APPLICATION AS NOTIFIED

Skyline Enterprises Limited

(RM240658)

FORM 12

File Number RM240658

UEENSTOWN LA ES DISTRICT COUNCIL

PUBLIC NOTIFICATION

Notification of an application for a Resource Consent under Section 95A of the Resource Management Act 1991.

The ueenstown Lakes District Council has received an application for a resource consent from:

Skyline Enterprises Limited

What is proposed:

Land use consent to remove debris material (earthworks), undertake extraction of debris by helicopter (informal airport) and breach noise limits.

The location in respect of which this application relates is situated at:

Reavers Creek Catchment, Bob's Peak, Ben Lomond Recreation Reserve, Queenstown

The application includes an assessment of environmental effects. This file can also be viewed at our public computers at these Council offices:

- **4 Shotover Street, ueenstown**
- **orge Road, ueenstown**
- **and 4 Ardmore Street, Wanaka during normal office hours (8.30am to 5.00pm).**

Alternatively, you can view them on our website when the submission period commences:

https://www.qldc.govt.nz/services/resource-consents/notified-resource-consents#public-rc or via our edocs website using RM240658 as the reference https://edocs.qldc.govt.nz/Account/Login

The Council planner processing this application on behalf of the Council is Rebecca Holden, who may be contacted by phone at 021 170 1496 or email at rebecca.holden@qldc.govt.nz

Any person may make a submission on the application, but a person who is a trade competitor of the applicant may do so only if that person is directly affected by an effect of the activity to which the application relates that –

a) adversely affects the environment; and
b) does not relate to trade competition or the effects of trade competition.

If you wish to make a submission on this application, you may do so by sending a written submission to the consent authority no later than:

Thursday 6th March 2025

The submission must be dated, signed by you and must include the following information:

a) Your name and postal address and phone number/fax number.
b) Details of the application in respect of which you are making the submission including location.
c) Whether you support or oppose the application.
d) Your submission, with reasons.
e) The decision you wish the consent authority to make.
f) Whether you wish to be heard in support of your submission.

You may make a submission by sending a written or electronic submission to Council (details below). The submission should be in the format of Form 13. Copies of this form are available Council website:

https://www.qldc.govt.nz/services/resource-consents/application-forms-and-fees#other_forms

You must serve a copy of your submission to the applicant Skyline Enterprises Limited (sean@southernplanning.co.nz) as soon as reasonably practicable after serving your submission to Council:

C/- Sean Dent
sean@southernplanning.co.nz
Southern Planning Group
PO Box 1081, Queenstown

UEENSTOWN LA ES DISTRICT COUNCIL

_____

(signed by Ian Bayliss, Senior Planner pursuant to a delegation given under Section 34A of the Resource Management Act 1991)

Date of Notification: Thursday 6th February 2025

Address for Service for Consent Authority:

ueenstown Lakes District Council
Private Bag 500 2, ueenstown 9348
orge Road, ueenstown 9300

Phone 03 441 0499
Email rcsubmission ldc.govt.n
Website www. ldc.govt.n

TechnologyOne ECM Document Summary
Printed On 03-Feb-2025

Class	Description	Doc Set Id / Note Id	Version	Date
PUB_ACC	Form 9	8263575	1	22-Aug-2024
PUB_ACC	AEE	8263581	1	22-Aug-2024
PUB_ACC	Appendix [A] - Site Location Plan	8263580	1	22-Aug-2024
PUB_ACC	Appendix [B] - Records of Title & Encumbrance	8263579	1	22-Aug-2024
PUB_ACC	Appendix [C] - GeoSolve Reports	8466448	1	03-Feb-2025
PUB_ACC	Appendix [E] - Landscape Assessment	8463189	1	30-Jan-2025
PUB_ACC	Appendix [F] - Ecological Assessment	8263576	1	22-Aug-2024
PUB_ACC	Reavers Slip Repair - Environmental Management Plan	8372828	1	13-Nov-2024
PUB_ACC	Aukaha APA	8399958	1	04-Dec-2024
PUB_ACC	Bungy APA Skyline	8400016	1	04-Dec-2024
PUB_ACC	RM240658 G Force APA	8400014	1	04-Dec-2024
PUB_ACC	TAMI APA	8399961	1	04-Dec-2024
PUB_ACC	ZJV - RM24058 Signed APA	8400015	1	04-Dec-2024

APPLICATION FOR RESOURCE CONSENT OR
FAST TRACK RESOURCE CONSENT

FORM 9: GENERAL APPLICATION

QUEENSTOWN LAKES DISTRICT COUNCIL

Under Section 87AAC, 88 & 145 of the Resource Management Act 1991 (Form 9)

PLEASE COMPLETE ALL MANDATORY FIELDS* OF THIS FORM.

This form provides contact information and details of your application. If your form does not provide the required information it will be returned to you to complete. Until we receive a completed form and payment of the initial fee, your application may not be accepted for processing.

APPLICANT //

- Must be a person or legal entity (limited liability company or trust).
- Full names of all trustees required.
- The applicant name(s) will be the consent holder(s) responsible for the consent and any associated costs.

*Applicant's Full Name / Company / Trust: Skyline Enterprises Limited
(Name Decision is to be issued in)

All trustee names (if applicable):

*Contact name for company or trust: Paul Embleton-Muir

*Postal Address: PO Box 17, Queenstown Attention Paul Embleton-Muir

*Post code: 9348

*Contact details supplied must be for the applicant and not for an agent acting on their behalf and must include a valid postal address

*Email Address: paul.embletonmuir@skyline.co.nz

*Phone Numbers: Day

Mobile: 021630403

*The Applicant is:

- ☐ Owner
- ☐ Prospective Purchaser (of the site to which the application relates)
- ☐ Occupier
- ☐ Lessee
- Other - Please Specify: Remediation Lead

☑ Our preferred methods of corresponding with you are by email and phone.
The decision will be sent to the Correspondence Details by email unless requested otherwise.

CORRESPONDENCE DETAILS // If you are acting on behalf of the applicant e.g. agent, consultant or architect please fill in your details in this section.

*Name & Company: Sean Dent - Southern Planning Group

*Phone Numbers: Day

Mobile: 021 946 955

*Email Address: sean@southernplanning.co.nz

*Postal Address: PO Box 1081, Queenstown

*Postcode: 9348

INVOICING DETAILS //

Invoices will be made out to the applicant but can be sent to another party if paying on the applicant's behalf.
For more information regarding payment please refer to the Fees Information section of this form.

*Please select a preference for who should receive any invoices and how they would like to receive them.

- Applicant: ☑
- Agent: ☐
- Other - Please specify:
- Email: ☐
- Post: ☐

*Attention: Paul Embleton-Muir

*Postal Address: PO BOX 17, Queenstown

*Post code: 9348

*Please provide an email AND full postal address.

*Email: paul.embletonmuir@skyline.co.nz

OWNER DETAILS // Please supply owner details for the subject site/property if not already indicated above

Owner Name: Queenstown Lakes District Council

Owner Address: Private Bag 50072 Queenstown 9348

Owner Email: dave.winterburn@qldc.govt.nz

If the property has recently changed ownership please indicate on what date (approximately) AND the names of the previous owners:

Date:

Names:

DEVELOPMENT CONTRIBUTIONS INVOICING DETAILS //

If it is assessed that your consent requires development contributions any invoices and correspondence relating to these will be sent via email. Invoices will be sent to the email address provided above unless an alternative address is provided below. Invoices will be made out to the applicant/owner but can be sent to another party if paying on the applicant's behalf.

*Please select a preference for who should receive any invoices.

Details are the same as for invoicing ☑

Applicant: ☐ Landowner: ☐ Other, please specify:

*Attention:

*Email:

Click here for further information and our estimate request form

DETAILS OF SITE // Legal description field must list legal descriptions for all sites pertaining to the application. Any fields stating 'refer AEE' will result in return of the form to be fully completed.

*Address / Location to which this application relates:

Ben Lomond Recreation Reserve

*Legal Description: Can be found on the Computer Freehold Register or Rates Notice – e.g Lot x DPxxx (or valuation number)

Section 2 Survey Office Plan 519538 and Section 106 Blk XX Shotover SD.

District Plan Zone(s): Open Space and Recreation - Informal Recreation, Ben Lomond Sub-Zone

SITE VISIT REQUIREMENTS // Should a Council officer need to undertake a site visit please answer the questions below

Is there a gate or security system restricting access by council?	YES ☑	NO ☐
Is there a dog on the property?	YES ☐	NO ☑
Are there any other hazards or entry restrictions that council staff need to be aware of? If 'yes' please provide information below	YES ☑	NO ☐

There are significant hazards as the site is an active construction zone. Permission must be obtained for any site visits to ensure adherence to health and safety requirements. Please contact the agent at SPG to arrange for any necessary site visit.

PRE-APPLICATION MEETING OR URBAN DESIGN PANEL

Have you had a pre-application meeting with QLDC or attended the urban design panel regarding this proposal?

☑ Yes ☐ No ☐ Copy of minutes attached

If 'yes', provide the reference number and/or name of staff member involved: Kim Seaton and Rebecca Holden

CONSENT(S) APPLIED FOR // * Identify all consents sought // ALSO FILL IN OTHER CONSENTS SECTION BELOW

☑ Land use consent

☐ Subdivision consent

☐ Change/cancellation of consent or consent notice conditions

☐ Certificate of compliance

☐ Extension of lapse period of consent (time extension) s125

☐ Existing use certificate

☐ Land use consent includes Earthworks

QUALIFIED FAST-TRACK APPLICATION UNDER SECTION 87AAC

☐ Controlled Activity

☐ Deemed Permitted Boundary Activity

If your consent qualifies as a fast-track application under section 87AAC, tick here to opt out of the fast track process ☐

BRIEF DESCRIPTION OF THE PROPOSAL //

*Please complete this section, any form stating 'refer AEE' will be returned to be completed with a description of the proposal

*Consent is sought to:

Undertake earthworks on the slopes of Bob's Peak and the bed of Reavers Creek to remove debris deposited during the September 2023 rain event. The debris will be helicoptered out of the affected area.

APPLICATION NOTIFICATION

Are you requesting public notification for the application?

☑ Yes ☐ No

Please note there is an additional fee payable for notification. Please refer to Fees schedule

OTHER CONSENTS

Is consent required under a National Environmental Standard (NES)?

- NES for Assessing and Managing Contaminants in Soil to Protect Human Health 2012

An applicant is required to address the NES in regard to past use of the land which could contaminate soil to a level that poses a risk to human health. Information regarding the NES is available on the website https://environment.govt.nz/publications/national-environmental-standard-for-assessing-and-managing-contaminants-in-soil-to-protect-human-health-information-for-landowners-and-developers/

You can address the NES in your application AEE OR by selecting ONE of the following:

☐ This application does not involve subdivision (excluding production land), change of use or removal of (part of) a fuel storage system. Any earthworks will meet section 8(3) of the NES (including volume not exceeding 25m^3 per 500m^2). Therefore the NES does not apply.

☑ I have undertaken a comprehensive review of District and Regional Council records and I have found no record suggesting an activity on the HAIL has taken place on the piece of land which is subject to this application.
NOTE: depending on the scale and nature of your proposal you may be required to provide details of the records reviewed and the details found.

OTHER CONSENTS // CONTINUED

☐ I have included a Preliminary Site Investigation undertaken by a suitably qualified person.

☐ An activity listed on the HAIL has more likely than not taken place on the piece of land which is subject to this application. I have addressed the NES requirements in the Assessment of Environmental Effects.

■ Any other National Environmental Standard

☐ Yes ☐ N/A

Do you need any consent(s) from Otago Regional Council?

☑ Yes ☐ N/A

If Yes have you applied for it?

☑ Yes ☐ No

If Yes supply ORC Consent Reference(s) lodged at same time no RM # yet

If ORC Earthworks Consent is required would you like a joint site visit ?

☐ Yes ☐ No

INFORMATION REQUIRED TO BE SUBMITTED //

Attach to this form any information required (see below & appendices 1-2).

To be accepted for processing, your application should include the following:

☑ Computer Freehold Register for the property (no more than 3 months old) and copies of any consent notices and covenants
(Can be obtained from Land Information NZ at https://www.linz.govt.nz/).

☑ A plan or map showing the locality of the site, topographical features, buildings etc.

☑ A site plan at a convenient scale.

☑ Written approval of every person who may be adversely affected by the granting of consent (s95E).

☑ An Assessment of Effects (AEE).
An AEE is a written document outlining how the potential effects of the activity have been considered along with any other relevant matters, for example if a consent notice is proposed to be changed. Address the relevant provisions of the District Plan and affected parties including who has or has not provided written approval. See Appendix 1 for more detail.

☑ We prefer to receive applications electronically – please see Appendix 5 – Naming of Documents Guide for how documents should be named. Please ensure documents are scanned at a minimum resolution of 300 dpi. Each document should be no greater than 10mb

PRIVACY INFORMATION

The information you have provided on this form is required so that your application can be processed under the Resource Management Act 1991 and may also be used in statistics collected and provided to the Ministry for the Environment and Queenstown Lakes District Council. The information will be stored on a public register and may be made available to the public on request or on the company's or the Council's websites.

FEES INFORMATION

Section 36 of the Resource Management Act 1991 deals with administrative charges and allows a local authority to levy charges that relate to, but are not limited to, carrying out its functions in relation to receiving, processing and granting of resource consents (including certificates of compliance and existing use certificates).

Invoiced sums are payable by the 20th of the month after the work was undertaken. If unpaid, the processing of an application, provision of a service, or performance of a function will be suspended until the sum is paid. You may also be required to make an additional payment, or bring the account up to date, prior to milestones such as notification, setting a hearing date or releasing the decision. In particular, all charges related to processing of a resource consent application are payable prior to issuing of the decision. Payment is due on the 20th of the month or prior to the issue date – whichever is earlier.

FEES INFORMATION // CONTINUED

If your application is notified or requires a hearing you will be requested to pay a notification deposit and/or a hearing deposit. An applicant may not offset any invoiced processing charges against such payments.

Section 357B of the Resource Management Act provides a right of objection in respect of additional charges. An objection must be in writing and must be lodged within 15 working days of notification of the decision.

LIABILITY FOR PAYMENT – Please note that by signing and lodging this application form you are acknowledging that the details in the invoicing section are responsible for payment of invoices and in addition will be liable to pay all costs and expenses of debt recovery and/or legal costs incurred by QLDC related to the enforcement of any debt.

MONITORING FEES – Please also note that the fee paid at lodgement includes an initial monitoring fee of $287 for land use resource consent applications and designation related applications, as once Resource Consent is approved you will be required to meet the costs of monitoring any conditions applying to the consent, pursuant to Section 35 of the Resource Management Act 1991.

DEVELOPMENT CONTRIBUTIONS – Your development, if granted, may also incur development contributions under the Local Government Act 2002. You will be liable for payment of any such contributions.

A list of Consent Charges is available on the on the Resource Consent Application Forms section of the QLDC website. If you are unsure of the amount to pay, please call 03 441 0499 and ask to speak to our duty planner.

Please ensure to reference any banking payments correctly. Incorrectly referenced payments may cause delays to the processing of your application whilst payment is identified.

If the initial fee charged is insufficient to cover the actual and reasonable costs of work undertaken on the application you will be required to pay any additional amounts and will be invoiced monthly as work on the application continues. Please note that if the Applicant has outstanding fees owing to Council in respect of other applications, Council may choose to apply the initial fee to any outstanding balances in which case the initial fee for processing this application may be deemed not to have been paid.

PAYMENT// An initial fee must be paid prior to or at the time of the application and proof of payment submitted. Unless you have requested an invoice.

Please reference your payments as follows:

Applications yet to be submitted: RM followed by first 5 letters of applicant name e.g RMJONES

Applications already submitted: Please use the RM# reference that has been assigned to your application, this will have been emailed to yourself or your agent and included on the invoice.

Please note processing will not begin until payment is received (or identified if incorrectly referenced).

I confirm payment by:

- ☐ Bank transfer to account 02 0948 0002000 00 (If paying from overseas swiftcode is – BKNZNZ22)
- ☑ Invoice for initial fee requested and payment to follow
- ☐ Manual Payment (can only be accepted once application has been lodged and acknowledgement email received with your unique RM reference number)

Reference: SEL - Heli Removal of Debris Material

Amount Paid: Land Use and Subdivision Resource Consent fees - please select from drop down list below

$3638 - Non-complying Activities (overall consent status)

(For required initial fees refer to website for Resource Consent Charges or speak to the Duty Planner by phoning 03 441 0499)

Date of Payment

APPLICATION & DECLARATION

The Council relies on the information contained in this application being complete and accurate. The Applicant must take all reasonable steps to ensure that it is complete and accurate and accepts responsibility for information in this application being so.

☐ If lodging this application as the Applicant:

I/we hereby represent and warrant that I am/we are aware of all of my/our obligations arising under this application including, in particular but without limitation, my/our obligation to pay all fees and administrative charges (including debt recovery and legal expenses) payable under this application as referred to within the Fees Information section.

OR:

☉ If lodging this application as agent of the Applicant:

I/we hereby represent and warrant that I am/we are authorised to act as agent of the Applicant in respect of the completion and lodging of this application and that the Applicant / Agent whose details are in the invoicing section is aware of all of his/her/its obligations arising under this application including, in particular but without limitation, his/her/its obligation to pay all fees and administrative charges (including debt recovery and legal expenses) payable under this application as referred to within the Fees Information section.

☑ PLEASE TICK

I hereby apply for the resource consent(s) for the Proposal described above and I certify that, to the best of my knowledge and belief, the information given in this application is complete and accurate.

Signed (by or as authorised agent of the Applicant) ** Sean Dent

Digitally signed by Sean Dent
Date: 2024.08.22 15:11:06 +12'00'

Full name of person lodging this form Sean Dent

Firm/Company Southern Planning Group

Dated 22.08.24

**If this form is being completed on-line you will not be able, or required, to sign this form and the on-line lodgement will be treated as confirmation of your acknowledgement and acceptance of the above responsibilities and liabilities and that you have made the above representations, warranties and certification.

Section 2 of the District Plan provides additional information on the information that should be submitted with a land use or subdivision consent.

The RMA (Fourth Schedule to the Act) requires the following:

1 INFORMATION MUST BE SPECIFIED IN SUFFICIENT DETAIL

- Any information required by this schedule, including an assessment under clause 2(1)(f) or (g), must be specified in sufficient detail to satisfy the purpose for which it is required.

2 INFORMATION REQUIRED IN ALL APPLICATIONS

- (1) An application for a resource consent for an activity (the activity) must include the following:
    - (a) a description of the activity:
    - (b) a description of the site at which the activity is to occur:
    - (c) the full name and address of each owner or occupier of the site:
    - (d) a description of any other activities that are part of the proposal to which the application relates:
    - (e) a description of any other resource consents required for the proposal to which the application relates:

    Information provided within the Form above

    - (f) an assessment of the activity against the matters set out in Part 2:
    - (g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b).

    (2) The assessment under subclause (1)(g) must include an assessment of the activity against—

    - (a) any relevant objectives, policies, or rules in a document; and
    - (b) any relevant requirements, conditions, or permissions in any rules in a document; and
    - (c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).

    (3) An application must also include an assessment of the activity's effects on the environment that—

    - (a) includes the information required by clause 6; and
    - (b) addresses the matters specified in clause 7; and
    - (c) includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

    Include in an attached Assessment of Effects (see Clauses 6 & 7 below)

ADDITIONAL INFORMATION REQUIRED IN SOME APPLICATIONS

- An application must also include any of the following that apply:
    - (a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):
    - (b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):

ASSESSMENT OF ENVIRONMENTAL EFFECTS

Clause 6: Information required in assessment of environmental effects

- (1) An assessment of the activity's effects on the environment must include the following information:
    - (a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:
    - (b) an assessment of the actual or potential effect on the environment of the activity:
    - (c) if the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment that are likely to arise from such use:
    - (d) if the activity includes the discharge of any contaminant, a description of—
        - (i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
        - (ii) any possible alternative methods of discharge, including discharge into any other receiving environment:
    - (e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:
    - (f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:
    - (g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:
    - (h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).

(2) A requirement to include information in the assessment of environmental effects is subject to the provisions of any policy statement or plan.

(3) To avoid doubt, subclause (1)(f) obliges an applicant to report as to the persons identified as being affected by the proposal, but does not—

- (a) oblige the applicant to consult any person; or
- (b) create any ground for expecting that the applicant will consult any person.

CLAUSE 7: MATTERS THAT MUST BE ADDRESSED BY ASSESSMENT OF ENVIRONMENTAL EFFECTS

- (1) An assessment of the activity's effects on the environment must address the following matters:
    - (a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:
    - (b) any physical effect on the locality, including any landscape and visual effects:
    - (c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:
    - (d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:
    - (e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:
    - (f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or the use of hazardous substances or hazardous installations.

(2) The requirement to address a matter in the assessment of environmental effects is subject to the provisions of any policy statement or plan.

A2 APPENDIX 2 // Information requirements for subdivision

UNDER THE FOURTH SCHEDULE TO THE ACT:

- An application for a subdivision consent must also include information that adequately defines the following:
    - (a) the position of all new boundaries:
    - (b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan:
    - (c) the locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips:
    - (d) the locations and areas of any existing esplanade reserves, esplanade strips, and access strips:
    - (e) the locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A:
    - (f) the locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A):
    - (g) the locations and areas of land to be set aside as new roads.

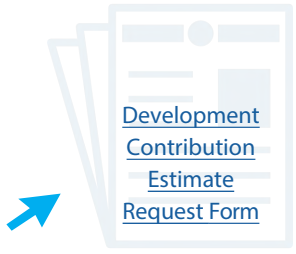
A3 APPENDIX 3 // Development Contributions

Will your resource consent result in a Development Contribution and what is it?

- A Development Contribution can be triggered by the granting of a resource consent and is a financial charge levied on new developments. It is assessed and collected under the Local Government Act 2002. It is intended to ensure that any party, who creates additional demand on Council infrastructure, contributes to the extra cost that they impose on the community. These contributions are related to the provision of the following council services:
    - Water supply
    - Wastewater supply
    - Stormwater supply
    - Reserves, Reserve Improvements and Community Facilities
    - Transportation (also known as Roading)

Click here for more information on development contributions and their charges

OR Submit an Estimate request *please note administration charges will apply



A4 APPENDIX 4 // Fast - Track Application

Please note that some land use consents can be dealt with as fast track land use consent. This term applies to resource consents where they require a controlled activity and no other activity. A 10 day processing time applies to a fast track consent.

If the consent authority determines that the activity is a deemed permitted boundary activity under section 87BA of the Act, written approval cannot be withdrawn if this process is followed instead.

A fast-track application may cease to be a fast-track application under section 87AAC(2) of the Act.

A5 APPENDIX 5 // Naming of documents guide

While it is not essential that your documents are named the following, it would be helpful if you could title your documents for us. You may have documents that do not fit these names; therefore below is a guide of some of the documents we receive for resource consents. Please use a generic name indicating the type of document.

- Application Form 9
- Assessment of Environmental Effects (AEE)
- Computer Register (CFR)
- Covenants & Consent Notice
- Affected Party Approval/s
- Landscape Report
- Ecological Report
- Engineering Report
- Geotechnical Report
- Wastewater Assessment
- Traffic Report
- Waste Event Form
- Urban Design Report

Assessment of Environmental Effects

Resource Consent Application for Earthworks and Helicopter Extraction of Alluvium.

