the flume reported every half-hour by telephone and the man at the Buller end who lived in Westport talked nightly by phone to another operator whom he never met for 2 years ('N.Z.Coal').

Newspapers were sealed in a tin and floated along with the coal to each point. The time taken for the tin to cover the distance between each point was known, and, as one was released, the next point would be advised by telephone. In the days before radio, the loneliness of the job was accentuated if a tin was missed ('N.Z.Coal').

In 1927 seventeen men were employed and were producing 60 tons per day (AJHR 1928). The men lived in Westport at week-ends and 'bached' in Cascade during the week (Monday-Saturday). Four married couples lived there and there were seven or eight

baches for single men('N.Z.Coal').

The coal was a continuation of the Denniston seam which abutted the Mt. William fault (AJHR 1928). The coal was of very high quality and for a number of years was not available to the public but was all used by the Railways (Adams). In fact the present mine-owner has had at least one contract cancelled because the coal burnt too hot.

The first manager, a Mr. Whittlestone, used trucks and rails to work the coal to the flume but problems were encountered with 'rolls' and faults in the seam and Mr. T. Moynihan along with miners E. Humphries and J. Stewart introduced hydraulic methods of sluicing the coal to the flume. Mr. Stewart stressed how much safer, cleaner and economical was this method of production. The mine employed around 18 men at that time ('N.Z.Coal').

At this time the mine had labour problems - clashing with the Miners Union at Denniston. The problem was solved by giving the miners shares in the company (Adams).

In June 1929 the Murchison earthquake caused flooding and washed out sections of the flume. However, the problems were overcome and a new section west of Cascade Creek was opened. The maximum drive size was fixed at 12' x 8' high (AJHR).

By 1930 the company was finding the lack of power a hindrance to development. Coal was being sluiced downhill to the flume. The total output to 31 Dec.1931 was 60,646 tons (AJHR).

By 1936 the Chief Inspector of Mines noted that all solid work had been completed and that all future coal would be from pillar extraction (AJHR).

Around 1941 the present road was put into the mine ('N.Z. Coal').[3]

In 1953 a 12' seam was being worked by 8 men underground and seven more men were stationed along the fluming. In 1954 it was anticipated that only three more years of coal were left (AJHR).

1955 however, marked the end of the main flume. All work stopped and the mine was forced to close down by tremendous rains and flooding. Apart from the complete destruction of 12 chains of fluming, much damage was caused to buildings and plan and parts of the access road were washed away. At the time the manager was Mr.W. Brown and there were 17 party members, 7 of whom were employed full time on the flume. By February 195 there was no evidence of the main flume ever having existed. The creek bed had risen several feet and logs up to 20' long an 4' thro' were piled against the mine entrance to a height of at least 8'. ('N.Z.Coal' Feb.1959).

However, the mine was started up again using road transpor and was still working in 1968 when the Inangahua earthquake caused severe flooding. In 1970 the mine was being worked by a party under Mr.J.Stone who were bringing the coal out in trucks ('N.Z.Coal'). In 1971 the coal was being brought out i trucks but sections of the old flume were still visible (Adams)

In 1983 the mine is being worked by open cast methods by Mr.H.Clementson of Westport. The coal is being brought out by truck.

1. In 1927 a test run of 50 tons of coal was run down the flume, some of the pieces weighed 14lbs. The coal took 1½ hours to run the full length of the flume. Very little breaka

took place and pieces 11" wide reached the bins - the flume was 14" wide and steel-sheathed ('N.Z.Coal' Feb,1959).

2. There wers seven slips of various sizes and the flume was broken in 21 places, the breaks varying in length from 24' to 4 chains ('N.Z.Coal' Feb.1959).

3. But in 1942 major rains twice hit the operation. Early in the year slips destroyed 79 chains of fluming. Besides the timber used in the boxing, ten heavy transverse stringers up to 40' in length, 13 groins of heavy underchocks and about 150 legs as well as certain protection work were needed to repair the damage. A new flume track had to be cut in one section. Slips also blocked the mine entrance and much of the head race, dammed the creek bed and submerged 1¼ miles of fluming. Three months after these repairs were completed more rain caused further flooding and another 46 chains of fluming were swept away, causing the mine to be idle for a month. Of the 46 chains swept away, two were recovered and 44 had to be replaced.

For four years things went well until 1946 when, after further flooding, all hands were working on repairs. But this time the damage was only 'minor' and the mine swung into operation for a further nine years ('N.Z.Coal' Feb, 1959).

REFERENCES

Appendix to the Journals of the House of Representatives

'The Hill' - Cecilia Adams

'N.Z.Coal' - Vol.14,no.4, Autumn 1970

'N.Z.Coal' - Feb.1959.

9-11-86

Mr. George Hunter 74. Relton worked on the boxcode flume construction in 1926-27. with his brother Jack and about 23 others. A. Laurie Cooke carried Jack Hunter to the Denniston Hospital when he cut his leg with an axe. At one stage 40 head of cattle were driven down boxcode, let go in the bush eth, and killed for meat as required.

Attachment 2: Kiwi Distribution

Taken from Escarpment Mine Great Spotted Kiwi Management Plan (ESC-ENV-PLN-006-V2.0) pages 11-14

5.1 Distribution of Roroa

Roroa are widespread but patchily distributed in forested habitat of the Waimangaroa Valley (Kingett Mitchell & Landcare Research 1997) and nearby catchments (McLennan 2011).

Wildlife Surveys Limited conducted a roroa survey within the EM footprint in late June - early July 2008 (Buckingham 2008). This work involved a diurnal search for roroa sign (faeces, footprints, and probe holes), a nocturnal call survey, and a nocturnal playback survey. The results of this survey indicated the presence of approximately 4-5 females in the vicinity of the proposed mine, and definitely one pair within the mine footprint. Further surveys have been undertaken since then, as outlined below.

In May 2011, Environmental Services Ltd undertook a roroa tagging study on the Denniston Plateau over a 550 ha area in the general vicinity of, and within, the EM footprint. A Wildlife Permit was obtained to fit radio transmitters to captured roroa to determine the size and configuration of their territories around the mine site and to what extent, if any, the territories overlapped with the EM footprint. A team of three people and two trained kiwi dogs undertook six days and six nights of searching, but failed to catch any roroa. Roroa sign was scarce throughout the entire search area and no sign was observed within the EM footprint, even though the tracks had muddy surfaces which would have been ideal for recording footprints. A pair of roroa was heard from the western end of the EM footprint on one night, while a different male was heard calling on two occasions to the east of this pair, and in an area where two roroa were found in daytime shelters. However, they could not be caught due to the habitat in which they were living; deeply dissected in many places, riddled with holes and chasms, and in an area that was generally difficult to traverse safely, especially at night (McLennan 2011).

This 2011 survey confirmed the results from Buckingham's (2008) surveys; there was an estimate of two pairs of roroa with territories straddling the EM footprint. However, neither pair appeared to be confined entirely to the Escarpment Mine footprint, with their territories probably extending beyond the south-western boundary of the footprint into the forest to the south where most of the roroa were heard calling from. It is likely that the territories of these two pairs extend down the forested slopes to the Cascade Creek catchment (McLennan 2011). Studies elsewhere show that in infertile, sub-alpine habitats,