Skyline Enterprises Limited

Ben Lomond Recreation Reserve (Upper Reavers Creek)

August 2024

southernplanning.co.nz

SOUTHERN PLANNING GROUP

Contents

1 The Applicant and Property Details

To:	Queenstown Lakes District Council
Applicant	Skyline Enterprises Limited
Site Address	Ben Lomond Recreation Reserve, Queenstown.
Address for Service	C/- Southern Planning Group PO Box 1081 Queenstown, 9348 **sean@southernplanning.co.nz** Attention: Sean Dent
Legal Description:	Ben Lomond Recreation Reserve Section 2 Survey Office Plan 519538 and Section 106 Blk XX Shotover SD.
Operative District Plan Zone:	Rural General ONL WB. Designations 248 and 373 also apply to the subject site.
Proposed District Plan Zone:	The subject site is contained in the Open Space and Recreation Zone, Informal Recreation Zone, Outstanding Natural Landscape and Proposed Landscape Priority Area: 21.22.12 - West Wakatipu Basin, and Wahi Tupuna - Site 27 Te Taumata o Hakitekura.
Brief Description of Proposal:	Resource consent is sought to remove debris material (earthworks), undertake extraction of debris by helicopter (informal airport) and breach noise limits.
Summary of Reasons for Consent:	Overall, resource consent is required as a Discretionary Activity for informal airports and breaches of the noise limits.

Appendices

Appendix [A] **Site Location Plan**

Appendix [B] **Record of Title and Encumbrances**

Appendix [C] **GeoSolve Reports**

Appendix [D] **Enviroscope EMP**

Appendix [E] **Wildland's Ecological Assessment**

Appendix [F] **QLDC Letter of Authority and Parks Approval (to be provided)**

.....

Sean Dent BRS, ASSOC NZPI
DIRECTOR
SOUTHERN PLANNING GROUP

2 Executive Summary

On the 21 – 22 September 2023 the Queenstown area experienced a significant rainfall event. During that event, material situated in the Ben Lomond Recreation Reserve became saturated and mobilised onto the slopes beneath Bob's Peak.

Some of the mobilised material reached the slopes immediately above Reavers Creek and entered the bed of this water course. Some of this material was washed downstream and inundated a Queenstown Lakes District Council (**QLDC**) stormwater pipe at the bottom of Reavers Creek.

Remedial works were immediately undertaken to unblock the catchment, and subsequent investigations, and designs were progressed to mitigate the immediate risk to life, property, and the environment from mobilisation of the remaining material in the immediate vicinity of Reavers Creek.

These works have resulted in the construction of a debris flow barrier in the lower catchment being identified as the most practicable method of mitigating the immediate risk to human safety and protection of property from the material in Reavers Creek and the slope immediately above it.

The lower debris flow barrier has been fully constructed and is currently progressing through a retrospective QLDC and ORC consenting process[1].

In addition, the main debris bulb that is still located on the upper slopes of the Reavers Creek catchment is being mitigated by a temporary upper debris flow barrier. The temporary upper debris flow barrier is currently progressing through a retrospective QLDC and ORC consenting process[2].

The upper debris flow barrier is a temporary feature as Skyline Enterprises Limited (**SEL**) have recently lodged resource consent applications with the QLDC and ORC to remove the debris material situated above the upper debris flow barrier, remove this structure, and re-instate the access tracks established to this part of the site. The intention is that when the material has been removed, the risk of debris flow no longer exists.

This resource consent application seeks to address the removal of approximately 300m^3 of material that exists on the slope between the temporary upper debris flow barrier and Reavers Creek, and the material situated within the actual wet bed of Reavers Creek itself.

---

1 *QLDC resource consent application RM240181 and ORC resource consent application RM24.159.*

2 *QLDC resource consent application RM240333 and ORC resource consent application RM24.254.*

The proposal will involve the helicopter removal of the material due to the location of the material being inaccessible to traditional earthworks machinery and transporters.

Overall, the status of the application is that of a **Non-Complying Activity**.

This Assessment of Effects has been prepared in accordance with the requirements of Section 88 and Schedule 4 of the Resource Management Act 1991 (the Act) and is intended to provide the information necessary for a full understanding of the activity for which consent is sought, and any actual or potential effects of the proposal may have on the environment.

The Assessment of Effects considers the effects of the proposal and determines that that the proposal will have more than minor adverse effects on the environment because of the noise emissions from the helicopter use. Public notification is requested, although it is noted that relevant affected party approvals are being sought from those persons considered to be directly affected by the proposal where practicable.

The proposal is not contrary with the objectives and policies of the ODP and PDP, the Regional Planning documents, and the relevant Iwi Management Plans. Overall, the proposal is consistent with the purpose and principles of the Act and accords with the definition of sustainable management under Part 2 of the Act.

3 Site Description and Receiving Environment

3.1 Site Description

The Skyline gondola, restaurant building, and luge is an iconic tourist destination that sits atop a landform colloquially known as 'Bob's Peak,' within a 4.1Ha lease area held by SEL. This lease area is a small part of the overall Ben Lomond Recreation Reserve.

The site contains the existing upper gondola terminal and the restaurant building. The existing restaurant building has a total gross floor area of 3,986m^2 over three levels.

The building is constructed such that it is cantilevered out towards Queenstown and the expansive views towards the Remarkables in the south east, Lake Wakatipu and Cecil Peak in the centre and Walter Peak and Mt Nicholas to the southwest.

The upper two floors comprise expansive glazing to take account of the extraordinary views. The remainder of the buildings cladding is metal tray coloured karaka green. Accordingly, whilst it is an iconic building and a landmark of Queenstown, the building is recessive within this environment given its size and location.

The lease area also contains the existing famous Skyline Luge which includes both a scenic and advanced track and the existing chair lift located near the eastern boundary of the lease area, and which operates pursuant to resource consents RM970293, RM970548, RM050813, RM100130, RM140198 and RM170147. A further consent RM181919 authorised the addition of night lighting around the luge tracks to extend the hours of operation and provide a new experience for customers.

The site is accessed via a 10m wide ROW that commences from Lomond Crescent in Queenstown's residential area. The surface of this access is gravel and public use (other than for pedestrian use) is restricted. The ROW provides full and uninterrupted vehicle access in favour of SEL.

This area of development on Bob's Peak is primarily accessed via a gondola which commences from a lower terminal at the northern end of Brecon Street. The lower terminal is located within a 2.6Ha area leased to SEL.

The upper and lower terminal areas and the gondola corridor have been subject to significant construction over the last couple of years as SEL is progressively implementing resource consents granted by the Environment Court for a complete re-development of the lower terminal, replacement of the gondola, and a substantial extension of the restaurant building with associated earthworks.

In addition, a new car park with capacity for almost four hundred vehicles has recently finished construction to the north (rear) of the lower terminal building on Brecon Street and is now open for the public.

The Ben Lomond Recreation Reserve between the restaurant building on Bob's Peak and the urban fringes at the toe of the slope including in the vicinity of Reavers Lane where the affected catchment drains, is densely forested in pine trees with stands of indigenous and other exotic trees found in the creeks and gullies.

The topography is very steep. The catchment of Reavers Creek has an area of 55Ha and the channel has as slope of 22.8 degrees and the initial slope adjacent to the SEL lease area has a slope of 39.5 degrees[3]. Photographs of the lower portion of the creek above 11 - 9 Reavers Lane are provided below:

Photograph 1. Looking upslope from within the creek bed. Source – Sean Dent 27.11.23.

[3] *GeoSolve Report Rainfall Generated Sediment Transport Assessment, Draft for Comment Reavers Lane Catchment, Ref 160073.03, 16 November 2023, page 2.*

Photograph 2. Looking downslope toward Reavers Lane from the creek bed. Source - Sean Dent 27.11.23.

Reavers Creek flows into an existing stormwater drain above 11 Reavers Lane as illustrated in photograph 3 below.

Photograph 3. Reavers Creek and the stormwater culvert and debris grate. Source - Sean Dent 27.11.23.

The stormwater drain forms part of the QLDC reticulated stormwater network. At its commencement in the photograph above, the pipe is concrete and has a 375mm diameter and joins to a 500mm reinforced concrete pipe near 14 Reavers Lane.

When the pipe reaches Fryer Street, it merges to a smaller 450mm reinforced concrete pipe, then a 750mm reinforced concrete pipe at the junction of Fryer Street and

Hamilton Road, before entering the 900mm reinforced concrete pipe that passes through 20 Robins Road, through Robins Road itself and then discharges to Horne Creek via a reduced 750mm reinforced concrete pipe.

Access to the lower part of Reavers Creek is presently obtained via 44 Huff Street which is owned by SEL. 44 Huff Street is a vacant residential section predominantly covered in grass. It has steep topography with a west to east aspect towards Huff Street.

The following pictures illustrate the upper debris field located beneath the SEL lease area on Bob's Peak:

Photograph 4. Upper Debris Field. SEL Lease Area in the Top Left Corner. Source – Sean Dent 25.01.24.

Photograph 5. Upper Debris Field. Source – Sean Dent 25.01.24.

Photograph 6. Upper Debris Field Looking Downhill Towards the First Bluff. Source – Sean Dent 25.01.24.

It is important to note that the tree/wood material illustrated in photographs 4 – 6 above was not attributable to the mobilisation of debris from the rain event in September 2023. There was timber in this location prior to the rain event that caused the mobilisation of debris because of historical forestry operations.

GeoSolve have identified that below the main debris bulb the initial debris flow event in September 2023 scoured out the topsoil in its path resulting in the creation of a small channel on top of the underlying bedrock. The channel has an approximate depth of 0.5m and 1m – 2m in width.

Small volumes of loose material are still present within this channel that are proposed to be removed.

Within Reavers Creek itself, there is debris of approximately 200mm in depth and up to 2m - 3m in width in its upper reaches.

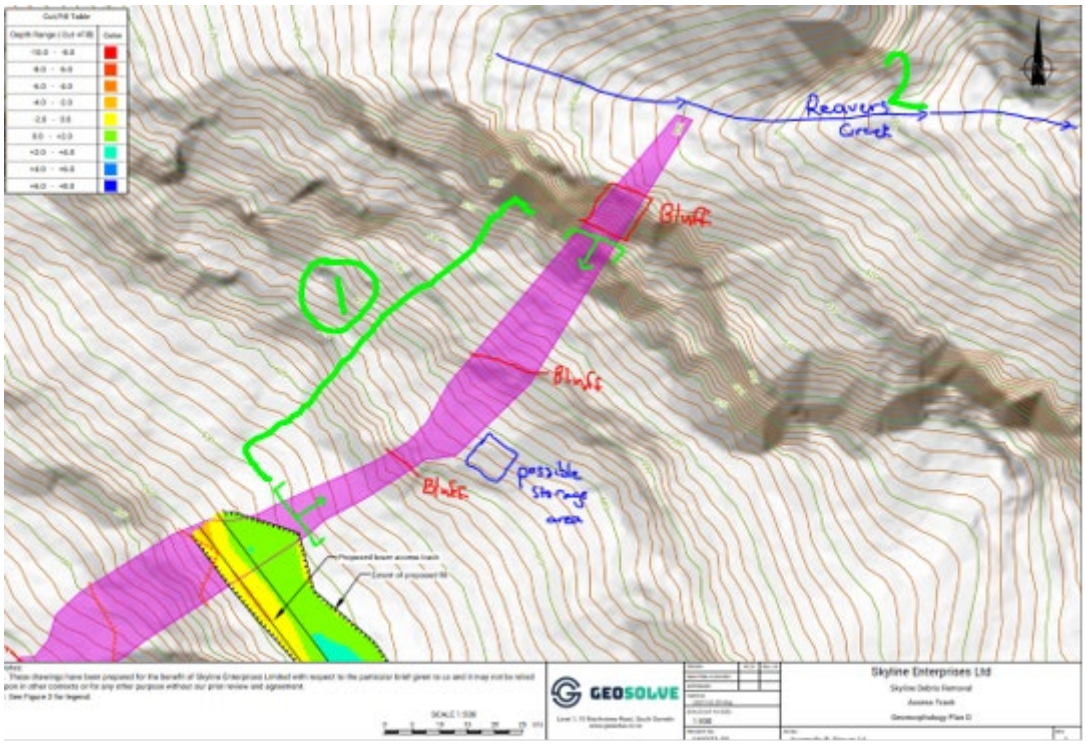


Figure 3. Area 1 Illustrating location of channel for Clearance. Area 2 illustrating Reavers Creek.

Photographs 7 and 8. Channel in Area 1.

Photographs 9 and 10. Debris in Area 2 – Reavers Creek.

In total, the removal of material from the areas beneath the main debris bulb as illustrated above is anticipated to comprise approximately 300m^3 of the remaining 500m^3 of material[4].

Access to these areas of debris for the workers undertaking the hand excavation will be obtained from the existing forestry tracks beneath the gondola and extensions to these that have been formed as part of the RM240333 and RM24.254 applications.

The abovementioned tracks commence from and require traversing the SEL access road that originates at Lomond Crescent.

As will be noted below, trucks will need to access up and down part of the SEL access road to pick up the bagged debris material from a helicopter staging point located immediately adjacent to the SEL access road.

Site location plans are contained in **Appendix [A]** to illustrate the location of the sites described above.

The Ben Lomond Recreation Reserve (Section 2 Survey Office Plan 519538) is contained within Record of Title OT109/294. A copy of this Record of Title is attached as **Appendix [B]**. Section 106 Blk XX Shotover SD which is also part of the Reserve and

[4] *Personal correspondence between Sean Dent SPG and Simon Reeves Geosolve on 04.04.2024.*

which in part, the SEL access road passes through, and the bagged material will be placed in awaiting removal by truck does not have a Record of Title or Survey Office Plan as illustrated below.

Parcel Details

Appellation:	Section 106 Blk XX Shotover SD Upload Plan View Plans	**Parcel Area (ha):**	(11.8371)
Land District:	Otago	**Total Area:**	11.8371
Statute:	Commonage Reserve	**Graphical Area (ha):**	6.7129
Non Survey Information:	(SO 17256)	**Parcel Intent:**	

Associated Title Details

Appellation	Title(s)	Estate Type	Owner(s)
No Details Available			

Associated Street Address

No Details Available

Valuation Reference Information

Valuation Reference No.	Capital Value	Land Value	Capital Value Date	Street No

Rating Valuation information may be historic.

Report Generated from **Quickmap** (http://www.quickmap.co.nz) on Thursday, 27 June 2024.
Information provided by this service is sourced from third parties. Custom Software can not and does not provide any warranties or assurances of any kind whatsoever in relation to any data or materials provided through this service. Any person wishing to rely on the information shown must independently verify such information.

3.2 Legal Documents

The Record of Title for the Ben Lomond Recreation Reserve OT109/294 contains one Land Covenant which is addressed below.

Land Covenant 5586336.1

This is a private Land Covenant between the QLDC and Mondrian Holdings Limited. This Land Covenant prevents Mondrian Holdings from using their site (held in Certificate of Title 11D/474 for anything other than a resort hotel condominium for commercial visitors and travellers' accommodation.

As such it is considered that this Land Covenant is irrelevant to the proposal. Notwithstanding this, a full copy of this document is contained within **Appendix [B].**

3.3 Receiving Environment

The receiving environment, being the environment upon which the proposed activity might have effects, is geographically substantial. The application site is visible from a broad area and the effects of that visibility have the potential to affect the character and amenity of the wider landscape (receiving environment) in that broad vista.

In addition, the application site requires access from the SEL access road and residential neighbourhoods to the south in the Lomond Crescent area.

Further, the proposal involves helicopter activities which will be both visible and audible from the areas immediately surrounding the Ben Lomond Recreation Reserve.

Accordingly, my assessment of the receiving environment identifies that it comprises various features and land uses and is expanded upon below.

As identified above, SEL's commercial facilities sit within a large area of land that makes up the Ben Lomond Recreation Reserve.

The area at the crux of this application is the catchment of Reavers Creek which flows out of the Ben Lomond Recreation Reserve and into the QLDC reticulated storm water network near Reavers Lane.

The SEL lease area on Bob's Peak. This lease area contains the SEL restaurant building which is progressing through re-development and the SEL Luge.

The SEL lease area has facilitated the location of other commercial operators on its immediate periphery with A J Hackett Bungy operating approximately160m south of the upper debris bulb.

Ziptrek Ecotours commence their zip line operations from a tree house on the south western side of the SEL lease area approximately 260m from the upper debris bulb.

The Queenstown Commercial Parapenters also operate adjacent to the north eastern edge of the SEL lease.

Within the wider Ben Lomond Recreation Reserve in proximity of the debris material and Reavers Creek, there are no walking tracks, mountain bike trails or other public recreational activities – the terrain and vegetation effectively precludes development of these things.

However, the Ben Lomond Recreation Reserve does in other areas, contain several walking and mountain bike trails including the Ben Lomond track which crosses the

Ben Lomond Recreation Reserve boundary into the DOC administered Ben Lomond Scenic Reserve.

As identified above, the access to get to the upper debris field will occur from the existing forestry tracks which are accessed from Lomond Crescent via the SEL access road.

The SEL access road is a gravel surfaced access (ROW) that is used by the public (mountain bikers and walkers), and Ziptrek also have limited rights of vehicular access over this ROW to facilitate their commercial operations.

Lomond Crescent is an established residential neighbourhood contained within the PDP's High Density Residential Zone. Development within this High-Density Residential Zone land includes single residential units, duplex units, and multi-unit development and provides standard residential accommodation as well as short-term visitor accommodation.

As noted above, the Reavers Creek catchment descends the steep slopes of the Ben Lomond Recreation Reserve and meets Reavers Lane – a residential area that is part of a larger pocket of High Density Residential Zoned land that has not yet been subject to the District Plan Review. This area includes Hamilton Road, Fryer Street, Huff Street, Reavers Lane and Boydtown Way.

Development within this 'pocket' of High-Density Residential Zone land is similar to that in the Lomond Crescent area and includes single residential units, duplex units, and multi-unit development and provides standard residential accommodation as well as staff accommodation for commercial landlords, and short-term visitor accommodation.

Approximately 250m north east of Reavers Creek lies the QLDC's Warren Park which adjoins Gorge Road on its eastern boundary. A further 40m north is the old Wakatipu High School which is being developed by Ngai Tahu Property for residential purposes under the provisions of the PDP's Business Mixed Use Zone.

Approximately 190m south east lies the Kiwi Birdlife Park and on its eastern boundary, the Queenstown Primary School sports field.

Horne Creek lies approximately 415m to the south east of the bottom of Reavers Creek between Robins Road and Gorge Road.

4 Resource Management Planning Background

As noted above, this application and the works proposed within it has arisen from the unusually heavy rain event on 21-22 September 2023 which saturated and resulted in mobilisation of stockpiled material within the Ben Lomond Recreation Reserve.

While the SEL consent history is not directly relevant to the proposed works in the Reavers Creek catchment, it sets the complex background to the approval processes and physical works required to implement the development on the difficult site and is outlined below for completeness to the site history.

The recently lodged consents for the upper and lower reavers debris flow barrier and associated remedial earthworks are also documented here too.

QLDC Consents

- Resource consent RM160647 being the application for the major re-development and expansion of the existing SEL facilities. The proposal involves the replacement of the existing gondola, a new lower terminal building, and new upper terminal building, expansion of the restaurant building to the north east and a complete refurbishment/re-build of the existing restaurant building. The proposal was processed by direct referral in the Environment Court and subject to an interim decision from the Environment Court dated 15 August 2017 and a final decision dated 15 February 2019.

- RM160956 being an Outline Plan Approval by QLDC for works relating to forestry activities pursuant to Designation #373 namely the felling and subsequent harvesting of approximately 1.882 hectares of trees located either side of the SEL gondola cable way. The Outline Plan approval was issued on 14 December 2016.

- RM171172 was an application to construct and operate a commercial car park building containing 448 spaces at the rear of the SEL gondola lower terminal on Brecon Street. The application progressed via direct referral and the Environment Court issued an interim decision on 19 December 2018. The final Environment Court decision approving the car park development was issued on 15 February 2019.

- Resource consent RM171459 was an application to construct a new indoor and outdoor kiwi enclosure at the Kiwi Birdlife Park. The construction of these facilities is a requirement of SEL's resource consents RM160647 and RM171172 pursuant to conditions 22 and 84 of the Environment Court's final decisions. The application was approved by the Council on 5 March 2018 and at the time of drafting this application construction of the approved facilities and relocation of the Kiwi has occurred.

- Resource consent RM190536 was an application for a variation to the conditions of RM160647 and RM171172 to alter the approved building designs, earthworks and landscaping approved by the Environment Court. Most importantly, it also sought to alter the size and location of the approved car park building to facilitate an improved vehicle access, coach parking and delivery area and to reduce the long-term natural hazard risks of rock fall and debris flow to pedestrians by shifting the pedestrian link from the car park to the lower terminal to the eastern side of the lower terminal and away from the foot of the slope. This consent variation was issued by QLDC on 05 March 2020.

- Resource consent RM200058 was an application to vary condition 55 of the RM171172 decision to enable earthworks to commence for the car park building in advance of the permanent rock fall and alluvial fan hazard works having been fully implemented. This variation was granted by the QLDC on 20 Mach 2020.

- Resource Consent RM200447 was an application that sought to vary condition (72) of RM171172 and 7 of RM190536 which prohibited the use of spray concrete for slope stabilisation. The applicant's geotechnical engineers had identified during detailed design that four areas of the main car park cut face would require the use of shotcrete to prevent degradation of the main cut face from concentrated over land stormwater flows.

  During processing it was concluded by Council that 'Area 4' would if implemented, have adverse landscape effects that warranted public notification. Accordingly, 'Area 4' was removed from the proposal and the variation was granted on 24 August 2020 for 'Areas 1 – 3'.

- RM200880 was an application for a further variation to condition 72 of RM171172 to enable the use of shotcrete on the car park cut face in 'Area 4'. This application was publicly notified and received one opposing submission which was later withdrawn.

  Following the withdrawal of the opposing submission, QLDC processed the application without a hearing pursuant to Section 100 of the RMA. The Council's decision was delayed but was issued on 17 November 2021.

- RM210595 was an application for a further variation to condition 72 of RM171172 to enable use of shotcrete on two additional areas of the car park cut face ('Areas 5 and 6') and to alter the approved plan of Easements around the carpark and lower terminal.

  Consequential variations were required to RM190536 and RM160647 to update the plan references in the approved conditions of consent. The consent was issued on 31 January 2022.

- RM220330 is an application that sought to make minor changes to the overall numbers of car parks in the car park building and to alter the signage that is required to be displayed within the building for safety purposes.

  This application was lodged on 29 April 2022 and was issued by QLDC on 12 July 2022 (Re-issued 27 July 2022).

- RM220370 is an application to vary condition 21(d) of RM171172 which requires that the car park development must provide for stormwater collection and disposal in accordance with the Fluent Solutions Stormwater Management Plan dated 14 August 2017.

  It is proposed that condition 21(d) of RM171172 is varied to refer to the Fluent Solutions Revised Design Report dated April 2022 and the associated changes in stormwater collection and disposal outlined within that report.

  This application has been publicly notified and received one submission from Kiwi Birdlife Park. Engineering experts for the QLDC and SEL are addressing the impacts of the proposed change in association with a third-party peer reviewer to ensure the stormwater modelling and design solution are robust.

  This consent is still being progressed at the time of drafting this application.

- RM240181 is the retrospective application that has been sought by QLDC for the construction of the lower debris barrier in Reavers Creek, and the associated earthworks.

  This application was lodged with QLDC on 20th March 2024 and at the time of lodging this application for the upper debris flow barrier, is still being processed by a consultant planner on behalf of QLDC.

- RM240333. This is an application that was lodged with QLDC on 02 May 2024 to address emergency works associated with earthworks tracking, construction of a temporary upper debris flow barrier, and associated removal of the debris material on the slopes of Bob's Peak and bed of Reavers Creek.

  The application was formally received for processing on 15th May 2024 and then the following day, the applicant (QLDC) was advised by the processing planner that the application in its current form would not be accepted for processing.