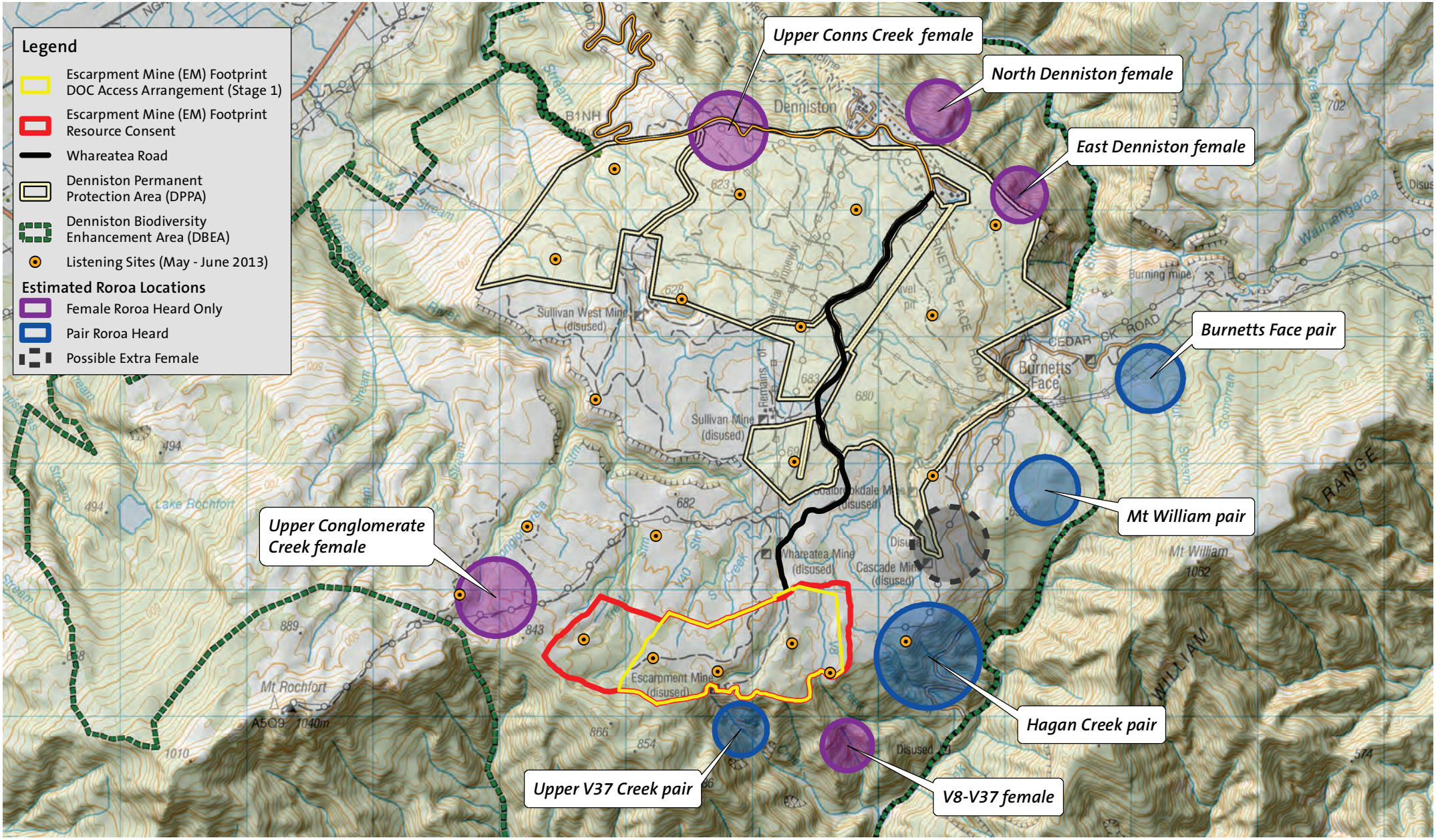
such as those on the Denniston Plateau, kiwi territories frequently span several hundred metres of altitude, and can exceed 100 ha in size (McLennan 2011).

Two surveys for roroa in and around the EM were carried out in 2013. Firstly, results of call counts and estimates of roroa locations based on where calls were estimated to be coming from during May – June suggested that there were four pairs of roroa whose core territories were situated about the EM footprint, and that individuals from these pairs may occasionally venture into the EM to forage (Powlesland et al. 2013, see the Baseline Report for further details; Fig 2.A.2). Secondly, during August-November, Coad & Fraser (2013) carried out searches for roroa using certified kiwi-indicating dogs and roroa sign. They determined that there may be as many as five pairs of roroa with territories about the EM site (i.e. Hagan Creek, Upper V8/V37 Ridge, Upper V37 Creek, Rochfort Creek and Trent Stream; Fig 2.A.3). Although they found roroa sign and heard a male calling from within the EM site, Coad & Fraser (2013) did not consider it likely that there was a pair of roroa that had a territory largely within the EM, rather that a few pairs foraged within the EM footprint occasionally. To determine the extent to which each pair uses the EM site would require the roroa to be radio-tagged and their nocturnal movements to be monitored each season. The surveys of Buckingham (2008) and McLennan (2011) suggested that the territories of two pairs of roroa overlapped the EM site along its south-western boundary. If the roroa detected during those surveys were still present in May-June 2013 then they were most likely the roroa detected in the Upper Conglomerate Creek and Upper V37 Creek territories (Figure 2.A.2).

Further searches using trained kiwi dogs, (Coad and Fraser), undertaken during 2014 did not reveal any new kiwi locations. These searches were undertaken to ensure that the areas to be disturbed during the 2014 annual work plan period did not or were unlikely contain a significant part of kiwi territory or disturb any birds that may have been nesting or supporting young birds (Pre-clearance checks). Transmitter changes were also carried out at this time.

Monitoring conducted as part of this GSKMP will continue to add to the current knowledge of roroa's distribution.

File Ref: C11112_mgmt_plan_maps_eco_heritage_A4L.indd



BATHURST RESOURCES LIMITED

0 1 km

1:40,000 @ A4

Data Sources:
Whareatea Road - digitized by BML.
Topo map - LINZ, Crown copyright reserved.
Roroa data - Ralph Powlesland, J.A.McLennan (digitised by BML)

ESCARPMENT MINE

Estimated Roroa Locations (Powlesland 2013)

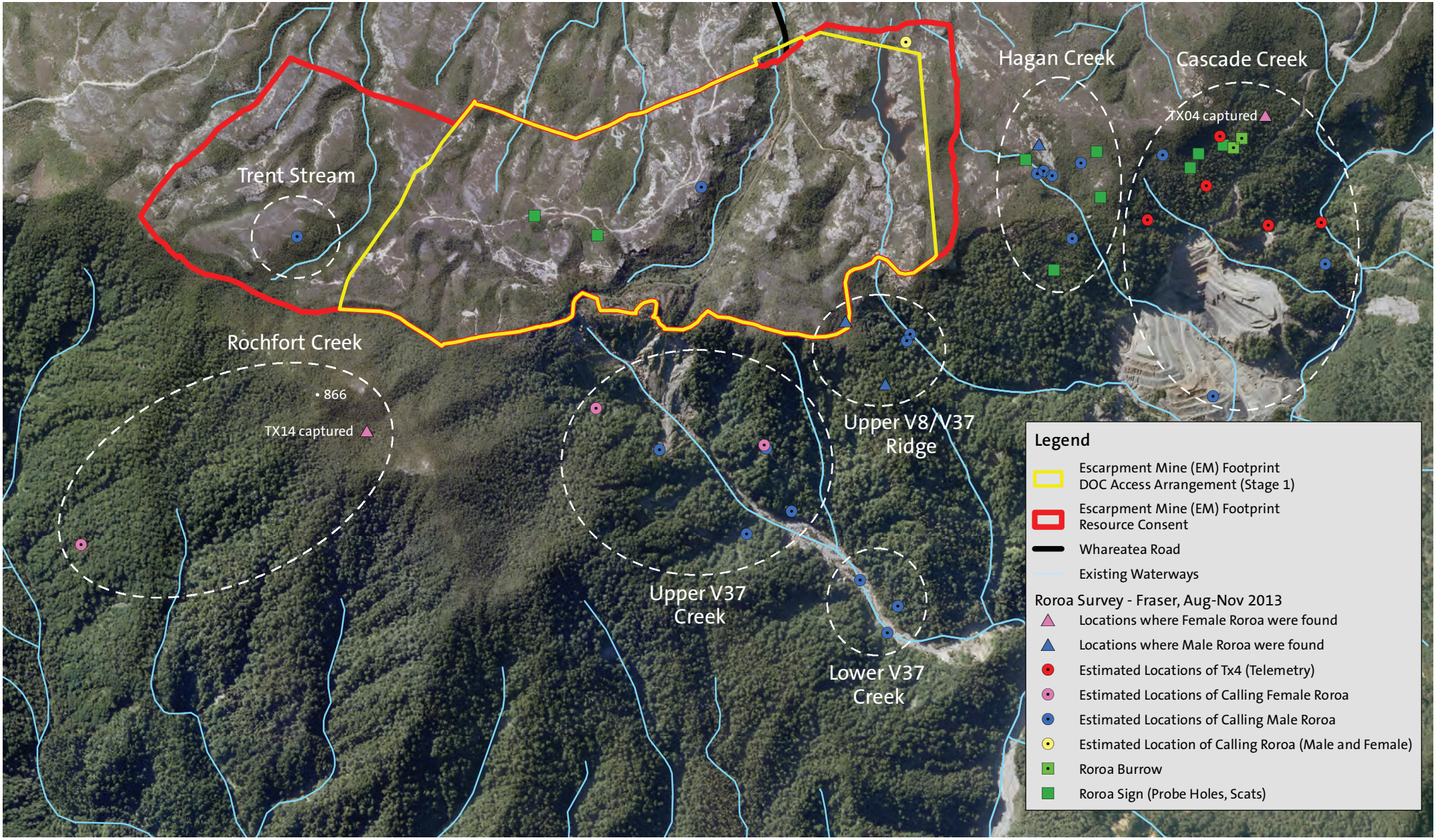
Date: 30 January 2015

Plan prepared for Bathurst Resources Limited by Boffa Miskell Limited

Author: **corey.murray@boffamiskell.co.nz** | *Checked:* TBI

Figure 2.A.2

File Ref: C11112_mgmt_plan_maps_eco_heritage_A4L.indd



BATHURST RESOURCES LIMITED

0 250 m
1:15,000 @ A4

Data Sources:
Aerial photo - NZ Aerial Mapping.
Whareatea Road - digitized by BML.
Roroa data - James Fraser.
Waterways - LINZ.