  Specifically, as the application was lodged in accordance with Section 330A of the Act, only the works authorised in the notice issued under Section 330A could be considered i.e. all works up to and including construction of the temporary upper debris flow barrier (construction of the barrier having mitigated the risk to life and property). Any further works including the removal of the main debris bulb, the removal of the material on the slopes between the upper debris flow barrier and Reavers Creek and the bed of Reavers Creek

(now sought in this current application), and all remediation/re-instatement works had to be addressed in separate applications.

Following discussion with the Council's planner and Parks and Reserves staff, it was agreed that the application would be modified to include only those works that occurred under Section 330A of the Act. The revised application for RM240333 was submitted to QLDC staff (not the consents processing staff) for review in mid-August 2024. Comments have not been received back at the time of lodging this current application, but it is expected that the updated application will be lodged before the endo of August 2024.

- Unallocated consent. This is an application by SEL that covers the earthworks to remove the main debris bulb above the temporary upper debris flow barrier, removal of the temporary upper debris flow barrier, and earthworks to re-instate the access tracks created to get to the upper debris bulb.

  This application was lodged on 22 August 2024 and has not yet been allocated an RM number.

ORC Consents

- Resource consent RM17.371.01 and RM17.371.02 were applications for a storm water discharge permit and land consent to authorise the discharge of storm water from the existing and proposed (through RM160647) restaurant building on Bob's Peak into the Ben Lomond Recreation Reserve.

  The proposal also involved the collection of overland storm water flows from the Ben Lomond Recreation Reserve at the rear of the proposed car park building (RM171172), reticulation and discharge to the pond on the adjacent Kiwi Birdlife Park site.

  The storm water management proposal was necessary to resolve one of the key outstanding matters in the Environment Court's interim decision on RM160647. The consents were granted by the Otago Regional Council (**ORC**) on 20 April 2018.

  RM17.371.01 has been subject to an extension/variation as per the next bullet point below.

  RM17.371.02 which related to amendments to the outlet structure in the KBP pond, has lapsed. Depending on the outcome of the QLDC consent RM220370, it may not need to be replaced subject to the final design solution.

- RM23.168 was a variation to discharge permit RM17.371.01 to vary Condition 12 and specify a lapse date of 20 April 2027 (an extension of time).

- Resource Consent RM19.082.01 was for the discharge of contaminants to air from a fuel burning device – being a proposed emergency generator located

adjacent to the car park building. This consent was issued by the ORC on 13 June 2019.

- RM24.159 is the application that has been lodged for the lower reavers debris flow barrier and associated works. This application is being processed by an external consultant planner at Becca.

  At the time of lodging this application, the application is still being processed although internal reporting has identified that the natural hazards assessment and mitigation put in place is acceptable.

- RM24.254. This is an application that was lodged with ORC on 02 May 2024 to address emergency works associated with earthworks tracking, construction of a temporary upper debris flow barrier, associated removal of the debris material, and discharge of stormwater/sediment on the slopes of Bob's Peak and bed of Reavers Creek.

  As noted above, the concurrent application lodged with QLDC (RM240333) has necessitated changes as requested by the regulatory arm of QLDC. The same amendments were therefore necessary to this application.

  Specifically, as requested by QLDC, the application was lodged in accordance with Section 330A of the Act, and therefore only the works authorised in the notice issued under Section 330A could be considered i.e. all works up to and including construction of the temporary upper debris flow barrier – otherwise known as a defence against water/subsidence (construction of the barrier having mitigated the risk to life and property.

  Any further works including the removal of the main debris bulb, the removal of the material on the slopes between the upper debris flow barrier and Reavers Creek and the bed of Reavers Creek (now sought in this application), and all remediation/re-instatement works had to be addressed in separate applications.

  The amended AEE for RM24.254 was re-submitted to QLDC as the applicant for review in mid-August 2024. Comments have not yet been received at the time of lodging this application, but it is anticipated the revised application will be submitted to ORC before the end of August.

- Unallocated consent. This is an application that covers the discharge of stormwater and sediment from the earthworks to remove the main debris bulb above the temporary upper debris flow barrier and earthworks to re-instate the access tracks created to get to the upper debris bulb. It also addresses the removal of the temporary upper debris flow barrier.

  This application was lodged on 22 August 2024 and has not yet been allocated an RM number.

Reserves Act Approvals

- ROW Easement over Lot 2 DP 345184. This was an application made under Section 48 of the Reserves Act to authorise the establishment of a Right of Way over a strip of QLDC reserve 'sand which'd' between the SEL lower terminal site and the Kiwi Birdlife Park. The ROW was to accommodate pedestrian, cycle and vehicular traffic and would require construction of a new retaining wall, predator proof fence and associated earthworks. The matter received submissions from Ziptrek, Basil Walker and Peter Flemming and was heard by a panel of Councillor's on 1 September 2016. The QLDC resolved to approve the ROW Easement at their full Council meeting of 29 September 2016.

- Lessors Approval for Construction of the New Kiwi Enclosures. This was an application made under the terms and conditions of the Kiwi Birdlife Park Lease granted under the Reserves Act 1977 to authorise construction of the new kiwi enclosures approved by resource consent RM171459. Lessor approval for this matter was approved by QLDC's agents at APL Property Limited on 20 February 2018.

- Lease and Easements for the Car Park Building. This was an application made under Sections 48 and 54(1)(d) of the Reserves Act to approve a Lease of the Ben Lomond Recreation Reserve immediately north of and behind the lower terminal building to be used for construction and operation of a commercial car park and administrative offices associated with the SEL facilities on the Ben Lomond Recreation Reserve. The proposal also sought a variety of Easements for Rights of Way and undergrounding power lines and storm water infrastructure including the discharge of such into the pond on the Kiwi Birdlife Park in accordance with the ORC consents RM17.317.01 7 02. The proposal was publicly notified and received no submissions and was subsequently approved by QLDC at their full Council meeting on 8th March 2018.

- ROW and Infrastructure Services Easements. This was an application lodged in August 2018 to approve Easements for existing and proposed infrastructure services (gas, power, storm water, wastewater, potable water, and telecommunications reticulation), Rights of Ways over existing vehicle tracks and a widened gondola cableway Easement. The existing SEL development had never held formal Easements over its infrastructure services. This application sought to resolve this and ensure that Easements necessary for the servicing to its expanded restaurant and gondola buildings were appropriately protected. Similarly, several existing vehicle tracks that provide access to the upper luge terminal but have never been formalised by ROW Easements. The application sought to rectify this matter. The cableway Easement was required to be widened to reflect the alignment of the proposed new gondola and a wider area for protection from tree fall agreed with QLDC as part of the Outline Plan RM160956. A hearing was held on 19 March 2019 and a final decision was issued by QLDC on 27 June 2019.

- Car Park Variation Easements. This was an application lodged pursuant to Section 48 of the Reserves Act 1977 to establish new/additional Easements in association with the relocation of the car park building as sought in the RM190536 resource consent variation. Specifically, additional Easements were necessary for additional rock fall mitigation and access to a bench in the primary cut face required by the geotechnical engineers. In addition, rock anchors were now anticipated to extend beyond the car park Lease Area boundary and needed to be identified and authorised by Easement. This application was lodged concurrently with RM190536 and was publicly notified. No submissions were received, and the proposal was considered and approved by the full Council on 12 December 2019.

- Car Park Variation Easements (Tidy Up). This was an application lodged pursuant to Section 48 of the Reserves Act 1977 following detailed design works and initial stages of excavation around the lower terminal and carpark as it become apparent that new Easements are required and in addition, some of the Easements previously approved by the Council in the earlier decisions described above had become redundant or required minor alterations in location and/or extension of the approved Easement areas.

  The proposal was approved by the full Council at their ordinary meeting of 16 September 2021.

5 Description of the Proposal

5.1 Overview

Resource consent is sought to undertake earthworks being the removal of the mobilised material that sits in the Reavers Creek catchment, both in the waterbody itself and on the slope between the temporary upper debris flow barrier and Ravers Creek.

The proposal will involve helicopter removal of approximately 300m^3 of material from the Reavers Creek catchment.

The details of the proposal are outlined below.

5.2 Proposed Earthworks

The earthworks associated with this proposal are comprised of two parts:

1. The removal of the debris from the slopes of the Reavers Creek catchment between the temporary upper debris flow barrier and Reavers Creek via hand excavation. (See photographs 7 and 8 above).

2. The removal of the debris from within the upper part of the Reavers Creek wet bed via hand excavation. (See photographs 9 and 10 above).

GeoSolve have identified that the original source of the debris at the top of the catchment had an estimated volume of 2,500m^3 (Zone A). The volume of material that mobilised onto the slopes below the main debris bulb and into Reavers Creek, is estimated to be 750m^3(Zone B)[5] (Zone B1 contains 250m^3 and Zone B2 contains 500m^3).

A copy of all GeoSolve reports and documentation for this application is contained in **Appendix [C]**.

[5] *GeoSolve Report Geotechnical Report for Resource Consent, Debris Removal, Reavers Catchment Queenstown Ref: JN 160073.03-March 2024, page 10.*

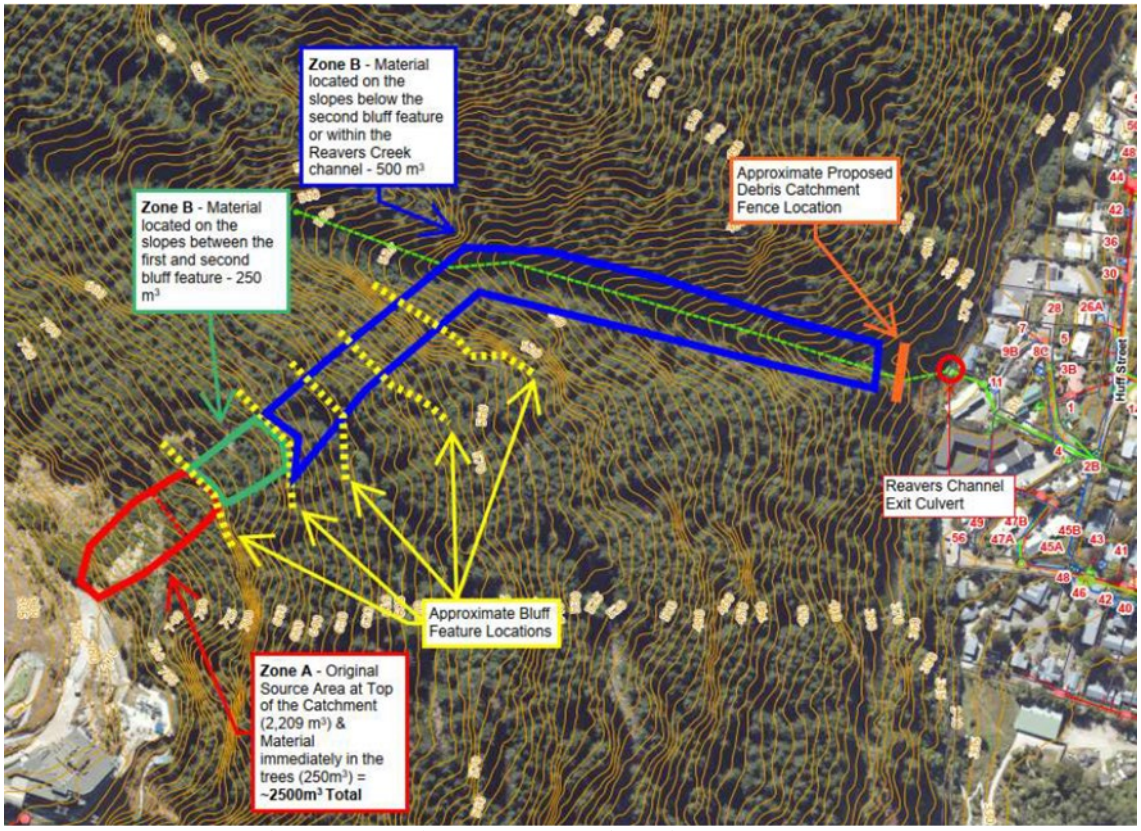


Figure 2 – Location and Volume of Debris – Source GeoSolve

For the 500m³ of debris located within the Reavers Creek catchment below the location of the temporary upper debris flow barrier subject to consent RM240333 and RM24.254, the earlier consent applications RM240181 and RM24.159 have sought to approve the establishment of a debris flow barrier that can hold back 750m³ of material and to remove this volume of material over time as it flushes down the catchment until such time as the risk from debris flow of this volume of material remains.

However, while those earlier consents will still be obtained, the applicant proposes to expedite the reduction in the residual risk of this volume of earthworks by removing the debris from beneath the upper debris flow barrier in Zone B.

GeoSolve have identified that below the main debris bulb the initial debris flow event in September 2023 scoured out the topsoil in its path resulting in the creation of a small channel on top of the underlying bedrock. The channel has an approximate depth of 0.5m and 1m – 2m in width.

Small volumes of loose material are still present within this channel that are proposed to be removed. This will be undertaken with hand tools and bagged for removal by helicopter. The material outside the channel itself may also be partially removed if a risk of mobilisation is present (to be assessed during works by the geotechnical engineer).

Within Reavers Creek itself, there is debris of approximately 200mm in depth and up to 2m - 3m in width in its upper reaches. It is proposed that this material will also be removed by hand tools and bagged for removal by helicopter.

The material in Reavers Creek itself will not be removed when there is any flow (or within 1 week of there having been any flow) to avoid adverse ecological effects.

In total, the removal of material from the areas beneath the main debris bulb as illustrated above is anticipated to comprise approximately 300m^3 of the remaining 500m^3 of material[6].

It is noted that the ecological assessment from Wildland Consultants recommends that "only that material necessary" be removed from within Reavers Creek, due to potential ecological impacts. For example, where the material has formed a stable new bed, if not geotechnically necessary, it should not be removed.

Accordingly, the debris removal will be supervised by a geotechnical professional and only that material within Reavers Creek that is strictly required to be excavated to decrease the risk of debris flow emanating from the material, will be removed.

5.3 Proposed Access

As described above, all vehicular access will initially be obtained via the SEL access road from Lomond Crescent. Most vehicular movements will 'branch off' the SEL access road and onto the forestry tracks that will provide access to the upper debris bulb, and which were created through resource consent RM240333.

Trucks will be required to enter and exit the SEL access road to retrieve the bagged material that has been lifted out of the Reavers Creek catchment and deposited adjacent to the SEL access for collection and removal off site.

The SEL access road is currently being utilised by construction traffic in association with the SEL redevelopment project. In addition, and as detailed above, the access road is used by Ziptrek and members of the public who are walking and biking.

All vehicle movements on the access road will need to comply with the health and safety requirements already established by the contractors carrying out the SEL re-development.

Further, several conditions of consent of the SEL re-development relating to access were volunteered after discussion with the residents of Lomond Crescent, Thompson Street and Glasgow Street. It is volunteered that the following conditions are imposed

---

6 *Personal correspondence between Sean Dent SPG and Simon Reeves Geosolve on 04.04.2024.*

on the decision for this land use consent to control traffic related effects and align with the construction traffic requirements of the SEL development consents:

1. *Hours of operation for heavy vehicle movements into and out of (but not within) the Ben Lomond Recreation Reserve must be:*

   - Monday to Friday
   0730 hours to 1800 hours

   - Saturday
   0730 hours to 1230 hours

   Heavy vehicle movements associated with construction and earthworks must not occur on Sundays and public holidays.

2. *The consent holder must:*

   (a) not less than 10 working days following grant of this consent, submit to QLDC's Road Corridor Engineer for approval, a Traffic Management Plan (TMP) prepared by an appropriately qualified Site Traffic Management Supervisor (STMS). The TMP must specifically provide for and/or directly address the following requirements as a minimum:

      (i) Maintenance of pedestrian and mountain bike access along the Skyline Access Road at all times;

      (ii) Maintenance of vehicular access along the Skyline Access Road for Ziptrek;

      (iii) Identification of a maximum specified speed limit for vehicles on the Skyline Access Road and all access tracks in recognition of their steep and narrow formation;

      (iv) Either a dedicated site traffic STMS must be located at the lower end of the Skyline access road, monitoring the presence of construction and earthworks (and other) vehicles within the access road whenever there are construction and earthworks related vehicles operating; or all heavy vehicles are to be in full two- way radio contact with other construction and earthworks-related heavy vehicles to manage the passage of uphill and downhill passing manoeuvres in a safe manner;

      (v) Identification of a maximum specified speed limit for Lomond Crescent on the approach to and from the Skyline Access Road

crossing point in recognition of the residential environment and lack of footpaths;

(vi) Ensure consistency with the TMP's prepared in association with resource consent RM160647 and RM171172 (and all associated variations) and Outline Plan RM160956 (forestry activities) if the scheduling of construction works coincides with the land use approved in those decisions.

(b) Within 15 working days of the grant of consent, the consent holder must submit a copy of the approved TMP to QLDC's Manager Resource Management Engineering; and

(c) ensure implementation of the approved TMP at all times during the construction period including by ensuring that any relevant contractor(s) employs a qualified STMS on site with responsibility for such compliance.

3. *Within 10 working days of the commencement of works the consent holder shall provide to the QLDC Resource Management Engineer for review and acceptance details of a dust suppressant that shall be applied to the Skyline Access Road from the crossing point onto Lomond Crescent to the intersection of the Skyline Access Road and the Thundergoat mountain bike trail. The dust suppressant must be environmentally friendly and not oil based. This shall include details of any required ongoing reapplication period as required to prevent the migration of dust and associated adverse effects.*

The accepted dust suppressant shall be applied prior to the commencement of works and shall be reapplied as agreed and accepted by Council.

5.4 Proposed Helicopter Activity

For the undertaking of the removal of the debris, it has been outlined above that loose material in the original debris flow path and that which is in the bed of Reavers Creek will be removed with hand tools and placed into heavy duty bags to be lifted out by helicopter.

It is proposed to utilise an Airbus H125 (formerly known as a Eurocopter AS350 B3) or 'Squirrel' helicopter from Heli Glenorchy for the lifting operations. This machine has a maximum lift capacity of 1,400kg although the bags of debris are unlikely to be loaded to this weight to take account of the unique terrain, tree cover, and the length of longline required to reach the bagged material.

The bagged material will be lifted from the Reavers Creek catchment and taken to a drop off location adjacent to the SEL access road. This location is known as the 'log yard' that has been used for forestry operations in the area. The log yard is located part way down one of the existing forestry tracks as illustrated in the image below and **Appendix [A]**.

Figure 5 – Helicopter Landing Area for Debris Material, Context Plan

Figure 6. Helicopter Landing Area for Deposition of Debris. Zoomed In Perspective. SEL Access Road to the left of log yard circled in red.

The bagged material will be dropped at this location and then loaded onto trucks to be removed from site.

It is not possible to confirm the exact duration of the helicopter activity although it has been estimated at approximately 30 hours total flight time.

No noise assessment has been sought to quantify the noise levels from the helicopter activity as it is acknowledged that the helicopter activity will be clearly audible throughout the receiving environment and a noise assessment would not add any significant clarification on the effects.

In recognition of the audibility of the helicopter activity and the safety implications of heavy lifting, the following conditions of consent are volunteered:

1. *The flight path for all helicopter activity must avoid overflying the urban area of Queenstown with the exception of when transiting the airspace to get to and from the operational area of the Ben Lomond Recreation Reserve.*

2. *The consent holder must ensure that when a ceremony is being held at Queenstown Cemetery, all helicopter operations must cease.*

3. *All helicopter operations must occur during the hours:*
   - Monday to Friday
   0730 hours to 1800 hours

   - Saturday
   0730 hours to 1230 hours

   No helicopter activity on Sundays and public holidays.

The helicopter activity will also occur within a designated area of air space known as G756. This area is frequented by both commercial and recreational parapenters. The proposed helicopter activity is expected to disrupt the ability to use this air space and to mitigate this, direct consultation is proposed with the Queenstown Commercial Parapenters Limited and the Southern Hang Gliding and Paragliding Club as per the following volunteered condition.

4. *No less than 7 working days prior to the undertaking of any helicopter activity, the consent holder must notify the following users of airspace G756 of the date and times of the heavy lifting activity:*

   (i) Queenstown Commercial Parapenters Limited – Gavin Taylor ***info@nzgforce.com***

   (ii) Southern Hang Gliding and Paragliding Club – Tim Brown, President. ***tjbro137@gmail.com***

In addition, and in recognition that helicopter noise will be clearly audible in the urban part of Queenstown and affect residents, education facilities, and commercial businesses, the applicant volunteers the following condition:

5. *No less than 7 working days prior to the undertaking of any helicopter activity, the consent holder must:*

   (a) arrange public notification of the dates and times of the helicopter activity in a minimum of two local and regional news papers.

   (b) Consult with the Queenstown Lakes District Council and advertise the dates and times of the helicopter activity on the QLDC social networking pages.

   (c) Directly consult with the following key stakeholders to communicate the dates and times of the helicopter activity:

      (i) Kiwi Birdlife Park ***wildlife@kiwibird.co.nz***

      (ii) Hampshire Holiday Park ***queenstown@hampshireholidayparks.co.nz***

      (iii) Queenstown Holiday Park and Motels – ***gm@camp.co.nz***

      (iv) Ministry of Education / Queenstown Primary School (MFE e-mail TBC) and ***fionac@queenstown.school.nz***

      (v) AJ Hackett Bungy – ***david@bungy.co.nz***

      (vi) ZJV (NZ) Limited – ***tyeo@ziptrek.com***

5.5 Proposed Stormwater and Sediment Management

All earthworks are to be undertaken during dry weather, in fully drained conditions with no free water on the working surfaces.

The EMP prepared by Enviroscope has been developed as a comprehensive plan for all the earthworks activities across the multiple consent applications that have been lodged to address the remediation of the debris material in the Ben Lomond Recreation Reserve.

Accordingly, only a small portion of the EMP is directly relevant to the area of works, that being Section 4.3.11. This section outlines the following:

As no machinery will [not] be able to track far from the lower Reavers Catchment track, any removal of sediment will be undertaken manually (by shovels) and placed into impermeable bags to be lifted out by helicopter. This will have the added benefit of causing no further disturbance to the natural surface.

During any manual works in the creek, care will need to be taken to ensure that disturbance to the natural bed is avoided.

This will in turn minimise disturbance and suspension of sediment from the creek bed. It is noted that some suspension of sediment is unavoidable given the constrained nature of the creek and rocky substrate of the gully making it impossible to install temporary measures such as silt curtains.

During works within Reavers Creek, the creek will be regularly monitored 50m downstream to ensure that there is no conspicuous change in colour or visual clarity of the creek. If this cannot be achieved, contingency measures such as sandbags to capture coarser sediments can be installed. this shall be undertaken in consultation with the Environmental Consultant.

The Enviroscope EMP is contained in **Appendix [D]**.

In conjunction with the EMP, an ecological assessment by Wildland Consultants has recommended that additional, temporary sediment fences should be used (in Reavers Creek) to limit the amount of suspended fine sediment moving downstream.

The sediment fences should be emptied and removed at the completion of the works.

They have also recommended that to greatly reduce the resuspension and mobilisation of fine sediment, the work should be conducted while the creeks water levels are low, or ideally dry.

The applicant has volunteered to undertake works in the wet bed of Reavers Creek only when there are no flows and when the creek has been dry for a minimum of seven days prior to works.

5.6 Assessment on Landscape Character and Amenity

The area of works is located within an area identified as an Outstanding Natural Landscape (**ONL**).

The works in this application are tied to the more substantial resource consent proposals to undertake earthworks for tracking, installation of the upper debris flow barrier, removal of the debris bulb, decommissioning of the upper debris flow structure and the re-instatement of the tracks and associated rehabilitation.

Given the extent and scale of the overall works proposed on the site, the applicant had engaged Boffa Miskell to undertake an assessment of the entire work streams effects on landscape and natural character effects.

This includes the relatively minor component of the works included in this application for the removal of the debris in Zone B beneath the upper debris flow barrier and in Reavers Creek.