ESCARPMENT MINE

Location of Roroa (Coad & Fraser 2013)

Date: 30 January 2015

Plan prepared for Bathurst Resources Limited by Boffa Miskell Limited

Author: **corey.murray@boffamiskell.co.nz** | *Checked:* TBI

Figure 2.A.3

Attachment 3: Proposed Revised RC Conditions

GENERAL CONDITIONS

General

1. That the proposal proceeds in ~~strict~~ accordance with the submitted application and plans (dated 14 November 2016).~~and in accordance with The Variation Application, Assessment of Environmental Effects and supporting information (dated 26 April 2012), relating to an increase of the Cascade Mine footprint to include a further 6 hectares identified on the Approved Plan as the 'Gravel Pit Extension'~~

2. (a) That noise generated by the activity shall not exceed the following limits measured at the notional boundary of the nearest dwelling used for residential activity:

   55 dBA L1O Monday to Friday 7.30am to 5.00pm
   45 dBA L1O all other hours
   Lmax 70 dBA

   Noise levels shall be measured in accordance with NZS6801:1991 NZS6801:2008 Acoustics - Measurements of Environmental Sound and be assessed in accordance with NZS6802:1991 NZS6802:2008 Acoustics - Environmental Noise.

   ~~(b) That should the Council receive complaints in respect of noise, a Noise Management Plan shall be required to be prepared by the applicant.~~

3. That the operation shall comply in all respects with relevant industry standards, in particular any requirements of the Hazardous Substances and New Organisms Act 1996.

4. That the resource consent application applies to that area of land shown in the plan attached to this consent.~~is limited to the area covered under Mining Permit 41.455~~.

6. That sanitary facilities for workers shall be provided on the site subject to the approval of the ~~Buller District~~ Council.

7. That pursuant to Section 128(1)(a) and 128(1)(c) of the Resource Management Act 1991, the ~~Consent Authority~~ Council may at any time under the Resource Management Act 1991, review the conditions of the consent for any of the following purposes:

   (a) To deal with any adverse effect on the environment which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or

   (b) To deal with inaccuracies contained in the consent application that materially influenced the decision made on the application and is such that it is necessary to apply more appropriate conditions; or

Comment [CR1]: Consistency with other consent conditions

Comment [CR2]: Prefer that Council exercise its powers under condition 7 to determine the most appropriate mechanism to address any such issues.

Comment [APB3]: Terminology wanders around between BDC, Council and Consent Authority. I am going for Council

(c) To assess the appropriateness of imposed compliance standards, monitoring regimes and monitoring frequencies and to alter these accordingly.

8. That all actual and reasonable costs incurred by ~~this~~ the Council in monitoring, enforcement and administration of this consent shall be met by the Consent Holder.

Notification

9. The Consent Holder shall notify the Council in writing of the intention to cease mining activities under this consent ~~at least 3 months~~ prior to the cessation of mining activity.

Comment [CR4]: Generally it is not known 3 month in advance when mining activities will cease.

Bond

10. The Consent Holder shall provide and maintain in favour of the Council ~~a~~ either a cash or bank bond (or bonds) to secure compliance with the conditions of the consent.

11. The Consent Holder shall provide the bond(s) for the quantum set in accordance with Conditions 16 to 18:
    (a) In a form acceptable to the Council;
    (b) Within three months of the date of commencement of this ~~variation~~consent; and
    (c) For a minimum term of three years, such term to be renewed for a minimum of a further three years (or such other term as the parties may agree) on each annual anniversary of the date that the first bond is provided under this condition.

~~***Advice Note**: A bond is also required for the mining activity by the West Coast Regional Council under Resource Consent 97014, The Buller District Council will accept a joint bond that will meet the requirements of both RC97/14 and RC97/75*~~

12. Should the Consent Holder also be required to hold a bond in favour of the Department of Conservation and/or the West Coast Regional Council for substantially the same matters set out in condition 17, that bond (or part of that bond in the event any bond provided in favour of the Department of Conservation also addresses additional matters not set out in condition 17) may be a joint bond in favour of both the Council and the West Coast Regional Council and the Department of Conservation and the bond shall be structured to allow the Council to call on the bond for the quantum required to meet the Consent Holder's obligations under clause 17.

Comment [CR5]: Taken from Escarpment RC to enable a single bond to cover all agencies interests.

13. The Consent Holder shall cease extracting overburden and coal:
    (a) If after three months of the date of commencement of this ~~variation~~ consent it has not provided the bond(s) to the Council in accordance with Condition 11.

    (b) If it has not provided bond(s) to the ~~Consent Authority~~ Council for a new bond quantum determined in accordance with Conditions 16 to 18 within 30 days of the of parties receiving the latest bond review report prepared under Condition 18.