A copy of the full Boffa Miskell written assessment and their supporting graphic attachment is contained in **Appendix [E]**.

5.7 Assessment of Ecological Effects

In the previous resource consent applications for the upper and lower reavers debris flow barriers and associated works, Wildland Consultants were engaged by the applicant to assess the overall proposals effects on the ecological values of the Reavers catchment and its connected water bodies.

The Wildland Consultants report is comprehensive and considers the overall earthworks tracking, debris flow barrier commissioning and de-commissioning, removal of the upper debris bulb, re-instatement of the track earthworks, and the hand excavation and helicopter removal of the debris sought in this application.

The overall assessment for this proposal undertaken by Wildland Consultants is attached as **Appendix [F]**.

5.9 Affected Persons Approval(s)

The proposal is being undertaken within the Ben Lomond Recreation Reserve which is owned and administered by the Queenstown Lakes District Council. As the landowner, affected party approval is required from:

- Queenstown Lakes District Council.

The proposed earthworks will be undertaken on land that is subject to a Wahi Tupuna Area, and within the bed of a natural stream. Accordingly, the following parties are potentially adversely affected:

- Au Kaha.
- Te Ao Marama Incorporated.

The airspace in which commercial and recreational paragliding occurs is an identified airspace referred to as G756. To fly from this site, an accreditation /permit is required in accordance with a Memorandum of Understanding between the Southern Hang Gliding and Paragliding Club and Airways Corporation.

As the operation of a helicopter in this airspace is likely to require closure to parapenters, the club is deemed to be potentially affected as are the Queenstown Commercial Parapenters who operate from the lease area adjacent to the SEL facilities. Accordingly, the following parties are considered affected:

- Southern Hang Gliding and Paragliding Club.
- Queenstown Commercial Parapenters Limited.

Due to the noise that will occur during the helicopter lifting operations, the following operators within the Ben Lomond Recreation Reserve and immediately adjacent are also considered affected as helicopter noise may interfere with the audibility of instructions and presentations to their guests:

- ZJV (NZ) Limited – owner and operator of Ziptrek Ecotours.
- Bungy New Zealand Limited – owner an operator of the ledge Bungy.
- Kiwi Birdlife Park Limited – lease and operator of the Kiwi Bird Life Park at the head of Brecon Street.

The writer will be liaising with the above parties and will forward any affected party approvals to the Council as soon as they are received.

Under Section 88E(4) of the RMA the timeframes taken for the applicant to seek these affected party approvals are excluded from the working days clock.

6 Statutory Considerations

6.1 Operative District Plan

Under the ODP, the application site is contained in the Ben Lomond Recreation Reserve and located within the Rural General Zone and ONL Wakatipu Basin.

It is understood that the subject PDP provisions that are relevant to this application are beyond appeal. As such, the relevant provisions are treated as operative, with the standards and provisions relating to the ODP for the Rural General Zone no longer considered to be applicable.

6.2 Proposed District Plan

The application site is contained within the Open Space and Recreation Zone, Informal Recreation Zone, and Ben Lomond Sub-Zone in terms of the PDP. The proposal requires the following resource consents under the PDP.

6.2.1 Chapter 38 – Open Space and Recreation Zone

- A **Discretionary Activity Consent** pursuant to Rule 38.9.38 for an informal airport for the landing, departure, and movement of aircraft (helicopter) over the Ben Lomond Recreation Reserve for the removal of the bagged debris material.

6.2.2 Chapter 25 - Earthworks

- A **Restricted Discretionary Activity Consent** pursuant to Rule 25.4.2 for earthworks associated with the removal of material deposited by a natural hazard event that do not comply with Standard 25.5.1 in Table 25.2 as there is more than 100m^3 of earthworks being undertaken.

- A **Restricted Discretionary Activity Consent** pursuant to Rule 25.4.2 for earthworks associated with the removal of material deposited by a natural hazard event that do not comply with Standard 25.5.10A in Table 25.2 as there is more than 10m^3 of earthworks being undertaken in Wahi Tupuna Te Taumata o Hakitekura (Wāhi Tūpuna 27).
- A **Restricted Discretionary Activity Consent** pursuant to Standard 25.5.14 for transport of more than 300m^3 of clean fill by road to or from an area subject to earthworks.

6.2.3 Chapter 36 - Noise

- A **Non-Complying Activity Consent** pursuant to Standard 36.5.11.2 for helicopter noise that will exceed the 40dB L_{dn} noise limit at the notional boundary of residential units located in the residential zones of Queenstown.

6.3 Otago Regional Plan: Water

Under the Regional Plan: Water the proposal requires the following resource consents. An application is being lodged with ORC concurrently with this application to QLDC.

- A **Discretionary Activity Consent** pursuant to Rule 13.5.3.1 for alteration of the bed of a lake or river.

- A **Restricted Discretionary Activity Consent** pursuant to Rule 13.5.2.1 for extraction of alluvium within the bed of a lake or river.

- A **Discretionary Activity Consent** pursuant to Rule 12.B.4.3 for discharge of water and contaminants. Sediment has the potential to mobilise during the removal of alluvium in Reavers Creek and any future flow down the scoured channel may result in small amounts of mobilised sediment.

6.4 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health ("NESCS")

All applications for resource consent need to be determined if they apply under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health ("NES").

We have previously consulted with the ORC and undertaken a review of the QLDC's property information for the subject site in the previous applications RM160647, RM171172, RM240181 and RM240333 and make the following assessment with regards to the land.

Under these regulations, land is actually or potentially contaminated if an activity or industry on the Hazardous Activities or Industries List (HAIL) has been, or is more likely than not to have been, undertaken on that land.

Therefore, the NES only applies to land that is potentially or actually affected by contaminants because of its historical and/or current use and the types of activities previously undertaken on the site. The land use history is therefore the trigger for determining whether land is considered by the NES.

A recent search of the ORC's listed land use register does not show the application site as being a HAIL site.

A recent search of the QLDC's E-doc's web system does not list any consents that would indicate a hazardous activity has occurred at the site of the upper Reavers catchment works.

As such, it is considered that the NES does not apply to subject site and the works proposed in this application.

6.5 – Overall Activity Status

Overall, the activity is to be assessed as a **Non-Complying Activity**.

7 Assessment of Effects

In accordance with Section 88 and Schedule 4 of the Act an assessment is made of any actual and potential effects on the environment that may arise from the proposal is required with any details of how any adverse effects may be avoided, remedied, or mitigated. Accordingly, below is an assessment of effects relative to the scale and significance of the proposed activity.

The assessment of effects has addressed the following categories:

- Permitted Baseline.
- Effects on Hazard Risk.
- Effects of Earthworks.
- Effects on Access and Traffic Generation.
- Effects of Helicopter Activity.
- Effects on Landscape and Natural Character Values.
- Effects on Ecology.
- Effects on Cultural Values.

7.1 Permitted Baseline.

Sections 95D(b), 95E(2)(a) and 104(2) of the Act provide discretion to Council (for the purposes of forming an opinion as to the actual or potential effects) to disregard any adverse effects of the proposal on the environment (or on a person) if a District Plan or National Environmental Standard permits an activity with that effect.

In this instance, it is considered that there is no relevant permitted baseline regarding this activity.

7.2 Alternative locations or methods.

By virtue of this consent being a response to a natural hazard event and mitigating the ongoing residual risk from such, it is not possible to consider alternative locations.

The proposed methods of mitigation are considered the best practicable option following detailed expert assessment and design by GeoSolve Limited and the applicant's other experts and contractors.

No other reasonably practicable alternatives for extraction of the debris material in this application exist.

7.3 Assessment of the actual and potential effects.

The following areas of consideration apply in terms of assessing the actual and potential effects on the environment.

7.3.1 Effects on Hazard Risk

The Reavers Creek catchment has an existing level of risk[7] for debris flow initiation and associated downstream damage.

The works proposed in this application are not in any way intended to address this existing risk profile.

The proposal is specific to mitigating the continued risk that exists from the debris flow that initiated during the rain event of September 21 – 22, 2023.

As identified in Section 5 above, the proposal in this application, is limited to mitigating the effects of the hazard risk from the material that remains in the bed of Reavers Creek and the slopes/scoured channel immediately above Reavers Creek.

To quantify the risk reduction resulting from the implementation of a remedial option the risk value for the current 'un-remediated' fill state has been determined by GeoSolve. This existing situation risk level (Annual Individual Fatality Risk or AIFR) is provided as a background reference for the proposed remedial risk reduction measures to inform decision making only. The value only considers the introduced fill and does not include risks associated with other hazards in the catchment.

GeoSolve also presented the method and assumptions of the quantitative risk assessment, including estimating the AIFR resulting from the instability of fill within Zone A and Zone B (See figure 1 above).

The risk is primarily posed to people in residential dwellings adjacent to Reavers Creek culvert. The risk assessment undertaken involved:

- Calculation of the probability of debris flow affecting residential dwellings, and the associated risk to the person who will spend most time exposed to the hazard, i.e., the "person most at risk."

- Placing the risk in context in comparison to relevant guidelines, such as those provided by AGS.

The GeoSolve risk assessment found that with no remediation to the material in the lower Reavers Creek catchment and that which still exists on top of the hill in the upper catchment (Zone A in Figure 1 above), the AIFR was $1.25 \times 10^{-2} = 0.0125$.

With the implementation of the lower debris flow barrier in the lower Reavers Creek catchment (which has already been installed and which is subject to QLDC and ORC consents RM240181 and RM24.159), the AIFR becomes $5.96 \times 10^{-3} = 0.00596$.

---

[7] *Natural Hazards Affecting Gorge Road, Queenstown Prepared for Queenstown Lakes District Council Prepared by Beca Limited 12 November 2020.*

With the implementation of the temporary upper debris flow barrier as proposed in this application AND considering the already existing lower debris flow barrier, the AIFR will reduce to 1.45 x 10^{-6} = 0.00000146.

GeoSolve note that the calculated risk values for undertaking remedial works in both the upper and lower parts of the Reavers Creek catchment are significantly lower than the 'tolerable risk' guidelines provided in AGS 2007.

The GeoSolve AIFR calculations can be viewed in their report titled Geotechnical Report for Resource Consent, Debris Removal, Reavers Catchment, Queenstown, Ref: JN 160073.03 dated March 2024 and which is contained in **Appendix [C]**.

Importantly, the GeoSolve Report contained in Appendix [C] of the QLDC and ORC applications RM240181 and RM24.159 concluded by stating:

"It is considered that once the introduced sediment has been captured and/or removed from the catchment the risk will be reduced to the approximate pre-existing level. Until that time, it is considered that engineering structures are an appropriate means of mitigating the risk."

The expert analysis by GeoSolve is accepted.

The intention of this application is in conjunction with RM240333, RM24.254, to implement debris flow barriers to mitigate the immediate risk of further debris flow and then to remove the debris material from the Reavers Creek catchment and return the risk of debris flow in the catchment to the 'pre-existing' level.

At that point, it will be possible for the hard engineering structures to be removed from the catchment.

Based on the expert advice of GeoSolve, it is considered that the AIFR remaining at the current time is 'tolerable' and 'acceptable' with the debris flow barriers in place. The removal of the material as sought in this application is considered to result in a further risk reduction.

Overall, in RMA terms, the level of residual risk is considered less than minor.

7.3.2 Effects of Earthworks

As identified in Section 5 of this application, the proposal comprises earthworks utilising hand tool excavation of the loose material in the original debris flow paths scour channel and from within the bed of Reavers Creek.

The above-mentioned works will have an effect on landscape values and these effects are assessed separately in a later section of this AEE.

This part of the AEE will consider the impacts of the earthworks on:

- Geotechnical feasibility.
- Hydrological impacts.
- Erosion and sediment control.

Regarding both geotechnical feasibility and hydrological impacts, it is acknowledged that this is a steep and difficult site to work within. The overall methodology for the removal of the material has been developed with the input of experts from multiple disciplines to ensure a feasible methodology. This has also been reviewed by an independent health and safety auditor.

A key component to developing the methodology and ascertaining the geotechnical feasibility and hydrological impacts of the proposal has been the expert assessment undertaking by GeoSolve.

Their reporting in **Appendix [C]** of this application includes several previous reports that they have undertaken regarding the debris mobilisation in September 2023 as well as reporting undertaking for other activities and development in the Ben Lomond Recreation Reserve since 2016.

This level of background information illustrates that GeoSolve have extensive knowledge of the site's geomorphology, hydrology, and experience in the monitoring of earthworks and hazard remediation on the site.

The reporting on hydrological matters undertaken by GeoSolve has been informed by detailed modelling undertaken by Fluent Solutions and a catchment analysis and drainage plan has been prepared by Enviroscope in consultation with GeoSolve. The drainage plan is also presented in full with all calculations and flow rates in Appendix [G] of the GeoSolve March 2024 report.

Accordingly, given their extensive history with the application site, and the combined inputs on hydrological matters from Enviroscope and Fluent Solutions, the following concluding statement in Section 7 of their August 2024 report is accepted in full:

"*In conclusion the proposed works are considered feasible from a geotechnical and hydrological perspective provided the recommendations of this report are followed and there is further geotechnical input during the detailed design and construction phases of the project.*"

Accordingly, the effects on geotechnical feasibility, stability and upon hydrology of the application site are less than minor.

Regarding erosion and sediment control, it has been outlined above that there has been a detailed catchment flow analysis and calculations of the flow rates from the ephemeral flow paths that are intersected by the proposed works.

This analysis has involved the utilisation of detailed stormwater flow modelling prepared by Fluent Solutions, as well as input from experts at GeoSolve and Enviroscope resulting in a comprehensive catchment drainage plan.

The full details of this are contained in the Enviroscope EMP in **Appendix [D]**. This EMP is comprehensive and includes details for management of stormwater, erosion and sediment controls for the wider project (as per consents RM240333 RM24.254. Only a small portion of this EMP relates to the works in the scope of this application.

Subject to compliance with the Enviroscope EMP, the potential adverse effects of erosion and sedimentation will be internalised within the application site and will be less than minor.

7.3.3 Effects of Access and Traffic Generation

As identified above in Section 5, all traffic associated with this proposal will need to access the site via the SEL access road as far as the existing forestry track turn off.

Traffic movements for the hand excavation of the debris material will be minimal and relate largely to the transportation of workers and the tools/bags to the tracks that will provide access to the work site.

However, the bagged material will be Heli lifted from the Reavers Creek catchment and deposited at the 'log yard' which is located a short distance from the SEL access road. Trucks will require access up the SEL to the log yard to be able to collect the material and remove it off site.

If each truck can take approximately 6m^3 of material, it is estimate that up to 50 truck movements may be required to remove the estimated 300m^3 of material that is to be flown out.

These traffic movements will be cumulative to those already occurring for the SEL redevelopment under RM160647 and the forestry activities under RM160956. It is also acknowledged that the SEL access road is utilised by the public (walkers and cyclists) and Ziptrek (limited legal right of way).

In the direct referral process for RM160647, comprehensive conditions of consent were imposed by the Environment Court to ensure that access along the SEL access road continued to be provided in a safe and efficient manner.

This included requirements for a traffic management plan (**TMP**) communication with vehicular traffic and/or use of STMS personnel, maximum speed limits, maintenance of the access, provision for cyclists and walkers, and dust suppression.

Some of these same conditions of consent have been volunteered as outlined in Section 5 above. It is anticipated that the existing TMP for the current activities can be modified to incorporate the traffic movements expected by this proposal.

The overall volume of vehicular movements from this activity over the course of the project's duration are not considered to be perceptibly different to those which will be occurring concurrently for the SEL redevelopment project.

To ensure that this is the case, particularly for the residents in the Lomond Crescent area, the same standard hours of operation have been proposed for heavy vehicle movements as were imposed in the RM160647 Environment Court decision.

Subject to implementation of the conditions of consent volunteered in Section 5, the effects of traffic generation on the SEL access road will be less than minor. Similarly, the cumulative effects of traffic generation for residents on Lomond Crescent and the surrounding residential area will not be perceptibly different to those occurring under RM160647 and will therefore be less than minor.

7.3.4 Effects of Helicopter Activity

There are three key areas of adverse effects that will arise from the helicopter activity associated with the removal of bagged material from the upper reaches of Reavers Creek as follows:

- Effects of Noise.
- Effects on Visibility.
- Effects on Recreation.

Regarding the effects of noise, it has been acknowledged above that the noise of a Squirrel helicopter undertaking the heavy lifting of bagged material from the Reavers Creek catchment and transporting it to the SEL access road across the face of Ben Lomond Recreation Reserve will be clearly audible to urban areas of Queenstown.

It is not considered necessary to obtain an acoustic assessment as it is already known from past heavy lifting events (I.e. the installation of the new gondola towers albeit completed with an Iroquois) that the noise of the helicopter operating will be clearly noticeable.

The clearly noticeable noise over an expected duration of approximately 30 hours, is considered to cause disturbance to commercial operators in the reserve including, the commercial parapenters, the Ledge bungy operations, Ziptrek Ecotours and Kiwi Birdlife Park.

Conditions of consent have been volunteered for direct consultation/notification to these parties (and others) in advance of the helicopter activity occurring to provide advance warning and enable planning around these events.

The helicopter noise is also considered to have more than minor effects on the wider environment. This can include disturbance to amenity and possibly sleep for residents, disturbance to the occupants of pre-schools and primary schools, disturbance to wildlife and the interpretative shows at KBP, and disturbance to commercial operators including accommodation providers and businesses in the Brecon Street area. Where it is possible to identify these parties, they have been identified as key stakeholders for advance notification and communication of the helicopter activity.

These effects on the wider environment can be mitigated by restricting the hours of operation and preventing flying during ceremonies at the Queenstown cemetery as identified in Section 5 of the AEE. In addition, conditions of consent can be imposed on the consent decision as outlined in Section 5 of the AEE, requiring communication and public notification in advance of all helicopter activity to confirm the date and time in advance of the flight events.

Prior knowledge of the time and date of the helicopter activity will enable affected parties to plan for the potential disruption rather than be taken by surprise when it occurs. This will mitigate the uncertainty and anxiety that could otherwise occur from not understanding the proposal, its purpose, and duration.

Regarding visibility, the helicopter activity will also be clearly visible as a temporary effect of the activity. Putting aside the noise, the visual effects of a helicopter operating for this purpose for a short duration is considered to have less than minor adverse visual effects. In fact, it is considered that for most people witnessing the operation, there would be a positive effect of witnessing the novelty of a helicopter performing such an important task in a location that they are infrequently operating.

Regarding the effects on recreation, the noise from a helicopter operating will have the potential to adversely affect the amenity of passive recreationalists in the Ben Lomond Recreation Reserve. Sufficient notification prior to (and on) the day(s) of the activity will assist in mitigating the effects on passive recreationalists by educating them and informing them so that their expectations of remoteness are not high.

As noted in Section 5, the Queenstown Commercial Parapenters Limited have a lease atop Bob's Peak and undertake commercial and recreational paragliding operations in the airspace over the Ben Lomond Recreation Reserve.

The airspace is referred to as G756. There is a Memorandum of Understanding between Queenstown Airport/Airways Corporation and the Southern Hang Gliding and Paragliding Club for use of this airspace. All pilots must be compliant with this MOU to fly in G756 and to that end all pilots must be licensed, accredited and certified to fly there.

During the helicopter operations, it is expected that paragliding operations will not be compatible concurrently with these operations due to the issues of rotor wash and potential for collision in the air space.

Notwithstanding that Civil Aviation Rule 91.229(c) requires powered aircraft to give way to non-powered aircraft, it is expected that on the day(s) of helicopter activity, the G756 airspace will need to be closed to paragliding traffic both commercial and recreational. The effects of this necessary closure on the commercial operators and recreational users of the airspace will be more than minor.

These effects can be partly mitigated through appropriate communication with the Queenstown Commercial Parapenters Limited and the Southern Hang Gliding and

Paragliding Club in advance of the proposed helicopter operations as per the volunteered conditions in Section 5 above.

Overall, the effects of helicopter activity will have adverse effects on the environment that are more than minor.

7.3.5 Effects on Landscape and Natural Character Values

As noted in Section 5, the applicant has engaged Boffa Miskell to undertake an assessment of the effects on the landscape and natural character values. Their assessment was similarly to the geotechnical, EMP, and ecological assessments, based on the wider remediation works that have been included within RM240333, RM24.254 applications.

Accordingly, only a portion of the Boffa Miskell assessment is directly relevant to the limited scope of earthworks in this application.

The Boffa Miskell landscape assessment notes that the site can be broadly split into two areas, the slip, and debris flow within the Reavers Creek catchment on the forested north-eastern face of Bob's Peak, and the footprint of the access tracks on the exposed south-eastern face of Bob's Peak. The works in this application fall entirely within the forested north eastern face of Bob's Peak.

From most viewpoints, the mobilised material on the north eastern slopes in the Reavers catchment are curtailed from view by the intervening Douglas Fir trees. The further east and north that one travels i.e. on Gorge Road toward Arthurs Point and the elevated parts of Queenstown Hill, the upper parts of the mobilised material (that are being removed under other resource consent applications), become evident.

The forestry access tracks on the south eastern face of Bob's Peak are visible in open views from large parts of Queenstown including Queenstown Hill, the Town Centre, and Queenstown gardens.

Boffa Miskell have undertaken an assessment of the visual effects from both public vantage points and private vantage points. Without regurgitating the entire Boffa Miskell assessment, the visual effects from public view points have been found to be 'low adverse' to 'very low adverse'. An effect of 'low adverse' corresponds to less than minor in terms of a planning assessment. This expert assessment is accepted.
Similarly, Boffa Miskell find that the visual effects from the private vantage points are 'low adverse' to 'very low adverse'. Again, this level of visual effect corresponds to a less than minor visual effect. This expert assessment is accepted.

In terms of the landscape effects, Boffa Miskell considers that the earthworks within the context of Reavers Creek including the excavation activities and earthworks traffic in the upper part of the catchment will have a neutral effect on the natural

character of Reavers Creek. While the expert assessment is accepted, it is also acknowledged that there will be earthworks within the bed of Reavers Creek itself.

These earthworks will be undertaken with hand tools and are intended to return the bed back to its original state as much as practicably possible. It is considered that these works, undertaken carefully, will have a minor effect on the natural character of Reavers Creek.

Boffa Miskell have also had regard to the landscape priority area mapping and the values that have been identified within the Western Whakatipu Priority Area ONL that applies to the application site.

Considering the curtailing of the views of most works in the Reavers Creek catchment, Boffa Miskell find that the overall effects of the proposed works on the values of the ONL will be 'very low adverse'. In a planning sense, the effects on the ONL values will be less than minor. This expert assessment is accepted.

Regarding the capacity of the landscape to absorb change, and the temporary works in particular, Boffa Miskell find that the landscape absorption capacity is high given the extensive modification in proximity of the site, including the existing forestry tracks, forestry harvesting, and the remaining dense Douglas fir forest on the slopes of Bob's Peak.

Overall, Boffa Miskell find the effects on landscape character and values are considered no greater than 'low adverse' (less than minor), reducing to very low adverse on completion (noting this is their conclusion for all works undertaken in this consent and those in the previous consents RM240333, RM24.254,) and other applications that have recently been lodged with QLDC and ORC for part of the staged remediation. This expert opinion is accepted.

Relying on the expert landscape assessment by Boffa Miskell, the overall effects on visual amenity, natural character and landscape values are less than minor.

7.3.6 Ecological Effects

As identified in Section 5, Wildland Consultants were previously engaged to assess the likely ecological effects of the lower debris flow barrier construction, and the works in the previous consents RM240333, RM24.254.

Their previous reporting in those applications also considered the ecological effects of the earthworks proposed in this application and their assessment is therefore relied on for this proposal.

The predominant risk of potential adverse ecological effects relates to the discharge of sediment when undertaking the proposed works. Regarding this potential effect Wildland's note that:

"Increased sediment within Reavers Creek may have adverse effects on habitat and, if sustained, induce trophic (food web) changes in the immediate and downstream areas. Sediment is also a primary transportation method for nutrients (e.g., phosphorus) and terrestrial microorganisms (e.g., faecal bacteria and E. coli) into waterways. If a significant amount of sediment and debris is washed downstream during a rain event, it would have more than minor adverse effects on the ecology of Reavers Creek and water quality. In addition to this, if the sediment barriers in Reavers Creek were to fail, the effects could carry downstream also having a more then minor adverse effect on Horn Creek."

The other key area of ecological risk identified by Wildland's is that:

"The manual removal of excess sediment in Reavers Creek by hand will disturb the stream bed and is likely to be, at least partially, remediated by the natural flashy flows during the wet season. The direct impact of the stream bed disturbance will likely crush and kill invertebrates and alter the microbial communities living within the stream bed. Microorganisms are responsible for the vast majority of carbon sequestration, organic matter breakdown, and nutrient cycling in Aotearoa New Zealand's freshwater systems. Whether by hand or using machines, dredging should be avoided whenever possible. Depending on the hydrology of the creek and surrounding land, dredging has the potential to change the character of Reavers Creek significantly. This activity would have a more than minor adverse effect on the freshwater values of Reavers Creek."

Regarding these key areas of ecological concerns, Wildland's identify in their report that the risks are well known to the client/applicant and that they have detailed plans to mitigate the risks (particularly from the earthworks in the previous consents RM240333, RM24.254) as part of the EMP prepared by Enviroscope.

The Enviroscope EMP comprehensively covers the erosion and sediment control measures to be employed, their maintenance, and additional contingency measures. In their expert opinion, Wildland Consultants consider that if these measures are employed to the other earthworks and adhered to, the risk of sediment moving down hill into Reavers Creek will be reduced to the point that these effects are less than minor. This expert opinion is accepted and agreed with.

With respect to the removal of debris from the bed of Reavers Creek, Wildland Consultants identify that heavy rain events and movement of stream beds is a natural occurrence in catchments such as Reavers. The aquatic fauna and invertebrate species are recovering, and the stream will be creating a new, stable, bed following the September 2023 rain event.

Accordingly, Wildlands recommend that the work to clear the remaining debris and sediment from the stream bed should aim to remove the debris that poses a significant risk of mobilisation and property damage but should also avoid disturbing areas of stable streambed to avoid disturbing the recovering macroinvertebrate and

microbial communities. In cases where the streambed is indistinguishable from the debris, it is in their opinion, best left undisturbed, if it does not pose any other risks.

To reduce the direct impacts on the macroinvertebrate and microbial communities, Wildland Consultants recommend that this work should be undertaken while the creek is dry and has been dry for a few days, as the invertebrate larvae will not be utilising the habitat.

If care is taken to prevent disturbing the stream bed were possible, and the work is conducted while there is no flow and has been no flow for a few days, the direct adverse effects on the Reavers Creek instream works are in Wildland Consultants opinion, likely to be minor for the aquatic environment of Reavers Creek. This impact would be temporary if the recommendations are followed, and the macroinvertebrate and microbial communities should recover.

This expert advice is accepted, and the applicant volunteers that no work shall be undertaken within the bed of Reavers Creek when there is any flow, and that the creek must have been dry for 7 days prior to any works commencing in this area.

In addition, in Wildland Consultants opinion, temporary sediment fences should be used to limit the amount of suspended fine sediment moving downstream during removal of the material in the bed of Reavers Creek. Sediment fences should be emptied and removed at the completion of the works.

The applicant accepts this recommendation, and it is volunteered that a condition of consent should be imposed requiring sediment fences to be established downstream of the work area when removing the material from the bed of Reavers Creek.

Wildland Consultants consider that if care is taken to prevent disturbing the stream bed where possible, and mitigation measures to capture sediment suspended within the water are in place, the adverse effects of the Reavers Creek instream works should be minor for the aquatic environment of Reavers Creek and, and less then minor for Horn Creek.

Overall, the expert advice and recommendations of Wildland Consultants is accepted, and it is considered that the potential adverse effects, including temporary effects, on ecological values will be no more than minor.

7.3.7 Effects on Cultural Values

The proposed activity is occurring within Wahi Tupuna area 27 - Te Taumata o Hakitekura. Threats for this area listed in Table 39.6 include:

a. Exotic wilding trees and pest plant species.
b. Buildings and structures, utilities.
c. New roads or additions/alterations to existing roads, vehicle tracks and driveways.
d. Activities affecting the ridgeline and upper slopes.

In addition, the proposal involves works within the wet bed of a waterway and the quality of water is a key cultural issue and ties into the principles of Te Mana o Te Wai and Ki Uta Ki Tai.

All these matters have been given significant consideration throughout the implementation of the remedial works that have occurred to date and in respect of the remainder of the works that are outlined in this application.

The assessment of the Objectives and Policies of Section 39 of the PDP, the Kai Tahu Ki Otago Natural Resource Management Plan 2005, and The Cry of the People Te Tangi a Tauira plan, has found that the proposal is consistent with the relevant provisions.

Further, consultation has been enacted with both Au Kaha and Te Ao Marama. The written approvals of these cultural bodies will be provided to Council once received.

Overall, the proposed works have been kept as minimal as possible subject to expert engineering requirements and controls have been implemented to protect water quality as much as practicably possible. Ecological assessment has also confirmed that there are no on-going, significant adverse effects on riparian ecology and therefore any downstream mahinga kai values.

Accordingly, the cultural effects are less than minor. If the Au Kaha and Te Ao Marama Inc written approvals originate, the cultural effects will be able to be disregarded completely.

7.4 Discharge of contaminants

The proposal involves the discharge of sediment which is considered a 'contaminant.'

The discharge has been described in detail in the AEE and a supporting ecological assessment from Wildland Consultants describes the receiving environment and its sensitivity.

Given the nature of the works and the location of the material that has been transported into the Reavers Creek catchment, there are no alternative methods or locations for the discharge.

7.5 Mitigation measures

The AEE describes that the removal of the debris material is required to mitigate against the potential of the remaining material washing downstream and impacting the downstream properties and/or QLDC's stormwater reticulation.

Erosion and sedimentation controls will be put in place in accordance with the Enviroscope EMP and recommendations of Wildland Consultants.

All works will be undertaken in accordance with the recommendations of and under the expert supervision of geotechnical engineers at GeoSolve. Provided that the earthworks are undertaken with their guidance, the effects on general slope stability will be mitigated.

Effects on the natural character and ecological values of Reavers Creek will be mitigated with silt fences to protect against mobilisation of fine sediment and works will only occur when the stream bed is dry and has been for 7 days prior to prevent effects on invertebrates.

Conditions of consent have been volunteered and/or are invited to ensure that the specified mitigation measures are adhered to.

7.6 Identification of interested or affected persons.

In considering the adverse effects on persons via Section 95E(2), the following outlines an assessment as to whether the activity will have or is likely to have adverse effects on persons that are minor or more than minor.

QLDC is the landowner and administrator of the Ben Lomond Recreation Reserve which contains the Reavers Creek catchment. Accordingly, as the owner, affected party approval is required from:

- Queenstown Lakes District Council.

The proposed earthworks will be undertaken on land that is subject to a Wahi Tupuna Area, and within the bed of a natural stream. Accordingly, the following parties are considered adversely affected:

- Au Kaha.
- Te Ao Marama Incorporated.

Further to the above, the airspace in which commercial and recreational paragliding occurs is an identified airspace referred to as G756. To fly from this site, an accreditation /permit is required in accordance with a Memorandum of Understanding between the Southern Hang Gliding and Paragliding Club and Airways Corporation. As the operation of a helicopter in this airspace is likely to require closure to parapenters, the club is deemed to be potentially affected. Accordingly, these parties are considered affected:

- Southern Hang Gliding and Paragliding Club.
- Queenstown Commercial Parapenters Limited.

Additionally, transportation will be required over the SEL access road and in addition, due to the potential disturbance that may occur during the helicopter operations, the

following operators within the Ben Lomond Recreation Reserve and immediately adjacent are also considered affected:

- ZJV (NZ) Limited
- Kiwi Birdlife Park Limited
- Bungy New Zealand Limited.

The writer will be consulting with the above parties and will forward any affected party approvals to the Council as soon as they are received.

Under Section 88E(4) of the RMA the timeframes taken for the applicant to seek these affected party approvals are excluded from the working days clock.

7.7 Monitoring

Monitoring and maintenance has been described in the AEE and the supporting documentation from GeoSolve. Conditions of consent are anticipated requiring these works to be undertaken in accordance with GeoSolve's recommendations.

7.8 Customary rights

The proposed activity will have no effect on any customary rights.

8 Notification

Public and limited notification matters of consideration are detailed below.

8.1 Section 95A: Public Notification

In terms of Section 95A(1), a consent authority must follow the steps set out in Section 95A, in the order given, to determine whether to publicly notify an application for a resource consent. The four steps within Section 95A(1) are addressed below.

Step 1: Mandatory public notification in certain circumstances

The following matters are noted:

- The applicant is requesting public notification of the proposal (Section 94A(3)(a)).

- Provided a further information request is reasonable, the applicant is unlikely to refuse to provide information or refuse the commissioning of a report under Section 92(2)(b) of the Act (Section 95A(3)(b)).

- The application does not seek to exchange recreation reserve land under Section 15AA of the Reserves Act 1977 (Section 95A(3)(c)).

Based on the above, public notification of the application is required.

Step 2: Public notification precluded in certain circumstance.

The following matters are noted:

- Public notification is not precluded by any rule or national environmental standard (Section 95A(5)(a)).

- The proposal is not a controlled activity, a restricted discretionary/discretionary subdivision or a residential activity, a boundary activity, or a prescribed activity (Section 95A(5)(b)(i)(ii)(iii)(iv)).

Based on the above, public notification of the application is not precluded.

Step 3: If not precluded by Step 2, public notification is required in certain circumstances.

The following matters are noted:

- Public notification of the proposal is not specifically required by a rule or a national environmental standard (Section 95A(8)(a)).

- The consent authority decides, in accordance with Section 95D, that the proposal will have or is likely to have adverse effects on the environment that are more than minor (Section 95A(8)(b)).

  The assessment included in this application concludes that the effects arising from the helicopter heavy lifting operations will be more than minor.

Step 4: Public notification in special circumstances

The following is noted:

- It is considered that there are no special circumstances that warrant the proposal being publicly notified (Section 95A(9)). Consideration as to whether limited notification should occur is addressed below.

Overall, it is concluded that the potential adverse effects of the proposal on the environment will be more than minor (with regard to the helicopter activity).

8.2 Section 95B: Limited Notification

Section 95B(1) requires a decision on whether there are any affected persons under Section 95E. The following steps set out in this section, in the order given, are used to determine whether to give limited notification of an application for a resource consent, if the application is not publicly notified under Section 95A.

Step 1: Certain affected groups and affected persons must be notified.

Limited notification is not required under Step 1 as the proposal does not affect customary rights groups, customary marine title groups, nor is it on, adjacent to or may affect land subject to a statutory acknowledgement (Section 95B(2)-(4)).

Step 2: If not required by step 1, limited notification precluded in certain circumstances

Limited notification is not precluded under Step 2, as:

- The proposal is not subject to a rule in the District Plan or national environmental standard that precludes limited notification (Section 95B(6)(a)).

- The proposal is not a controlled activity or a prescribed activity (Section 95B(6)(b).

Step 3: If not precluded by step 2, certain other affected persons must be notified.

Limited notification is not precluded under Step 3 as the proposal is not a boundary activity where the owner of the infringed boundary has provided their approval, nor is the proposal a prescribed activity (Section 95B(7)).

Limited notification is not precluded under Step 3 as the proposal falls into the 'any other activity' category and the effects of the proposal are assessed in the application.

The assessment in this application takes into consideration the exclusions of Section 95E(2) and (3), when assessing whether the proposal will have or is likely to have adverse effects on persons that are minor or more than minor (but not less than minor).

Step 4: Further limited notification in special circumstances

It is considered that there are no special circumstances that apply to the application which warrants limited notification.

As noted above, Section 95B(1) requires a decision whether there are any affected persons (under s95E) in relation to the activity. Section 95E requires that a person is an affected person if the adverse effects of the activity on the person are minor or more than minor (but not less than minor). An assessment in this respect follows:

QLDC is the landowner and administrator of the Ben Lomond Recreation Reserve which contains the Reavers Creek catchment. As they are not the applicant, the works on their reserve are considered to require approval.

In regard to the Queenstown Commercial Parapenters Limited they are a regular user of airspace G756 that will be impacted by the helicopter heavy lift operations, likely requiring their operations to cease. This is a minor effect (with the mitigation proposed) and they are an affected party.

Similarly, the Southern Hang Gliding and Paragliding Club whose members can seek accreditation to operate within the airspace G756 are also considered an affected party as recreational users of airspace G756 will be impacted by the helicopter heavy lift operations.

Also, regarding the helicopter operations, it is anticipated that the noise from the helicopter operating could affect the ability of the commercial operators at the Ledge Bungy, Ziptrek Ecotours, and Kiwi Birdlife Park to conduct their businesses without any disruption. Accordingly, these parties are considered adversely affected.

As outlined above, the Reavers Creek catchment and entire Ben Lomond Recreation Reserve is located within a Wahi Tupuna area in the PDP. Further, the earthworks have occurred within a water course and the maintenance of water quality is a key cultural concern for Iwi.

Accordingly, both Te Ao Marama Incorporated and Au Kaha are considered affected parties.

Consultation is to be undertaken with all the abovementioned affected parties and their approvals (or responses) will be provided to the Council as soon as possible.

With the proposed upper debris flow barrier and the plans for subsequent removal of the mobilised debris material in this application, the applicant's experts at GeoSolve expect that the risk of debris flow to downstream properties on Reavers Lane and Huff Street will be no greater than that which existed prior to the September 2023 rainfall event. Accordingly, it is considered that the residual risk to these downstream properties is less than minor.

Overall, other than those parties listed above, no other parties are adversely affected to a minor or more than minor degree.

9 Statutory Assessment

Clause 2(1)(g) of Schedule 4 of the Resource Management Act 1991 requires an assessment against any relevant planning documents that are referred to in Section 104(1)(b) of this legislation. Such documents include:

- A national environmental standard
- Other regulations
- A national policy statement.
- A New Zealand coastal policy statement
- A regional policy statement or proposed regional policy statement.
- A plan or proposed plan

It is also necessary in the case of this proposal to consider the two Iwi Management Plans applicable to the District.

9.1 Operative District Plan

Given the operative nature of the relevant provisions of the PDP, it is not considered necessary to undertake an assessment of the Objectives and Policies of the ODP.

9.2 Proposed District Plan

In the context of this application which seeks land use consent for earthworks to remove debris that mobilised into the Reavers Creek catchment, and the associated removal by helicopter, the Objectives and Policies of the Proposed District Plans Strategic Direction Chapter (Chapter 3), Landscape (Chapter 6), Earthworks (Chapter 25), Natural Hazards (Chapter 28), Noise (Chapter 36), Open Space and Recreation (Chapter 38) and Wahi Tupuna (Chapter 39) are relevant.

These provisions are assessed in detail below:

9.2.1 Chapter 3 – Strategic Directions

Strategic Objectives

3.2.5 ***The retention of the District's distinctive landscapes. (addresses Issues 2 and 4)***

3.2.5.1 ***The District's Outstanding Natural Features and Outstanding Natural Landscapes and their landscape values and related landscape capacity are identified.***

3.2.5.3 ***In locations other than in the Rural Zone, the landscape values of Outstanding Natural Features and Outstanding Natural Landscapes***

are protected from inappropriate subdivision, use and development.

The subject site is located within the Landscape Priority Area 21.22.12 – Western Whakatipu Basin ONL.

The Boffa Miskell landscape assessment has had regard to the landscape priority areas identified values and ability to absorb change. Noting that the area of works lies within the forested north eastern slopes of Bobs Peak, it is their expert opinion that potential adverse effects on landscape and natural character and visual amenity from the proposed earthworks will be less than minor.

Accordingly, along with the functional necessity of the work, it is considered that the proposal represents appropriate development in this area and achieves this Objective.

3.2.7 The partnership between Council and Ngāi Tahu is nurtured. (addresses Issue 6).

3.2.7.1 Ngāi Tahu values, interests, and customary resources, including taonga species and habitats, and wāhi tūpuna, are protected.

3.2.7.2 The expression of kaitiakitanga is enabled by providing for meaningful collaboration with Ngāi Tahu in resource management decision making and implementation.

The proposal is considered to achieve these Objectives. The values and interests of Ngai Tahu have been given specific recognition in the development of this resource consent application through acknowledgment of the Wahi Tupuna overlay over the site and the consideration of Te Mana o Te Wai regarding the effects on water quality.

Consultation will be occurring with affected party approval being sought from Te Ao Marama Incorporated and Au Kaha. While these approvals are yet to be obtained, this illustrates that direct consultation is occurring regarding the decision-making process in addition to their input into the various planning documents that are had regard to in the decision-making process for this proposal.

The proposal achieves this Objective.

Strategic Policies

3.3.30 Protect the landscape values of Outstanding Natural Features and Outstanding Natural Landscapes. (relevant to SO 3.2.1, 3.2.1.7, 3.2.1.8, 3.2.5, 3.2.5.2, 3.2.5.3, 3.2.5.4 and 3.2.5.6)

As outlined above, the applicant has obtained an expert landscape assessment from Boffa Miskell that has had regard to the identified values in the landscape priority area, considered the absorption capacity of the environment, and subsequently

determined that the effects on the landscape values in the context of this application site will be less than minor. This expert assessment is accepted and therefore it is considered that the overall values of this landscape priority area and ONL are protected. The proposal is consistent with this Policy.

3.3.49 *Avoid significant adverse effects on wāhi tūpuna within the District. (relevant to SO 3.2.7, 3.2.7.1)*

3.3.50 *Avoid remedy or mitigate other adverse effects on wāhi tūpuna within the District. (relevant to SO 3.2.7, 3.2.7.1)*

3.3.51 *Manage wāhi tūpuna within the District, including taonga species and habitats, in a culturally appropriate manner through early consultation and involvement of relevant iwi or hapū. (relevant to SO 3.2.7, 3.2.7.1 and 3.2.7.2)*

As identified above, the Wahi Tupuna overlay on this site is acknowledged and consultation will be occurring with affected party approval being sought from Te Ao Marama Incorporated and Au Kaha. While these approvals are yet to be obtained, this illustrates that direct consultation is occurring regarding the decision-making process to ensure that any adverse effects on Wahi Tupuna are remedied or mitigated.

Accordingly, the proposal is consistent with these Polices.

9.2.2 Chapter 6 - Landscapes

6.3.1.5 *Classify the Open Space and Recreation zoned land located outside the Urban Growth Boundary as Outstanding Natural Landscape, Outstanding Natural Feature or Rural Character Landscape, and provide a separate regulatory framework for the Open Space and Recreation Zones within which the remaining policies of this Chapter do not apply. (SO 3.2.5, 3.2.5.1, 3.5.5.5, 3.2.5.7 and SP 3.3.28, 3.3.30, 3.3.32).*

The subject site sits within the Open Space and Recreation Zone (informal Recreation Zone). Accordingly, it is considered that the provisions of Chapter 38 are most relevant in terms of landscape assessment, and these are assessed in detail below.

The proposal is not contrary to this Policy.

9.2.3 Chapter 25 - Earthworks

25.2.1 ***Objective – Earthworks are undertaken in a manner that minimises adverse effects on the environment, including through mitigation or remediation, and protects people and communities.***

25.2.1.1 *Ensure earthworks minimise erosion, land instability, and sediment generation and offsite discharge during construction activities associated with subdivision and development.*

25.2.1.2 *Manage the adverse effects of earthworks to avoid inappropriate adverse effects and minimise other adverse effects, in a way that:*

a. *Protects the values of Outstanding Natural Features and Landscapes;*

b. *Maintains the amenity values of Rural Character Landscapes;*

c. *Protects the values of Significant Natural Areas and the margins of lakes, rivers, and wetlands;*

d. *Minimises the exposure of aquifers, in particular the Wakatipu Basin, Hāwea Basin, Wānaka Basin and Cardrona alluvial ribbon aquifers; Note: These aquifers are identified in the Otago Regional Plan: Water for Otago 2004.*

e. *Protects Māori cultural values, including wāhi tapu and wāhi tūpuna and other sites of significance to Māori;*

f. *Protects the values of heritage sites, precincts, and landscape overlays from inappropriate subdivision, use and development; and*

g. *Maintains public access to and along lakes and rivers.*

25.2.1.3 *Avoid, where practicable, or remedy or mitigate adverse visual effects of earthworks on visually prominent slopes, natural landforms, and ridgelines.*

25.2.1.4 *Manage the scale and extent of earthworks to maintain the amenity values and quality of rural and urban areas.*

25.2.1.5 *Design earthworks to recognise the constraints and opportunities of the site and environment.*

25.2.1.6 *Ensure that earthworks are designed and undertaken in a manner that does not adversely affect infrastructure, buildings, and the stability of adjoining sites.*

25.2.1.7 *Encourage limiting the area and volume of earthworks being undertaken on a site at any one time to minimise adverse effects*

on water bodies and nuisance effects of adverse construction noise, vibration, odour, dust, and traffic effects.

25.2.1.8 *Undertake processes to avoid adverse effects on cultural heritage, including wāhi tapu, wāhi tūpuna and other taonga, and archaeological sites, or where these cannot be avoided, effects are remedied or mitigated.*

25.2.1.9 *Manage the potential adverse effects arising from exposing or disturbing accidentally discovered material by following the Accidental Discovery Protocol in Schedule 25.10.*

25.2.1.10 *Ensure that earthworks that generate traffic movements maintain the safety of roads and accesses, and do not degrade the amenity and quality of surrounding land.*

25.2.1.11 *Ensure that earthworks minimise natural hazard risk to people, communities, and property, in particular earthworks undertaken to facilitate land development or natural hazard mitigation.*

25.2.2 ***Objective – The social, cultural, and economic wellbeing of people and communities benefits from earthworks.***

25.2.2.1 *Enable earthworks that are necessary to provide for people and communities wellbeing, having particular regard to the importance of:*

a. *Nationally and Regionally Significant Infrastructure;*

b. *tourism infrastructure and activities, including the continued operation, and provision for future sensitive development of recreation and tourism activities within the Ski Area Sub Zones and the vehicle testing facility within the Waiorau Ski Area Sub Zone;*

c. *minimising the risk of natural hazards;*

d. *enhancing the operational efficiency of farming including maintenance and improvement of track access and fencing; and*

e. *the use and enjoyment of land for recreation, including public walkways and trails; and*

f. *maintaining or enhancing the operational efficiency of existing infrastructure.*

Overall, the PDP Objectives and Policies outlined above enable earthworks that are part of subdivision and development, if they are undertaken in a way that avoids, remedies, or mitigates adverse effects on communities and the natural environment.

Importantly, Policies 25.2.1.11 and 25.2.2.1(c) specifically enable earthworks to be undertaken that facilitate natural hazard mitigation and minimising natural hazard risk which is exactly what the earthworks in this application are for.

However, even if the earthworks are associated with natural hazard mitigation and protection of the health and well-being of the community, the Policies still require appropriate assessment and mitigation.

Specifically, Policy 25.2.1.1 requires the minimisation of erosion, land instability, and sediment generation and offsite discharge. The proposal seeks to undertake works in accordance with the erosion and sediment controls outlined in the Enviroscope EMP and recommendations of Wildland Consultants to prevent sediment discharge.

The works are to be undertaken in accordance with the recommendations and supervision of GeoSolve. As such, the proposed works are geotechnically feasible and are not considered likely to result in any instability issues on or off the application site.