The Consent Holder may recommence extracting overburden and coal after it has provided the required bond(s) to the Council.

***Advice Note**: This condition does not prohibit the Consent Holder undertaking site maintenance and rehabilitation activities prior to providing the required bond(s).*

~~14. Unless the bond is a cash bond provided to the Council, the performance of the conditions of the bond shall be guaranteed by a guarantor acceptable to the Council. The guarantor shall bind itself to pay for the carrying out and completion of any condition in the event of any default of the Consent Holder.~~

~~15. If after the Consent Holder has provided the first bond(s) to the Council, the Consent Holder is unable at any time to arrange a guarantor for the quantum for a new bond as determined in accordance with Conditions 16 to 18, the Consent Holder shall provide a cash bond or bonds for the quantum within 30 days of the parties receiving the latest bond review report prepared under Condition 18.~~

16. The Consent Holder shall provide the bond or bonds for the quantum determined in accordance with Conditions 16 to 18 from the date that it provides the first bond under Condition 11 until 12 months after rehabilitation works are complete, or until such a time as the Consent Holder ~~and guarantor are~~ is released. Rehabilitation is not deemed complete until the relevant conditions of this consent are met.

17. The amount (quantum) of the bond may vary from time to time but at any given time shall be sufficient to cover the estimated cost at that time (including any contingency) of compliance with all the conditions of these consents, including (but not limited to):

    a) Demolition and/or removal of plant and buildings;
    b) Site clean-up, including removal and disposal of soil contaminated by mining activities;
    c) Stabilization and rehabilitation of earthworks and landforms and installation of appropriate drainage systems;
    d) Rehabilitation of watercourses disturbed by mining activities, including the installation of erosion protection works where necessary;
    e) Ensuring that potentially acid forming material is managed in a manner that minimizes the discharge of acid;
    f) Construction and erosion protection of drainage facilities;
    g) Maintenance/rehabilitation of roads;
    h) Weed control;
    i) Environmental and geotechnical monitoring;
    j) Staff costs; and
    k) Administration and operating costs.

18. Within two months of the date of commencement of this ~~variation~~ consent, the Consent Holder shall provide the Council with a report which recommends the amount of the first bond quantum in accordance with Condition 18. The initial bond quantum shall be set by

the ~~Consent Authority~~ Council within 30 days of the receipt of the report and thereafter within 30 days of receipt of each bond review report required under Condition 18. Notification of the quantum of the bond under this condition shall be in writing by the Council to the Consent Holder.

19. The initial bond quantum shall be set at the 80% level of confidence for the estimated costs determined by a suitably qualified specialist acceptable to the Council in accordance with Condition 16, based on the 2012-2013 Annual Work Plan and probabilistic calculations using the Monte Carlo simulation technique and the amount of the initial bond quantum is $xxxxx. Thereafter, the same specialist, or an alternate specialist acceptable to the ~~Consent Authority~~ Council, shall review and prepare a report for the parties on the bond quantum at yearly intervals or such other intervals as agreed in accordance with Condition 11(c) based on the same methodology, but using the Annual Work Plan for the coming twelve months. If the reviewed bond quantum is higher than the current bond quantum, then the bond quantum shall be adjusted accordingly within 30 days of the parties receiving the report, unless the Consent Holder invokes Condition 19.

20. Should the Consent Holder not agree with the bond quantum determined in accordance with Condition 18, then the matter shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996. Arbitration shall be commenced by written notice ("notice of arbitration") by the Consent Holder to the Council advising that the amount of the bond is disputed, such notice to be given within 14 days of the Consent Holder receiving the report referred to in Condition 18. If the parties cannot agree upon an arbitrator within seven (7) days of the notice of arbitration, then an arbitrator shall be appointed by the President of the Institution of Professional Engineers of New Zealand. Such arbitrator shall give an award in writing to the parties within 30 days after his or her appointment (the "date of arbitration decision"); unless the parties agree that the date of arbitration decision shall be extended. The Consent Holder shall bear the full and reasonable costs of the parties in connection with this arbitration. In all other respects, the provisions of the Arbitration Act 1996 shall apply. Pending the outcome of that arbitration, the current bond shall continue in force. The bond quantum shall be adjusted in accordance with the arbitration decision.

21. The provisions of Section 109 of the Resource Management Act 1991 shall apply to any bond, or bonds, required pursuant to the above.

22. The Consent Holder shall meet the costs of providing any bond, or bonds, including the costs of the bond and any substitute bond.