The earthworks have been designed and undertaken as sensitively as possible given the landscape overlays that affect the site. Policy 25.2.1.3 requires avoidance, where practicable, or alternatively remediation or mitigation of adverse visual effects of earthworks on visually prominent slopes, natural landforms, and ridgelines.

As outlined in the AEE, there are no alternatives to achieve the removal of the debris from this difficult site and therefore avoidance is not possible. However, the use of hand excavation (as opposed to additional tracking and mechanical excavation) will mitigate the effects on landscape character and values of the ONL on this prominent hill side.

The expert landscape assessment by Boffa Miskell outlines that the values of Outstanding Natural Features and Landscapes are protected as required by Policy 25.2.1.2 (a).

As noted above, the wahi tupuna overlay on the site and the potential effects of sedimentation on water quality which has a high cultural value has been considered.

As noted above, silt control will be put in place and direct consultation with Te Ao Marama Incorporated and Au Kaha will occur. It is considered that cultural values have been protected and provided for as required by Policy 25.2.1.2(e) and 25.2.1.8.

Overall, these mitigation earthworks are generally consistent with the abovementioned Objectives and Policies.

9.2.4 Chapter 28 – Natural Hazards

Objectives

28.3.1 A ***The risk to people and the built environment posed by natural hazards is managed to a level tolerable to the community.***

28.3.1 B ***Development on land subject to natural hazards only occurs where the risks to the community and the built environment are appropriately managed.***

Policies

Determining significant risk and risk tolerance

28.3.1.1 *When determining the significance of the natural hazard risk the following matters shall be considered:*

a. *The likelihood of the hazard event including multiple and cascading events;*

b. *After taking account of existing and proposed risk reduction measures, the potential consequences including:*

i. *Whether buildings and structures, critical services and lifeline utilities would be functionally compromised in a hazard event;*

ii. *The risk to human life or safety;*

iii. *The scale of potential adverse effects;*

iv. *The displacement of risk.*

c. *People's and communities' tolerance of the natural hazard risk.*

28.3.1.2 *When assessing tolerance of risk the following matters shall be considered:*

a. *the nature and scale of the activity;*

b. *existing lawfully established land use or zoning;*

c. *the actual and potential adverse effects of the natural hazard on people and communities;*

d. *those people's and communities' awareness or experience of the risk, including any investigations, initiatives or natural hazard risk engagement that have been undertaken;*

e. *the consequence of and response to past natural events;*

f. *the effectiveness and implementation of responses, adaptions, or mitigation measures.*

Assessment of natural hazard risk

28.3.1.3 *Ensure all proposals to subdivide or develop land that is subject to natural hazard risk include an assessment that is commensurate with the level of natural hazard risk including where relevant:*

a. *the likelihood of the natural hazard event occurring over no less than a 100 year period;*

b. *the type and scale of the natural hazard and the effects of a natural hazard on the subject land, and proposed activity or development;*

c. *the effects of multiple and cascading hazards;*

d. *the effects of climate change on the likelihood and scale of the natural hazard;*

e. *the potential for the activity to exacerbate the natural hazard risk both within and beyond the subject land;*

f. *the location, design and construction of building and structures to mitigate the effects of natural hazards, such as the raising of floor levels, or relocation of buildings and structures;*

g. *management techniques that avoid or manage natural hazard risk to a tolerable level, including with respect to ingress and egress of both residents and emergency services during a natural hazard event.*

Advice note:

Council's natural hazard database identifies land that is affected by, or potentially affected by, natural hazards. The database contains natural hazard information that has been developed at different scales and this should be taken into account when assessing potential natural hazard risk. It is highly likely that for those

hazards that have been identified at a 'district wide' level, further detailed analysis will be required.

Management of natural hazard risks

28.3.1.4 *Avoid activities that result in significant risk from natural hazard.*

28.3.1.5 *Recognise that some areas that are already developed are now known to be subject to natural hazard risk and minimise such risk as far as practicable while acknowledging that the community may be prepared to tolerate a level of risk.*

28.3.1.6 *Not preclude subdivision and development of land subject to natural hazards which do not:*

a. accelerate or worsen the natural hazard risk to an intolerable level;

b. expose vulnerable activities to intolerable natural hazard risk;

c. create an intolerable risk to human life;

d. increase the natural hazard risk to other properties to an intolerable level;

e. require additional works and costs including remedial and maintenance works, that would be borne by the public.

28.3.1.7 *Except as provided for in Policy 28.3.1.6, restrict activities where the natural hazard risk is intolerable to people and the community (Policy 28.3.1.2).*

28.3.1.8 *Ensure assets and infrastructure are constructed and located to avoid or mitigate:*

a. the potential for natural hazard risk to human life to be exacerbated; and

b. the potential risk of damage to property and infrastructural networks from natural hazards to the extent practicable, including consideration of the functional needs of regionally significant infrastructure.

28.3.1.9 *Where a natural hazard has been identified, but the natural hazard risk to people and communities is unknown, but potentially significant, apply a precautionary approach.*

28.3.1.10 *Enable Otago Regional Council and the Council exercising their statutory powers to undertake physical works for the purposes of natural hazard risk mitigation while recognising the need to mitigate potential adverse effects that may result from those works.*

28.3.1.11 *Promote the use of natural features, buffers, and appropriate risk management approaches in preference to hard engineering solutions in mitigating natural hazard risk.*

The most relevant Objective is Objective 28.3.1A which seeks that the risk to people and the built environment is managed to a tolerable level.

In the case of this application, there is and has always been, a risk of debris flow from the Reavers Creek catchment. Given the level of development that has occurred downstream, this risk is historically considered to have been tolerable.

The mobilisation of material into the catchment has exacerbated that risk. The intention of the previous applications associated with the debris flow removal have sought to mitigate the risk with debris flow barriers and removal of the upper debris bulb. The intent of this consent application is to mitigate the remaining risk of the material that reached the lower slopes and Reavers Creek itself, from migrating downstream and affecting the downstream properties.

Accordingly, and as outlined in the GeoSolve report, the level of risk to downstream properties will be returned to a commensurate level with the pre-event risk and therefore be 'tolerable.'

Most of the Policies relate to the consideration of proposals for subdivision and development and the assessment and management of risk from natural hazards on those developments.

However, what is considered most relevant to this proposal is Policy 28.3.1.1 which requires determination of the significance of natural hazard risk and the tolerance to it.

It is considered that there has been sufficient geotechnical analysis and design of the works (including those in the previous relevant consent applications) to understand the likelihood and significance of a hazard event occurring and to determine that once the debris has been removed, the risk to human life and safety and to buildings and structures will be appropriately 'low' and within the existing communities, level of tolerance.

Overall, the proposal is generally consistent with these provisions.

9.2.6 Chapter 36 - Noise

36.2.1 *Objective - The adverse effects of noise emissions are controlled to a reasonable level to manage the potential for conflict arising from adverse noise effects between land use activities.*

Policies

36.2.1.1 *Avoid, remedy or mitigate adverse effects of unreasonable noise from land use and development.*

As outlined above, the proposal requires the use of a Squirrel helicopter and a long line to lift the debris material that is hand excavated from Reavers Creek and the slope immediately above it and to deliver it to the log yard located near the SEL access road for subsequent removal off-site.

The flight time required for the removal of the bagged material has been estimated at 30 hours.

No noise assessment has been obtained for the proposed helicopter use as it is known that the noise of the helicopter operating under load immediately adjacent to the urban environment will be clearly audible and noticeable within a significant receiving environment. The noise has the potential to be disruptive at residential, educational, and commercial properties in the vicinity of the application site. With disruption over a 30-hour duration (multiple days), the noise emissions cannot be described as 'reasonable'.

However, the proposal is considered to align with Policy 36.2.1.1 as the applicant is volunteering conditions to mitigate the effects of the noise including; limiting the hours of operation for helicopter activity, not operating when a ceremony is to be held at the Queenstown Cemetery, and publicly notifying the dates and times of helicopter activity 7 days in advance so that parties receiving the noise can be aware and plan their day accordingly.

The proposal is therefore partly consistent with this Objective and Policy.

9.2.5 Chapter 38 – Open Space and Recreation

District Wide Provisions

38.2.1 ***Objective - The open space land and facilities administered by the Council make a major contribution towards meeting the needs of the District's residents and visitors for passive and active recreation.***

38.2.1.3 *Promote the protection of existing ecological values having regard to the purpose, objectives, and policies specific to each Open Space and Recreation Zone, and opportunities for enhancing natural values.*

38.2.1.5 *Avoid activities that do not have a practical or functional need to be located within Open Space and Recreation Zones, unless a particular activity:*

a. is compatible with and does not affect the continued operation of established activities;

b. is of a location, nature and scale that does not preclude development of new open space and recreation activities; and

c. maintains or enhances recreation, amenity, and heritage values.

The proposal is not contrary to this Objective as the proposed works will not diminish the reserve's ability to continue to provide for passive and active recreation. Specifically, the works are occurring in an inaccessible part of the reserve and are not in proximity of any existing facilities, trails, or activities.

It is noted that the helicopter activity associated with the removal of the bagged material from Reavers Creek, and the slope immediately above will result in a reduction in the ability to utilise airspace G756 by the paragliding community however, this is a temporary and short duration effect and will not permanently affect the use of this airspace.

An ecological assessment has been obtained from Wildland Consultants which identifies the ecological values of the Reavers Creek catchment and notes that subject to recommended mitigation to avoid further sedimentation and disturbance to invertebrate communities, the ecological values can be maintained.

In terms of Policy 38.2.1.5, the activity has a practical and functional need to be in the proposed location. The debris entered the Reavers Creek catchment, and the subsequent removal of material must therefore be in this catchment.

However, the earthworks will not preclude development of new open space and recreation activities noting that it is highly likely that any would ever occur in this area due to the topography and access constraints.

The earthworks are within the tree canopy. Those parts of the proposal that are visible on the south eastern slopes are limited to any traffic movements to get personnel, bags, and shovels etc. as close as possible to the area of debris flow. These traffic movements are seen in the context of a modified environment and Boffa Miskell have identify that they can be absorbed with less than minor effects on landscape character, visual amenity, and natural character values. Accordingly, the amenity values (particularly visual amenity) in this part of the reserve will be maintained.

The proposal is generally consistent with these provisions.

38.2.2 ***Objective - Recreation activities are undertaken and facilities constructed in a way that maintains or enhances the values of open space areas and the recreation opportunities available within the District.***

38.2.2.1 *Ensure activities are undertaken in a manner that maintains or enhances the recreation and amenity values of the relevant reserve and surrounding environment, including natural, scenic and heritage values.*

38.2.2.2 *Limit activities, buildings, and structures to those compatible with the role and function of the zone, and the sensitivity of the surrounding environment, and which maintain or enhance the anticipated use or values of the zone.*

38.2.2.3 *Require areas surrounding buildings, structures, outdoor storage, and parking areas to be landscaped to mitigate visual impacts and maintain or enhance amenity values.*

38.2.2.4 *Ensure the scale and location of buildings including associated structures, trails and accesses, and noise and lighting associated with recreation activities is consistent with the level of amenity anticipated in the zone and in the surrounding environment, having particular regard to the following where new buildings, structures or lighting are proposed:*

a. *the purpose, number, size and location of new buildings, structures and lighting are appropriate, in terms of their function and the sensitivity of the environment;*

b. *that building design and appearance positively contributes to amenity, cultural, ecological and landscape values;*

c. *that buildings or structures do not unduly preclude or limit public access, particularly along the margins of the District's lakes and rivers;*

d. *that cumulative adverse effects of buildings and activities are taken into account; and*

e. *the provision for and standard of lighting, including:*

i. *its siting and location, in particular, how it contributes to public safety; and*

ii. *minimising upward light spill on the night sky.*

38.2.2.5 *Ensure that any buildings or structures located within, adjoining or nearby to an Outstanding Natural Feature or Landscape, protect, maintain, or enhance values of the Outstanding Natural Feature or Landscape by:*

a. limiting development and activities in the vicinity of water bodies to the land based components of community recreation water based activities, which have a practical and functional need to be located within these areas; (refer also to Objective 38.2.4)

b. preserving the natural character of the margins of waterbodies; (refer also to Objective 38.2.4)

c. ensuring buildings are located in areas that are least sensitive to change and have capacity to absorb development;

d. requiring buildings to be designed and finished so they:

i. avoid visual dominance; and

ii. mitigate or remedy adverse effects on the values of the Outstanding Natural Feature or Landscape; and

e. ensuring trails, access and carparking areas (including associated earthworks) maintain visual amenity values and natural character values.

38.2.2.6 *Ensure the development and use of Open Space and Recreation Zones maintains the amenity values enjoyed by residents and visitors such as walking, social activities, and the protection of view shafts as seen from adjoining land and roads.*

The above Objective and supporting Policies are more directly related to 'recreation activities' and their associated buildings and facilities as opposed to applying to alternative activities and built form.

However, if these provisions were to be applied to the proposed development, Policy 38.2.2.4, 38.2.2.5 and 38.2.2.6 are considered the most applicable. The site is within an ONL and landscape priority area. There will be modification to the margins of the Reavers Creek as far as is necessary to facilitate removal of deposited material and return it as close as possible to its natural state. However, while there is some modification, this occurs out of view from the public.

There will be modification to the landscape through the removal of the debris material on the slope. However, as detailed by Boffa Miskell, these earthworks are in a location

where the environment can absorb the modification and where the identified values including amenity values will be maintained.

This is because the areas affected by earthworks occur within the tree canopy where it is not visible. Further, Wildland Consultants have reported on the ecological impacts on the riparian margins and have made recommendations that are accepted by the applicant to maintain the riparian margins and the cover provided by vegetation and minimise the impact on invertebrate communities.

Overall, the Boffa Miskell landscape assessment has confirmed that the earthworks remediation is largely located within the tree canopy and within an area that has capacity to absorb change, where visual dominance is avoided, and where the temporary and permanent effects can maintain amenity and natural character values of this part of the Reserve including when viewed from outside of the site.

Overall, the proposal is not considered contrary to the above provisions.

Informal Recreation Zone

38.4.1 ***Objective – Use and development for informal recreation maintains and enhances the environment.***

38.4.1.1 *Enable a variety of informal recreation activities, including small-scale community uses and accessory activities.*

38.4.1.2 *Encourage commercial recreation activities and related commercial activities to complement and enhance other uses and experiences in the Informal Recreation Zone while at the same time maintaining or enhancing the landscape and amenity values of the zone.*

38.4.1.3 *Provide for multiple recreation activities while managing conflicts between multiple uses, and ensuring public safety and public access to informal recreational opportunities are maintained and enhanced.*

38.4.1.4 *Ensure that buildings and activities that exclude or restrict public access are limited so as to encourage public use and maintain open space for informal recreation, recognising that the existing facilities that have been established within this zone, in some instances, may be extended or redeveloped.*

38.4.1.5 *Limit the intensity of activities to minimise adverse effects such as noise, glare and traffic on amenity values, peace and enjoyment of the Informal Recreation Zones and surrounding environment.*

38.4.1.6 *Opportunities are taken to enhance recreational trail networks, cycling and walking linkages within the zone, and to other zones,*

to create a contiguous network to assist residents and visitors to move through and around neighbourhoods, and to other destinations, thereby providing an alternative and sustainable mode of transport.

Again, the above provisions are quite specific towards the guidance of development of facilities and recreation activities. They are not directly geared towards assessment of structures and other alternative activities.

However, it is noted that the earthworks are discreetly located such that effects on amenity values, peace and enjoyment of the reserve including the amenity anticipated by the immediate residential neighbours, is acceptable and noted that there are no physical structures being established as part of this proposal.

Policy 38.4.1.3 is particularly relevant as this seeks to manage conflicts between recreational activities and maintain public safety. It has been noted in the AEE that the G756 airspace will be affected by the proposed helicopter operations and likely require closure to paragliding operations.

The applicant proposes to manage this through direct consultation with the Queenstown Commercial Parapenters Limited and the Southern Hang Gliding and Paragliding Club. While there will be a period of up to 30 hours of potential disruption in this air space, this disruption can be appropriately managed with effective communication.

Overall, the proposal is not considered contrary to the above provisions.

38.4.2 *Objective – Use and development of the Ben Lomond Sub-Zone provides a high-quality destination for residents, and domestic and international tourists, while maintaining the landscape values and amenity values of the surrounding Outstanding Natural Landscape.*

Policies

38.4.2.1 *Control the visual impact of buildings, passenger lift systems, earthworks and infrastructure associated with commercial and commercial recreation activities.*

38.4.2.2 *Ensure that buildings, passenger lift systems and infrastructure associated with commercial and commercial recreation activities are not highly prominent on the skyline and remain subservient to the view of Walter Peak when viewed from the north east (Malaghans Road / Gorge Road).*

38.4.2.3 *Provide for and maintain Gondola access between Brecon Street and Bob's Peak including necessary removal of exotic conifers subject to landscape rehabilitation in the event of conifer removal.*

38.4.2.4 *Ensure the removal of exotic conifer trees in areas other than the Gondola Corridor mitigates the post-harvest adverse effects on landscape and visual amenity through landscape rehabilitation.*

Again, the Objective and associated Policies do not directly relate to the earthworks proposed in this application as they are not associated with commercial and commercial recreation activities.

However, regarding the maintenance of the landscape values and amenity, expert landscape assessment has been received from Boffa Miskell which confirms that the effects on these matters will be less than minor.

Accordingly, relying on the expert landscape assessment, the proposal is consistent with these provisions.

9.2.6 Chapter 39 – Wahi Tupuna

39.2.1 Manawhenua values, within identified wāhi tūpuna areas, are recognised and provided for.

39.2.1.1 *Recognise that the following activities may have effects that are incompatible with Manawhenua values where they occur within identified wāhi tūpuna areas;*

a. Mining and mining activities, including gravel extraction;

b. Landfills;

c. Cemeteries and crematoria;

d. Forestry;

e. Removal of indigenous vegetation from significant natural areas (SNA); and

f. Wastewater treatment plants.

39.2.1.2 *Recognise that the effects of activities may require assessment in relation to Manawhenua values when that activity is listed as a potential threat within an identified wāhi tūpuna area, as set out in Schedule 39.6.*

39.2.1.3 *Within identified wāhi tūpuna areas:*

a. avoid significant adverse effects on Manawhenua values and avoid, remedy, or mitigate other adverse effects on Manawhenua values from subdivision, use and

development listed as a potential threat in Schedule 39.6; and

b. *avoid, remedy, or mitigate adverse effects on Manawhenua values from subdivision, use and development within those identified wāhi tūpuna areas in the urban environment where potential threats have not been identified in Schedule 39.6.*

39.2.1.4 Encourage early consultation with Manawhenua when appropriate to understand the effects of any activity on Manawhenua values in an identified wāhi tūpuna area.

It is considered that this proposal has recognised and provided for manawhenua values. The Wahi Tupuna Te Taumata o Hakitekura (Ben Lomond) has been acknowledged and assessed through this AEE and the Objectives and Policies assessment including the assessment of the Iwi Management Plans below.

In Schedule 39.6, it is recognised that threats to the manawhenua values are buildings and structures including utilities, and new roads or additions/alterations to existing roads and tracks. It is noted that there are no new features such as this because of this proposal.

The expert assessments provided with this application from a geotechnical, landscape, and ecological perspective confirm that the earthworks can be undertaken without significant adverse effects as required by Policy 39.2.1.3.

While it is well recognised and understood that effects on water quality are key concerns to manawhenua and mitigation has been put in place for sediment control, Policy 39.2.1.4 is also acknowledged, and consultation will be occurring with both Te Ao Marama Incorporated and Au Kaha to ensure that all effects on Manawhenua Values are identified and assessed.

Accordingly, the proposal is generally consistent with these provisions.

9.3 Kai Tahu Ki Otago Natural Resource Management Plan (2005)

The Kai Tahu Ki Otago Natural Resource Management Plan (2005) is dated as it is coming up 19 years old and it is considered that Manawhenua values as expressed in this document have been more recently addressed and incorporated into the Operative and Proposed Regional Policy Statements and development of the Proposed District Plan.

Notwithstanding, an assessment of the relevant provisions is outlined below:

Section 5 – Otago Region

Overall Objectives

i. ***The rakätirataka and kaitiakitaka of Käi Tahu ki Otago is recognised and supported.***

ii. ***Ki Uta Ki Tai management of natural resources is adopted within the Otago region.***

iii. ***The mana of Käi Tahu ki Otago is upheld through the management of natural, physical, and historic resources in the Otago Region.***

iv. ***Käi Tahu ki Otago have effective participation in all resource management activities within the Otago Region.***

v. ***The respective roles and responsibilities of Manawhenua within the Otago Region are recognised and provided for through the other objectives and policies of the Plan.***

The proposal is generally consistent with these broad Objectives. The rakätirataka and kaitiakitaka of kai Tahu has been recognised throughout the assessment of this proposal.

Participation has occurred through the consultation process that will be undertaken with Au Kaha and Te Ao Marama Incorporated.

Ki Uta Ki Tai is recognised and has been adopted throughout the region through the higher order planning documents and the PDP provisions already assessed above.

5.3.3 Wai Mäori General Objectives

i. ***The spiritual and cultural significance of water to Käi Tahu ki Otago is recognised in all water management.***

ii. ***The waters of the Otago Catchment are healthy and support Käi Tahu ki Otago customs.***

iii. ***There is no discharge of human waste directly to water.***

iv. ***Contaminants being discharged directly or indirectly to water are reduced.***

v. ***Flow regimes and water quality standards are consistent with the cultural values of Käi Tahu ki Otago and are implemented throughout the Otago Region and lower Waitaki Catchment.***

vi. ***The unresolved issues surrounding water ownership are addressed.***

The spiritual and cultural significance of water is recognised along with the principles of Te Mana o Te Wai and Ki Uta Ki Tai whereby maintaining the life supporting capacity of freshwater recognises and provides for the mana and mauri of water.

The proposal seeks to ensure that the waters affected by the proposal are healthy and support ecological well-being and that contaminants discharged to the water (sediment) are mitigated and reduced as far as practicably possible.

The proposal has no impact on flow regimes and the issues of water ownership are a much wider matter for central government to resolve.

5.3.4 Wai Mäori General Policies

1. To require an assessment of instream values for all activities affecting water.

2. To promote the cultural importance of water to Käi Tahu ki Otago in all water management within the Otago Region and Lower Waitaki Catchment.

3. To promote co-ordinated research into water-related issues that provides for Käi Tahu ki Otago input.

4. To protect and restore the mauri of all water.

6. To oppose any further cross mixing of waters.

10. To encourage all stormwater be treated before being discharged.

12. To encourage Käi Tahu ki Otago input into the development of monitoring programmes.

13. To require monitoring of all discharges be undertaken on a regular basis and all information, including an independent analysis of monitoring results, be made available to Käi Tahu ki Otago.

16. To require re-vegetation with locally sourced indigenous plants for all disturbed areas. Re-vegetation should be monitored by an assessment of the vegetative cover at one growing season after establishment and again at three seasons from establishment.

Regarding Policy 1, an instream assessment has been undertaken by Wildland Consultants and their recommendations have been adopted.

The cultural importance of water to Kai Tahu is well known throughout the Otago Region and has been given specific regard to in this application. Accordingly, the proposal achieves Policy 2.

Regarding Policy 3, the proposal does not provide for co-ordinated research into water related issues, however this is not considered necessary for the scale of the works proposed, and their emergency nature. Further, Kai Tahu will have input into this process through the consultation proposed to be undertaken with Au Kaha and Te Ao Marama Incorporated.

Regarding Policy 4, all earthworks that are proposed within this application will be implemented with silt and sediment control in place to ensure protection of the mauri of the water.

Regarding Policy 6, it is noted that the Reavers Creek water flows into a QLDC stormwater pipe which eventually discharges into Horne Creek. The proposal in this application does not introduce any new mixing of waters.