23. If the consent~~s are~~ is transferred in part or whole to another party or person, the bond shall continue until any outstanding work at the date of transfer is completed to ensure compliance with the conditions of these consents, unless the Council is satisfied adequate provisions have been made to transfer the liability to the new Consent Holder.

24. In the event of any such transfer of the consents, the Consent Holder shall ensure that the transferee forthwith provides a replacement bond to the Council on the terms required by the bond conditions.

Management and Work Plans

25. The Consent Holder shall ~~provide~~ prepare ~~to the Council for certification~~ a Rehabilitation and Mine Closure Management Plan ~~the following management plans~~ prepared by suitably qualified persons in accordance with Conditions 31 to 33 of this consent.

~~25.~~26. This plan is to be provided to the Council for certification within 3 months of commencement of this consent.:

~~a) Rehabilitation Management Plan, to be provided within 3 months of commencement of this variation~~.

~~b) Mine Closure Plan, to be provided within 1 year of commencement of this variation.~~

***Advice Note**: 'Certification' means the Council's Manager Environmental Services has confirmed that the Management Plans are in compliance with all conditions of consent.*

~~26.~~27. Subject to any other conditions of these consents, all activities shall be undertaken in accordance with the latest version of any ~~the~~ Management Plan.

~~27.~~28. The Consent Holder may at any time after receiving certification, request amendments to a ~~the~~ Management Plan~~s~~ by submitting the amendments in writing to the Council for certification that the amended Management Plan~~s~~ continue~~s~~ to meet all the necessary requirements of this consent.

~~28.~~29. The Consent Holder shall provide an Annual Work Plan one-month prior to each anniversary of the date of commencement of this variation. The Annual Work Plan shall include:

(a) The proposed works to be carried out over the subsequent year including:
   i. Equipment to be used;
   ii. Areas of topsoil and overburden stripping and stockpile locations;
   iii. New areas of land disturbance during the forthcoming year;
   iv. Access tracks;
   v. Drill/prospecting sites and associated tracking;
   vi. Any other site works within the consent area.

b) The approximate disturbed area associated with the mining operation at the start of the year including depth of excavations.

c) The rehabilitation works to be carried out over the subsequent year including:
   i. Areas of un-restored land (i.e. all land not contoured and top-soiled) at the beginning of the new year;
   ii. The area that will be fully rehabilitated during the forthcoming year;

Comment [CR6]: This is to be consistent with the DOC AA i.e. one plan that covers rehab and closure.

iii. Maximum slope angles, bench heights and widths of re-contoured ground, if applicable;
iv. Rehabilitation methods and techniques including replacement of topsoil and vegetation cover.

(d) Detailed plan or aerial photograph showing:
i. The working area at the start of the work programme year;
ii. Proposed mine path for the year including access tracking;
iii. Rehabilitated ground;
iv. Location of existing and intended topsoil and overburden stockpiles;
v. Location of natural watercourses
vi. Any other site works within the consent area.

~~29.~~30. The Consent Holder shall provide the Council with any further information which the Council may reasonably request after reviewing any Annual Work Plan. This information shall be provided in a timely manner as required by the Council.

~~30.~~31. The Consent Holder shall undertake all work in accordance with the Annual Work Plan.

~~31.~~32. The Consent Holder may, at any time, amend and resubmit an Annual Work Plan to the Council provided it complies with all other conditions of this consent.

Rehabilitation and Mine Closure Management Plan

~~32.~~33. A Rehabilitation and Mine Closure Management Plan shall be prepared for Cascade Mine, in consultation with the Department of Conservation, to achieve outcomes in accordance with the following objectives:
a) In the short-term to create stable landforms by establishing an indigenous vegetation cover and erosion-resistant surfaces that have physical and chemical characteristics that favour growth of sustainable plant communities and manage runoff and sediment generation;
b) In the medium to long-term to establish ecosystems similar in plant and animal species diversity and function to undisturbed indigenous ecosystems adjacent to the site that enable the constructed landforms to blend into the adjacent landscape and prevent erosion and sediment generation;
c) Create stable streams to accommodate anticipated peak flows; and
d) Develop self-sustaining ecosystems.

~~33.~~34. The Rehabilitation and Mine Closure Management Management Plan shall detail strategies to achieve the objectives set out in condition 31 above and shall as a minimum address the following:
a) Re-contouring of disturbed areas and final landform design;
~~a)~~b) Stability of all landforms during, and on completion of mining;

c) Revegetation methods and techniques including species, timeframes and maintenance regimes;

~~b)~~d) Ground coverage criteria that will demonstrate when rehabilitation outcomes as set out in Condition 33 have been meet

d) Weed and pest control measures to aid vegetation establishment and growth both during and post mining operations;

e) Restoration of watercourses and drainage channels;

f) Protection of water and soils from the effects of erosion;

~~g) Stability of highwalls;~~

~~h)~~g) ~~Rehabilitation constraints: and~~

h) Methods for r~~R~~ehabilitation monitoring and reporting.

i) Details on decommissioning or retention of the access road

~~i)~~j) Removal of buildings, equipment and structures.