Regarding Policy 10, it is important to note that Reavers Creek flows directly into the QLDC stormwater reticulation network before discharging to Horne Creek. There has never been any stormwater treatment so in heavy rain events, natural sedimentation always occurs to the downstream network.

This proposal will result in the status quo, however, during the works proposed in this application, comprehensive erosion and sediment controls will be implemented in accordance with the EMP prepared by Enviroscope, and there will be a sediment fences located downstream of the work area to ensure that any sediment that is discharged is captured. This is in addition to not undertaking any earthworks in Reavers Creek when there is any flow and requiring it to have been dry for 7 days prior.

Maintenance has been outlined within the AEE and indirectly, through the affected party approval consultation that will occur with Au Kaha and Te Ao Marama Incorporated, Kai Tahu will have input into this matter as required by Policy 12.

All monitoring records of the discharge which are required by QLDC (and ORC) through conditions of consent will be public information and available to Kai Tahu at any time thus meeting the requirements of Policy 13.

Regarding Policy 16, Wildland Consultants assessed the riparian vegetation, and it is noted that no riparian vegetation has been proposed to be removed to facilitate the works in this proposal.

Accordingly, the proposal is generally consistent with these Policies.

River and Instream Works:

31. *To require that fish passage is provided for at all times, both upstream and downstream.*

32. *To oppose all river and instream work if near a nohoaka site during the months of August to April.*

33. *To require that buffer zones are established and agreed upon with the Papatipu Rünaka between the flowing water and the site of any river or instream work.*

34. *To require that any visual impacts at the site of the activity are minimal.*

35. *To require that wet concrete does not enter the active flow channels.*

36. *To require that any works be undertaken either before or after spawning season of potentially affected species as identified by the affected Papatipu Runaka.*

37. *To require that all practical measures are taken to minimise sedimentation or discharge of sedimentation.*

38. *To require that all practical measures are undertaken to minimise the risk of contamination to the waterway.*

39. *To require that work is done when the water level is naturally low or dry.*

40. *To require that machinery enters the dry bed of the waterway only to the extent necessary, to carry out as much of the work as possible, using one corridor for entering and exiting.*

41. *To discourage machinery operating in flowing water.*

42. *To require that all machinery is clean and well maintained before entering the work site; refuelling is to be done away from the waterway.*

In response to the above, the Wildland Consultant's report finds that there is no evidence of fish in the Reavers Creek catchment and therefore; there is no need to provide passage as per Policy 31.

The works are not occurring near a Nohoaka site as referred to in Policy 32.

Buffer zones are not to be established in consultation with Papatipu Rūnaka however, stream flow will not exist when the works in Reavers Creek are undertaken as a minimum period of 7 days of no water flows is required before these works can be undertaken. This accords with Policy 33.

Regarding Policies 34 and 35, visual impacts at the site will be minimal. The proposed works in the catchment are not visible from outside of the subject site. The works will be undertaken during a period of no flow and any sedimentation will be captured by silt

fence to ensure any sediment discharged during (or after works when water re-flows in the catchment) is captured and discolouration will not occur downstream of the work site (i.e. into Horne Creek). No wet concrete will be used anywhere near the active flow of Reavers Creek.

Regarding 36, the affected Papatipu Rūnaka did not have an opportunity to identify spawning seasons for potentially affected species as the works were undertaken as an emergency. However, as noted above, Wildland Consultants have confirmed that there are no fish species affected by the proposed works.

Regarding Policies 37 – 42 above, the contractors undertaking the works will achieve these Policies. All works will minimise as much as practicable sedimentation, works will be done during a period of no flow, and no machinery will not enter the water course (excavation by hand tools) to complete the work.

Overall, the proposal is generally consistent with the above Policies.

Gravel Extractions:

52. *To discourage instream extractions.*

53. *To require that all gravel-take applications include a report on the effects on aquatic ecosystems, fisheries, coastal processes, and the sustainability of gravel takes in the area concerned.*

This proposal does not represent a typical gravel extraction activity as the applicant is not seeking to extract gravel for screening and sale. As outlined throughout the AEE, the proposal seeks to remove gravel that has unintentionally mobilised to the catchment.

As identified throughout the attached reporting, the remaining material that is in situ in the upper parts of the catchment will be removed via hand tools, bagged, and removed by helicopter.

While this does not align with Policy 52, it is noted that this is an exceptional circumstance and entirely unavoidable to enact the proposed remediation.

Regarding Policy 53, the proposal is accompanied by an ecological assessment from Wildland Consultants that addresses the relevant ecological matters.

The proposal is generally consistent with the intent of these Policies.

5.6.3 Cultural Landscapes Objectives

i. ***The relationship that Käi Tahu ki Otago have with land is recognised in all resource management activities and decisions.***

ii. The protection of significant cultural landscapes from inappropriate use and development.

iii. The cultural landscape that reflects the long association of Käi Tahu ki Otago resource use with in the Otago region is maintained and enhanced.

iv. The use of Mäori land by beneficial owners according to cultural preferences is supported and the maintenance of relationships with the land facilitated.

5.6.4 Cultural Landscapes General Policies

1. To identify and protect the full range of landscape features of significance to Käi Tahu ki Otago.

Earth Disturbance:

19. To require all earthworks, excavation, filling or the disposal of excavated material to:

i. Avoid adverse impacts on significant natural landforms and areas of indigenous vegetation;

ii. Avoid, remedy, or mitigate soil instability; and accelerated erosion;

iii. Mitigate all adverse effects.

Roading:

20. To require an accidental discovery protocol for all road realignments and widening and forest harvest roads and to avoid any sediment run-off during earthworks and road construction to avoid contamination of waterways.

21. To require indigenous re-vegetation with locally sourced species for all disturbed areas. Revegetation should be monitored by an assessment of the vegetative cover at one growing season after establishment and again at three seasons from establishment.

Structures:

24. To discourage the erection of structures, both temporary and permanent, in culturally significant landscapes, lakes, rivers or the coastal environment.

Again, the proposal has had regard to the relationship Kai Tahu Ki Otago have with the land through the detailed assessment of cultural values and iwi management plans.

Expert landscape assessment has been undertaken by Boffa Miskell to ensure that the landscape will not be subject to any significant adverse effects on natural character and amenity.

Expert erosion and sediment control procedures and drainage have been proposed by Enviroscope and GeoSolve to mitigate against the effects of soil instability and erosion.

An accidental discovery protocol condition can be included in any resource consent decision on this proposal.

Regarding Policy 24, the proposal does not involve the construction of any buildings or structures.

Overall, the proposal is generally consistent with these provisions.

9.4 The Cry of the People, Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008

In this Iwi Management Plan, the Queenstown Lakes District is identified as being located within the 'Takitimu Me Ona Uri: High Country and Foothills' area of interest[8].

Section 3.4 of the MNRMP 2008 sets out the Policies for this specific area of interest. It is considered that the relevant Policy considerations are contained in Sections 3.4.9 – General Water Policy and 3.4.13 – Hazardous Substances and New Organisms Cultural Landscape, Wahi Tapu and Wahi Taonga. These are addressed below.

9.4.1 Section 3.4.9 – General Water Policy

This section clarifies that Ngāi Tahu ki Murihiku General water policy is found in Section 3.5: Southland Plains, provision 3.5.10.

High country lakes and rivers are essential in maintaining continuity in the life cycle of water and the ecosystems that are supported by such. The policies as outlined in Section 3.5 Southland Plains, provisions 3.5.10-3.5.20 are applicable and should be read in the context of activities occurring in, around, on or affecting high country waterways.

9.4.2 Section 3.5 – Southland Plains

3.5.10 – General Water Policy

[8] *Page 64, Part 3, Wāhi Tuatoru – Ngā Kaupapa Policy, The Cry of the People, Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008 (MNRMP 2008).*

1. *The role of Ngāi Tahu ki Murihiku as kaitiaki of freshwater must be given effect to in freshwater policy, planning and management.*
2. *Work with local authorities and other statutory agencies involved in freshwater management to ensure that cultural values and perspectives associated with freshwater management are reflected in statutory water plans, best practice guidelines and strategies, and in resource consent processes for activities involving water.*

1. *Protect and enhance the mauri, or life supporting capacity, of freshwater resources throughout Murihiku.*

2. *Manage our freshwater resources wisely, mō tātou, ā, mō ngā uri ā muri ake nei, for all of us and the generations that follow.*

3. *Promote the management of freshwater according to the principle of ki uta ki tai, and thus the flow of water from source to sea.*

4. *Promote catchment management planning (ki uta ki tai), as a means to recognise and provide for the relationship between land and water.*

8 *Protect and enhance the customary relationship of Ngāi Tahu ki Murihiku with freshwater resources.*

Regarding the above Policies, the proposal is consistent with 1 and 2. The role of Ngai Tahu Murihiku is being given effect to and the cultural values and perspectives associated with freshwater management, are recognised, and being given full consideration through this application and the provisions of the Proposed District Plan.

Regarding Policies 3 – 6, the principles of Ki Uta Ki Tai and the need to protect the mauri or quality of the water has been strongly recognised throughout this assessment.

As noted above, sediment control has been comprehensively designed by Enviroscope, GeoSolve and Wildland Consultants and will be used during the earthworks on the slopes and removal of the debris in the bed of Reavers Creek.

Regarding Policy 8, to the writer's knowledge there is no customary relationship with the Reavers Creek catchment. Notwithstanding, it is noted that with sediment control during earthwork's, any downstream customary relationships will be protected.

3.5.12 – Discharge to Water

1 *Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Even if the discharge is treated and therefore considered "clean," it may still be culturally unacceptable. Generally, all discharge must first be to land. This general policy is a baseline or starting point. From this point, the Rūnanga can assess applications on a case-by-case basis.*

2 *Assess discharge to water proposals on a case by case basis, with a focus on local circumstances and finding local solutions.*

3 *Consider any proposed discharge activity in terms of the nature of the discharge, and the sensitivity of the receiving environment.*

7 *Any discharge activity must include a robust monitoring programme that includes regular monitoring of the discharge and the potential effects on the receiving environment.*

10 *Ngāi Tahu ki Murihiku consider activities involving the discharge of contaminants to water a community issue. For this reason, ngā rūnanga may, where seen as appropriate, recommend that a consent application be notified.*

Regarding Policy 1, the comprehensive erosion and sediment controls are expected to prevent any discharges of sediment to Reavers Creek. The removal of the material in the creek bed itself will be done following a week of no flow to ensure that there is no disturbance to water-based invertebrates. Sediment fences will be installed downstream of the works site to ensure that when water re-flows, fine sediment will be captured. The wording notes that this Policy is merely a baseline position, and each discharge would be assessed on a case-by-case basis. Accordingly, the proposal is not contrary to the Policy.

Regarding Policies 2 and 3, the proposed discharge of sediment is being assessed on a case-by-case basis on its own merits. Due to exceptional circumstances, there is no alternative for the works that are occurring in the wet bed of Reavers Creek. However, a robust assessment of the effects on the receiving environment has been undertaken both in a general erosion and sediment control sense and a detailed ecological assessment. This allows for an informed consideration of the discharge as per Policy 3.

Regarding Policy 7, a monitoring and maintenance programme has been proposed for the functioning of the erosion and sediment controls in the EMP. The Wildland Consultants report does not identify any significant downstream effects from these works and therefore ongoing monitoring and reporting of effects is not needed.

The proposal has been subject to sufficient assessment by Wildland Consultants to demonstrate that the on-going effects of sediment discharge from the activity are less than minor on the receiving environment. Accordingly, while ngā Rūnanga may hold discretion to recommend, notification, it is not considered necessary for this application.

3.5.13 – Water Quality

1 *The role of Ngāi Tahu ki Murihiku as tangata whenua and kaitiaki of water must be recognised and provided for in all water quality management.*

2 *Strive for the highest possible standard of water quality that is characteristic of a particular place/waterway, recognising principles of achievability. This means that we strive for drinking water quality in water we once drank from, contact recreation in water we once used for bathing or swimming, water quality capable of sustaining healthy mahinga kai in waters we use for providing kai.*

3 *Require cumulative effects assessments for any activity that may have adverse effects of water quality.*

5. *Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Generally, all discharge must first be to land.*

8. *Promote the restoration of wetlands and riparian areas as part of maintaining and improving water quality, due to the natural pollution abatement functions of such ecosystems.*

11. *Require robust monitoring of discharge permits, to detect non-compliance with consent conditions. Noncompliance must result in appropriate enforcement action to discourage further non-compliance.*

Regarding Policy 1, the role of Ngai Tahu ki Murihiku has been recognised and given full consideration through this application and the provisions of the Proposed District Plan.

The expert assessment by Wildland Consultant has assessed the effects of the proposal on both the Reavers Creek catchment but also the downstream impacts due to the creek discharging into Horne Creek via the QLDC stormwater network. These downstream/cumulative effects have been appropriately assessed as required by Policy 3.

As part of the assessment by Wildland Consultants, they have recommended some mitigation measures including working in the stream bed during periods of no flow to maintain water quality and invertebrate habitat, and this generally aligns with Policy 8.

Regarding Policy 11, conditions of consent are invited to ensure that the proposed sediment controls are implemented before, and during the undertaking of all works.

3.5.15 – Activities in the Beds and Margins of Rivers

1 *Assess applications for gravel extraction in terms of the following considerations:*

a. *cultural values associated with the river (e.g. mahinga kai or taonga species habitat);*

b. *amount of material extracted;*

c. *design of extraction operations;*

d. *times of year that extraction will occur;*

e. *number of existing consents associated with the*

f. *location; how any adverse effects are being mitigated;*

g. *monitoring provisions;*

h. *cumulative effects assessment.*

2 *Land use consents to carry out activities in the beds and margins of rivers should include information about ecological, cultural, natural and community values associated with the surrounding areas (e.g. adjacent wetlands, bird nesting sites, instream life, community use of the area; inanga/whitebait habitat).*

3 *Require that a Ngāi Tahu ki Murihiku Accidental Discovery Protocol (see Appendix 6) is a condition on resource consents.*

4 *Require consent conditions for gravel extraction activities stipulating the use of "work windows" and other methods to ensure that such activities do not:*

a. *disturb roosting and/or nesting sites of birds during the operation/activity;*

b. *adversely effect native fish species (e.g. interrupt spawning);*

c. *cross flowing water with heavy vehicles;*

d. *extract gravel where there is, or there is the potential to be, running water;*

e. *Damage native vegetation on the river bed or riparian area.*

Regarding Policy 1 it is important to note that this application is not of a typical gravel extraction activity seeking aggregate at large volume for commercial use and sale. This is an application to remove storm derived debris from the bed of a stream for health and safety purposes. Accordingly, this Policy and those that follow are not particularly well geared toward this type of activity.

Notwithstanding, the proposal has been assessed against the cultural values, and the key points of a – g.

Regarding Policy 2, ecological, cultural, natural and community values have been considered in this application. Cultural values have formed a significant part of this application and consultation will be occurring with Au Kaha and Te Ao Marama Incorporated.

Ecological effects have been considered and assessed by Wildland Consultants. There is no community use of the area however, the receiving environment includes residential activities and dwellings, and the proposal is to reduce the hazard risk of debris flow to those downstream properties.

Regarding Policy 3, accidental discovery protocols exist under other legislation and would have applied at the time the works commenced (noting that this application is part retrospective), however, an accidental discovery protocol condition is invited on the Council's decision.

Regarding Policy 4, the activity will not affect the ecological values in (a) and (b) as determined by Wildland Consultants.

In terms of (c) and (d), the proposal will not involve machinery operating in running water and the works to extract the gravel from the bed of Reavers Creek will be undertaken only after a 7-day period of there being no flow.

No native vegetation is proposed to be removed during the proposed works.

3.5.17 – Biodiversity

1 Use planning, policy, and resource consent processes to promote the protection and, where necessary, enhancement, of native biodiversity of Murihiku, specifically:

a. enhancement and restoration of degraded areas;

b. planting of native species to offset or mitigate

c. adverse effects associated with land use activities;

d. the incorporation of biodiversity objectives into development proposals;

e. prohibiting the use of pest plant species in landscaping.

3 For Ngāi Tahu ki Murihiku, all species are taonga, whether weta, snail or kiwi, and the effects of an activity on species must consider all species equally.

4 Where practical, indigenous vegetation that is removed or damaged as a result of land use activity should be replaced.

5 *Use as a consent condition, when applicable, the enhancement of indigenous biodiversity as a means to remove adverse impacts of proposed activities.*

6 *Recommend the planting of indigenous species as an appropriate mitigation measure for any adverse impacts as a result of land use activity.*

In terms of the above Policies, Wildland Consultants have undertaken a comprehensive assessment of the potential effects on ecological biodiversity from the proposal.

In terms of Policies 4, 5, and 6, Wildland Consultants have assessed the proposal and find that overall, the ecological effects are no more than minor.

No indigenous vegetation is proposed to be removed as part of this proposal. All in stream works will be undertaken when there are no flows and Reavers Creek has been dry for a period of 7 days. This will ensure disturbance to invertebrates will be negligible.

3.5.19 – Riparian Zones

8 *Avoid or remedy any adverse effects of river works activities, culverts, bridges, and stock crossings on riparian areas.*

As noted above, the very nature of this proposal being hazard remediation within the bed of a stream, means that adverse effects on the stream and its margins cannot be avoided.

However, the assessment contained in this AEE and the Wildland Consultants ecological report, provides certainty that the effects on the environment can be remedied and mitigated.

Overall, considering all these Policies holistically, it is considered that the proposal is not contrary to the relevant provisions of this management plan.

9.5 National Policy Statement on Freshwater

While the National led coalition Government has announced that they will replace the National Policy Statement for Freshwater management 2020 (NPS-FM) it has not been repealed. Rather it is up for review and replacement, a process that could take up to 24 months.

Accordingly, the NPS-FM remains a relevant consideration and an assessment of its provisions is outlined below:

(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

Policies

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

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

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

4: Freshwater is managed as part of New Zealand's integrated response to climate change.

5: Freshwater is managed (including through a National Objectives Framework) to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.

6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.

7: The loss of river extent and values is avoided to the extent practicable.

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

9: The habitats of indigenous freshwater species are protected.

10: The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.

11: Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided.

12: The national target (as set out in Appendix 3) for water quality improvement is achieved.

13: The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.

In terms of the Objective, it is important to note that all earthworks will be undertaken in as sensitively as possible and with sediment controls in place to protect the water quality and overall ecological health in accordance with the EMP prepared by Enviroscope.

Regarding Policy 1 and 2, the principle of Te Mana o Te Wai and Ki Uta Ki Tai have been had regard to throughout this application and direct consultation is occurring with both Au Kaha and Te Ao Marama Incorporated.

Regarding Policy 3, the proposal has considered the whole of catchment basis with the assessment by Wildland Consultants considering the downstream impacts of the proposed works – notwithstanding that Reavers Creek flows into a QLDC stormwater network, it does discharge into Horne Creek and this impact has been assessed.

Regarding Policies 4 & 5, the effects of these works on water quality will be mitigated with appropriate downstream silt fencing to maintain the quality of the water that discharges into the QLDC stormwater network and ultimately, Horne Creek.

Regarding Policy 6, there are no wetlands affected by the proposal.

Regarding Policy 7, the loss of river values is and will be avoided as much as practicably possible. The works are being undertaken as sensitively as possible and with minimal degradation to the natural character and ecology of the riparian margins due to the removal of material occurring via hand tools and not mechanical excavation. Wildland Consultants have assessed the stream values and determined that the proposal will have a no more than minor impact on the ecological values.

The Reavers Creek catchment is not considered to be an outstanding waterbody as referred to in Policy 8.

Regarding Policy 9, the Wildland Consultants report confirms that the habitat of indigenous species in the Reavers Creek catchment has been damaged, but invertebrates are recolonising the catchment and subject to the controls proposed for future works, will have no more than minor adverse effects.

There is no habitat for trout and salmon as referred to in Policy 10.

There is no water take proposed in this application and therefore there is no risk of over-allocation as discussed in Policy 11.

The proposal is not considered to have any implications for achieving the national targets for water quality improvement given the small scale of the works and sediment controls in place.

In terms of Policy 13, the applicant does not propose on-going freshwater quality monitoring the Reavers Creek water quality.

Overall, the proposal is broadly consistent with the Objective and associated Policies.

9.6 National Policy Statement on Indigenous Biodiversity

Consideration has been given as to whether assessment is required under the NPS-IB however, Section 1.3(1) deals with the application of the NPS-IB and states that "*This*

*National Policy Statement applies to indigenous biodiversity in the **terrestrial environment** throughout Aotearoa New Zealand*". [emphasis added].

The terrestrial environment is defined in the NPS-IB as:

> "*terrestrial environment means land and associated natural and physical resources above mean high-water springs, excluding land covered by water, water bodies and freshwater ecosystems (as those terms are used in the National Policy Statement for Freshwater Management 2020) and the coastal marine area*".

As the proposal in this application relates to the effects of debris flow and associated remedial works in the Reavers Creek (and Horn Creek) water bodies, and there is no indigenous vegetation clearance occurring in the terrestrial environment, it is not considered necessary to undertake an assessment of the provisions of the NPS-IB.

10 Section 104 of the Act

Section 104 of the Act states when considering an application, the consent authority must, subject to Part 2 of the Act, have regard to:

- Any actual and potential effects on the environment of allowing the activity;
- Any relevant provisions of a plan or proposed plan;
- Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

As outlined in the application, the proposed activity will result in adverse effects on the environment that are more than minor (with regard to helicopter operations).

However, subject to the mitigation outlined in this application, the proposed activity is not contrary to the relevant objectives and policies of the District Plan, and finally, there are no other matters relevant to the assessment of the application.

11 Purpose and Principles of the Act

The purpose of Act is to promote the sustainable management of natural and physical resources. Sections 6, 7 and 8 also require consideration.

12.1 Section 6 of the Act

The proposal requires consideration of the following matters of national importance.

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development.

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

(h) the management of significant risks from natural hazards.

Of the matters of national importance above, it is considered that (h) needs to take priority. The proposed works are necessary for the protection of property and preservation of human life and avoidance of injury resulting from a certain to occur natural hazard.

Without these works having been undertaken, there will remain a risk to downstream residents.

In terms of (e), considerable recognition of the relationship of Mäori and their culture including effects on water generally and the acknowledgement of the Wahi Tupuna overlay has been demonstrated throughout this application. They also can participate in this consent process by being deemed an affected party and a request for their consideration of the application and provision of approval having been made.

In terms of (a), the proposal is not considered inappropriate development and as such, the minor impacts on the riparian margins of Reavers Creek are considered acceptable.

Regarding (b), expert landscape assessment by Boffa Miskell illustrates that the effects of the proposal will have less than minor adverse effects on the environment and therefore, the proposal results in protection of the ONL from inappropriate development.

Regarding (c), the habitat of indigenous fauna in Reavers Creek has been assessed by Wildland Consultants and subject to undertaking works during periods of no flow, and implementing the erosion and sediment controls, invertebrate habitat will be protected.

Overall, the proposal is not contrary to these matters of national importance.

12.2 Section 7 of the Act

Section 7 of the Act states that achieving the purpose of the Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to:

(a) kaitiakitanga:

(aa) the ethic of stewardship:

(b) the efficient use and development of natural and physical resources:

(ba) the efficiency of the end use of energy:

(c) the maintenance and enhancement of amenity values:

(d) intrinsic values of ecosystems:

(e) [Repealed]

(f) maintenance and enhancement of the quality of the environment:

(g) any finite characteristics of natural and physical resources:

(h) the protection of the habitat of trout and salmon:

(i) the effects of climate change:

(j) the benefits to be derived from the use and development of renewable energy.

The following other matters in this Section of the Act are considered relevant.

(a) Kaitiakitanga.

(c) The maintenance and enhancement of amenity values.

(d) Intrinsic values of ecosystems.

(f) Maintenance and enhancement of the quality of the environment.