Comment [CR7]: Included in b

Comment [CR8]: Monitoring reporting will be done separately to the management plant.

~~**Mine Closure Plan**~~

Comment [CR9]: Incorporated into 32 above

~~34. The Consent Holder shall prepare a Mine Closure Plan that details the required strategies and procedures for all facilities and operational areas of the mine site to achieve the rehabilitation objectives detailed in Condition 31 of this consent. The Plan shall be prepared by a suitably qualified person, in consultation with the Department of Conservation, and shall as a minimum address the following:~~

~~35. Stability of all post mining landforms;~~

~~a) Ground coverage criteria that will demonstrate when rehabilitation outcomes as set out in Condition 31 have been meet;~~

~~b) Restoration of watercourses and drainage channels;~~

~~c) Protection of water and soils from the effects of erosion:~~

~~d) The achievement of water quality standards in the long term to protect aquatic values, for water leaving all previously disturbed sites/areas, and any post mining monitoring requirements;~~

~~e) Removal of buildings, equipment and structures:~~

~~f)~~a) ~~Post mining weed and pest control requirements:~~

~~g)~~b) ~~Details on decommissioning or retention of the access road.~~

Rehabilitation

~~36.~~35. The Consent Holder shall maintain a programme of progressive rehabilitation and mine closure in accordance with the Rehabilitation and Mine Closure Management Plans required under Condition 24 of this consent. The programme of mine closure shall be maintained until completion of mine closure is achieved in accordance with Condition 33 of this consent and to the satisfaction of the Council.

~~Direct transfer of topsoil and vegetation shall be the preferred method of vegetation rehabilitation and the Consent Holder shall ensure that where practicable direct transfer is favoured over other methods~~.

~~37.~~36. The Consent Holder shall ensure that where vegetation and soil is stripped and not used for direct transfer, vegetation and soil is stockpiled separately from overburden and used for rehabilitation purposes.

Weed Control

37. The ~~Permit holder~~ Consent Holder shall actively control weed species within all disturbed areas of the land including a buffer around all disturbed areas of the land where those weeds pose a threat to the surrounding ecosystem or to the rehabilitation of the site.
38. ~~The Consent Holder shall undertake quarterly visual inspections of Cascade Mine site and accessible forest edges surrounding the site to identify any invasion of weeds. Should any weed species be identified during the visual inspections, the Consent Holder shall take steps to eradicate new colonies and/or prevent the spread of these weeds~~.

39. The Consent Holder shall minimise the risk of accidental introduction of weed species to Cascade Mine. This includes (but is not limited to):
    a) Cleaning all earth moving machinery and other equipment prior to transportation to the mine site.
    b) Any gravel, sand or other material used in road construction shall be sourced from a weed free location.

Geotechnical

40. The Consent Holder shall undertake activities in accordance with the design parameters and recommendations set out in the most recent ~~independent~~ geotechnical assessment provided as part of the application for this consent??.~~titled 'Cascade Coal Ltd Denniston Gravel Pit North Block – Northern High Wall Geotechnical Investigation and Design', prepared by Golder Associates.~~

Hazardous Substances

41. Refueling, lubrication and mechanical repairs of equipment and storage of hazardous substances and dangerous goods shall be undertaken in such a manner so as to ensure that spillages of hazardous substances or dangerous goods onto the land surface or into a waterbody do not occur. Any accidental discharge of greater than 20 litres shall be reported immediately to the ~~Consent Authority~~ Council along with details of the steps taken to remedy and/or mitigate the adverse effects of the discharge.

42. No machine or vehicle shall be refueled or repaired within 1Om of a waterway.

43. All contractors and/or operators transporting or storing more than 20 litres of fuel shall carry spill kits to enable immediate action to remedy and/or mitigate the effects of hazardous substances discharges on-site.

44. A list of all hazardous substances and dangerous goods shall be maintained on site at all times showing location of storage and use, in case of an emergency.

Term

45. This consent shall be for a ~~the~~ term consistent with ~~of~~ Mining Permit 41-455 (and any replacement permit granted) and shall expire on the date the mining permit expires or is surrendered.

Attachment 4: DOC Access Arrangement Conditions