As noted throughout this application, considerable recognition of the relationship of Mäori and their culture including effects on water generally and the acknowledgement of the Wahi Tupuna overlay has been demonstrated. They also can participate in this consent process by being deemed an affected party and a request for their consideration of the application and provision of approval having been made.

The AEE has detailed how the proposal will have minimal adverse effects on the maintenance of amenity and the quality of the environment as the works are occurring inside the tree canopy and out of sight and as assessed by Boffa Miskell, will have less than minor adverse effects on the landscape and natural character values of the area.

The values of the ecosystem have been thoroughly assessed by Wildland Consultants and there are no more than minor adverse effects on ecological biodiversity.

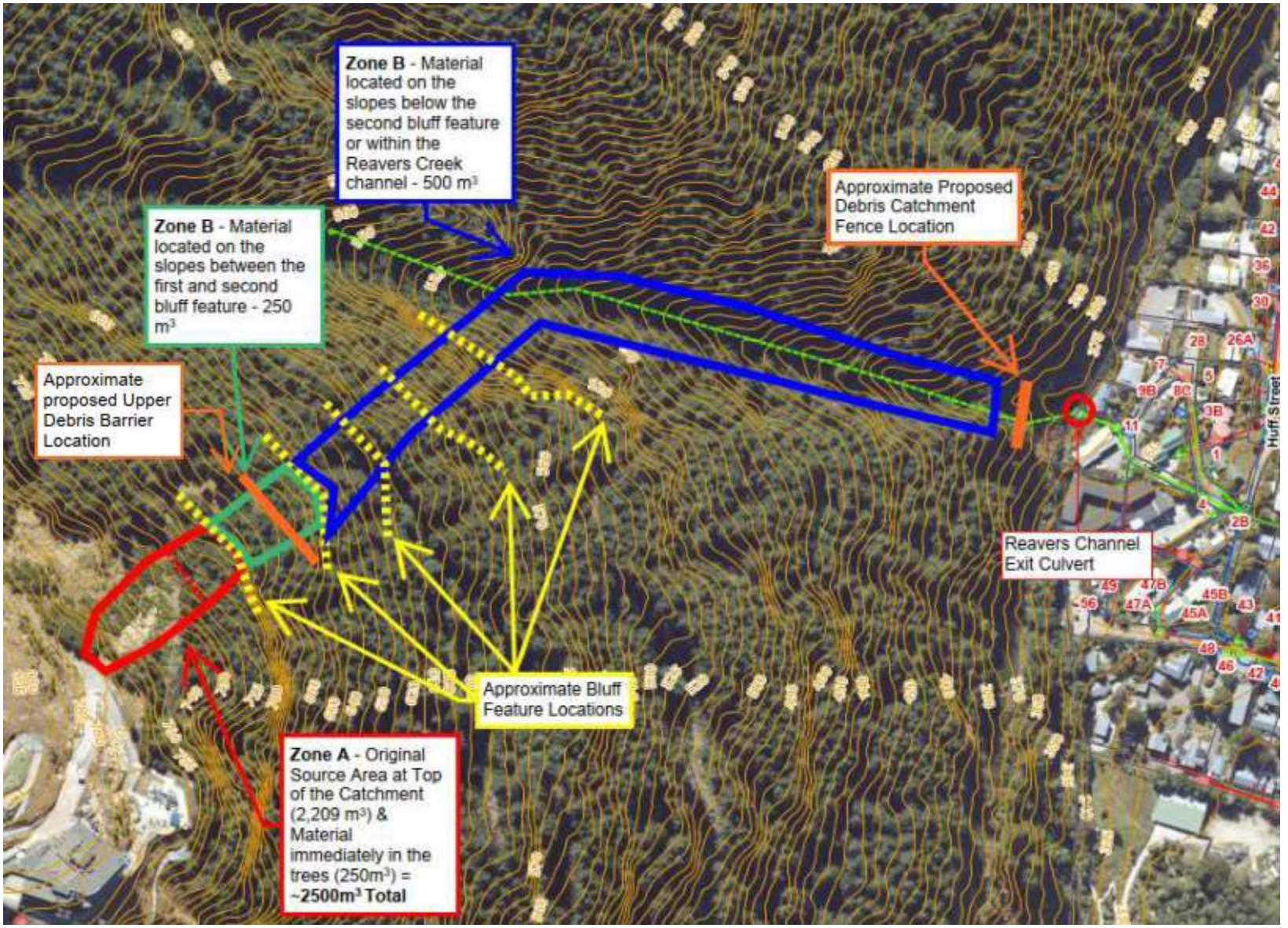
Overall, the proposal is consistent with these matters.

12.3 Summary of Part 2

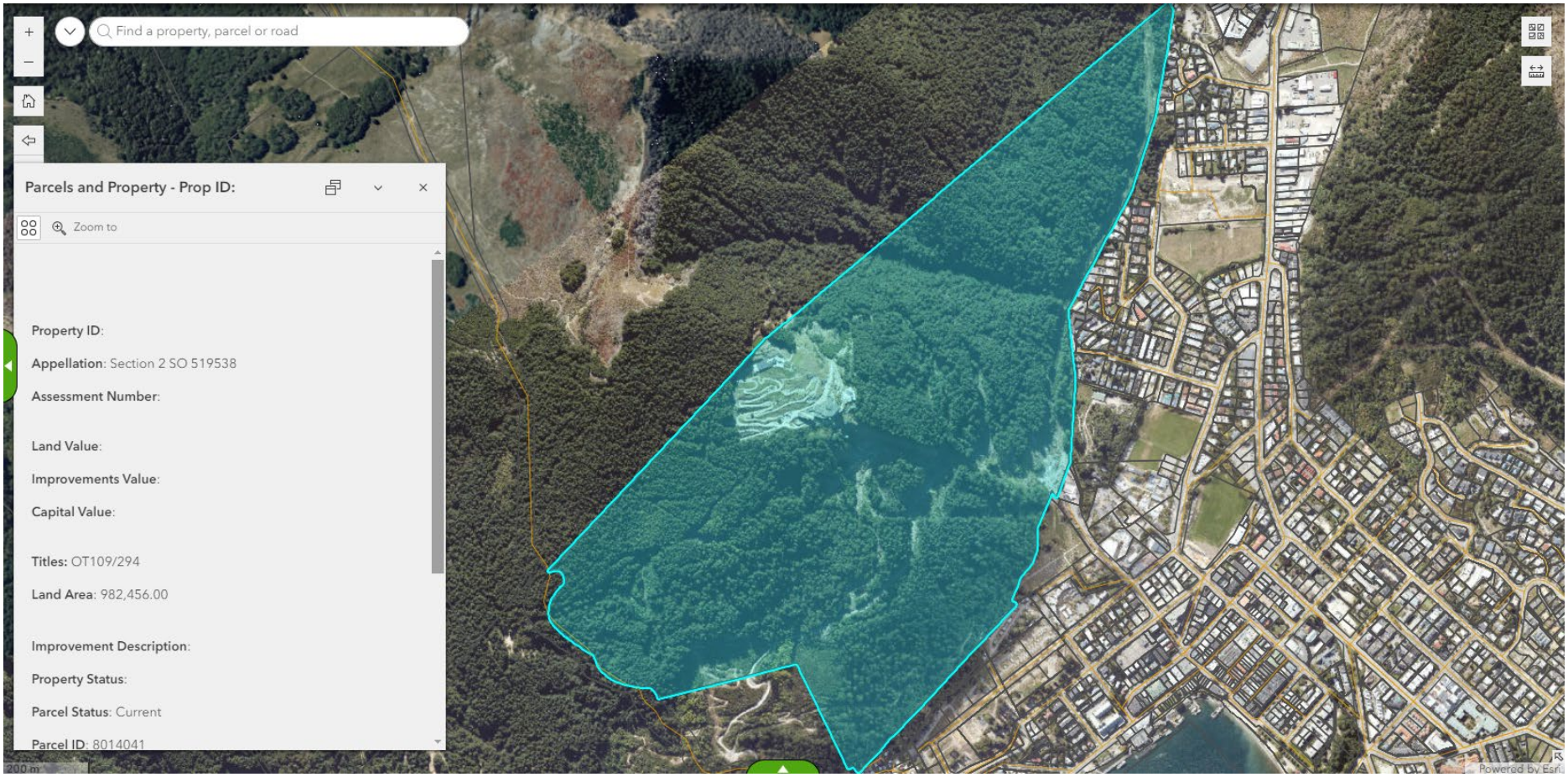
For the reasons outlined in the application, the proposed activity is consistent with the purpose and principles of the Act and the associated matters under Part 2 of the Act.

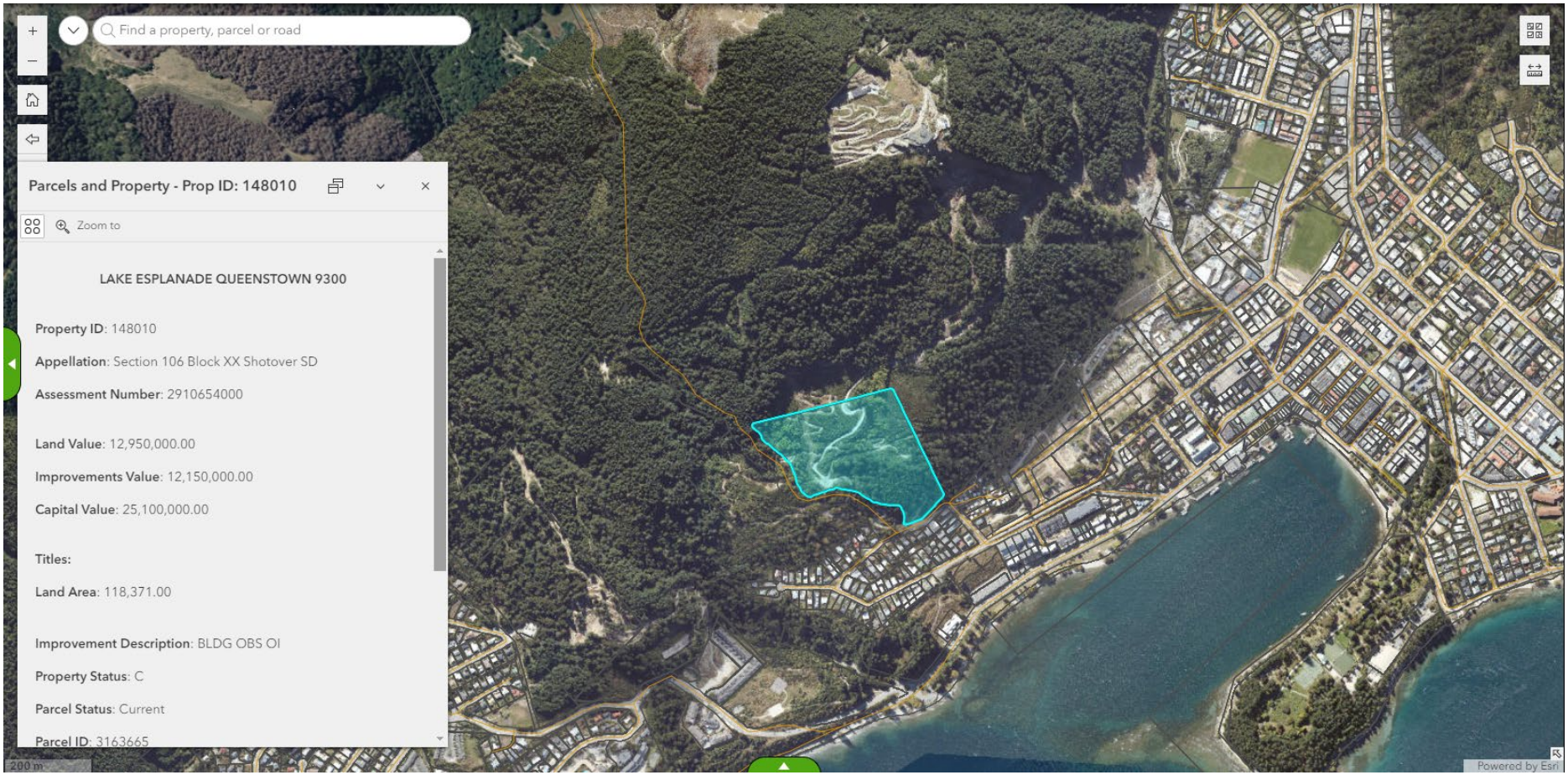
The proposed activity involves an efficient use of natural and physical resources, and such will be undertaken in a manner which avoids, remedies, and mitigates potential adverse effects on the environment.

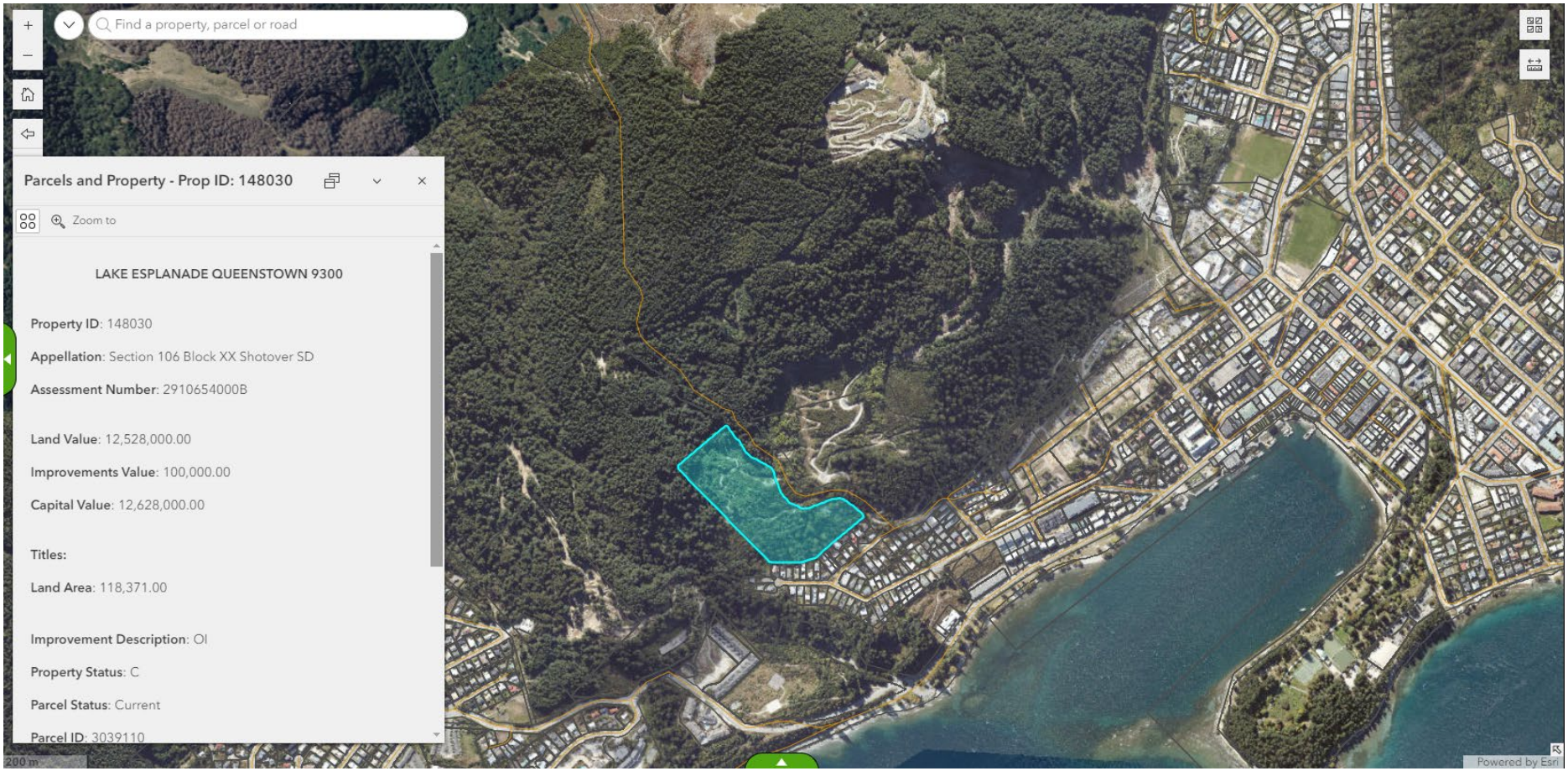
Overall, it is considered that the proposal is consistent with the purpose and principles of the Act and therefore accords with the definition of sustainable management.


Zone B - Material located on the slopes below the second bluff feature or within the Reavers Creek channel - 500 m³
Zone B - Material located on the slopes between the first and second bluff feature - 250 m³
Approximate proposed Upper Debris Barrier Location
Approximate Proposed Debris Catchment Fence Location
Reavers Channel Exit Culvert
Approximate Bluff Feature Locations
Zone A - Original Source Area at Top of the Catchment (2,209 m³) & Material immediately in the trees (250m³) = **~2500m³ Total**
Huff Street


DFB location
Track(s)
Stockpile and transfer to std truck for transport to hardfill disposal site (off site)
Robins Road
Boundary Street
Isle Street
Cemetery Road
Duke Street
Beach Street


Find a property, parcel or road
Parcels and Property - Prop ID:
Zoom to
Property ID:
Appellation: Section 2 SO 519538
Assessment Number:
Land Value:
Improvements Value:
Capital Value:
Titles: OT109/294
Land Area: 982,456.00
Improvement Description:
Property Status:
Parcel Status: Current
Parcel ID: 8014041
200 m
Powered by Esri


Find a property, parcel or road
Parcels and Property - Prop ID: 148010
Zoom to
LAKE ESPLANADE QUEENSTOWN 9300
Property ID: 148010
Appellation: Section 106 Block XX Shotover SD
Assessment Number: 2910654000
Land Value: 12,950,000.00
Improvements Value: 12,150,000.00
Capital Value: 25,100,000.00
Titles:
Land Area: 118,371.00
Improvement Description: BLDG OBS OI
Property Status: C
Parcel Status: Current
Parcel ID: 3163665
200 m
Powered by Esri


Find a property, parcel or road
Parcels and Property - Prop ID: 148030
Zoom to
LAKE ESPLANADE QUEENSTOWN 9300
Property ID: 148030
Appellation: Section 106 Block XX Shotover SD
Assessment Number: 2910654000B
Land Value: 12,528,000.00
Improvements Value: 100,000.00
Capital Value: 12,628,000.00
Titles:
Land Area: 118,371.00
Improvement Description: OI
Property Status: C
Parcel Status: Current
Parcel ID: 3039110
200 m
Powered by Esri

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **OT109/294**

Part-Cancelled

Land Registration District **Otago**

Date Issued 03 February 1897

Estate	Fee Simple
Area	164.2897 hectares more or less
Legal Description	Section 19 Block XX Shotover Survey District and Section 20 Block I Mid Wakatipu Survey District
Purpose	Reserve for Common for the Use of the Inhabitants of the Town of Queenstown

Registered Owners

Queenstown Lakes District Council

Interests

Deferred Payment Licence OT395/201 issued for Section 90 Block XX Shotover Survey District (655m2) herein - 8.5..1958

Deferred Payment Licence OT395/174 issued for Section 83 Block XX Shotover Survey District (617m2) herein - 11.3..1958

Renewable Lease OT402/99 issued for Section 85 Block XX Shotover Survey District (582m2) herein - 3.10..1958

Section 108 Block XX Shotover Survey District is vested in the Corporation of the Mayor Councillors and Citizens of Queenstown in fee simple pursuant to Section 4 Queenstown Reserves Vesting and Empowering Act 1971

Sections 105-107 Block XX Shotover Survey District are subject to Section 3 Queenstown Reserves Vesting and Empowering Act 1971

Sections 95 and 97 Block XX Shotover Survey District are subject to Section 4 Reserves and Other Lands Disposal Act 1971

Sections 96, 109-110 Block XX Shotover Survey District are vested in the Corporation of the Mayor Councillors and Citizens of Queenstown as Recreation Reserve subject to Reserves and Domains Act 1953 pursuant to Section 5 Queenstown Reserves Vesting and Empowering Act 1971

6616 Order in Council exempting Brunswick Street Extension from Section 128 Public Works Act 1928 - 6.7.1954 at 10:54 am

191094 Transfer of Lots 30-33 and 44-45 Deposited Plan 7926 CT OT374/197 - 29.10.1954 at 2:45 pm

6782 Gazette Notice cancelling the vesting of Part Section 19 Block XX Shotover Survey District District (474 m2) in the Mayor Councillors and Burgesses of the Borough of Queenstown and revoking the reservation - 23.5.1955 at 2:00 pm

7507 Proclamation proclaiming as street land coloured red on title diagram (4882m2) - 30.1.1959 at 9:55 am

X20738 New Appellation whereby Part Section 19 herein is now known as Section 95 Block XX Shotover Survey District - 10.3.1959 at 10:05 am

7545 Gazette Notice cancelling the vesting of Section 95 Block XX Shotover Survey District (8327m2) herein and changing the purpose to a Reserve for the Site of a Girl Guides' Camp - 23.4.1959 at 11:54 am

218734 Gazette Notice proclaiming as street land coloured red on title diagram (2883m2) - 26.4.1960 at 12:00 pm

271137 New Appellation whereby Part Section 19 Block XX Shotover Survey District herein is now known as Section 96 Block XX Shotover Survey District - 4.5.1964

281731 New Appellation whereby Part Section 19 (2024m2) herein is now known as Section 97 Block XX Shotover Survey District - 5.2.1965

282971 Gazette Notice cancelling the vesting of Section 97 Block XX Shotover Survey District herein and changing the purpose to a Reserve for a Site for a Youth Hostel and Holiday Camp - 8.3.1965 at 1:56 pm

375199 New Appellation whereby Part Section 19 Block XX Shotover Survey District and Section 20 Block I Mid Wakatipu Survey District herein are now known as Sections 105-110 Block XX Shotover Survey District - 1.9.1971 at 11:41 am

381411 Order for New Certificate of Title for land in Gazette Notice 282971 Section 97 Block XX Shotover Survey District herein OT4D/1228 issued - 3.2.1972

412792 Order for New Certificate of Title for Section 108 Block XX Shotover Survey District herein OT5C/555 issued - 29.10.1973

453350.1 New Appellation whereby Part Section 109 herein is now known as Section 112 Block XX Shotover Survey District - 2.2.1976 at 1:43 pm

458989 Gazette Notice cancelling the vesting of Section112 Block XX Shotover Survey District herein and changing the purpose from a Recreation Reserve to a Reserve for the Site of a Youth Hostel and Holiday Camp - 19.5.1976 at 2:24 pm

New Appellation whereby Part Section 107 herein is now known as Sections 140 (7663m2) and Section 141 (1.7663ha) Block XX Shotover Survey District - 9.12.1986 at 9:05 am

671287 Gazette Notice declaring parts (28m2) and (56m2) of Section 110 herein to be taken for road and vested in The Lake County Council - 27.1.1987 at 1:57 pm

689979.2 Transmission of Section 141 Block XX Shotover Survey District herein to Queenstown-Lakes District Council - 2.11.1987 at 2:04 pm

689979.3 Order for New Certificate of Title CsT OT11D/473-474 issued for Sections 140-141 Block XX Shotover Survey District herein respectively - 2.11.1987 at 2:04 pm

689979.1 Transmission of Section 140 Block XX Shotover Survey District herein to Queenstown-Lakes District Council - 2.11.1987 at 2:04 pm

695875 New Appellation whereby Part within land is now known as part Section 143 Block XX Shotover Survey District (1.3290ha) - 1.1.1988

736576 Gazette Notice declaring part within land to be road and vested in Queenstown-Lakes District Council - 29.8.1989 at 10:26 am

906099 New Appellation whereby part within land is now known as Section 1 Survey Office Plan 24350 (1.0590ha) - 19.4.1996 at 11:39 am

913306.2 New Appellation whereby part within land is now known as Section 1 Survey Office Plan 24322 (1494m2) - 1.8.1996 at 2:20 pm

912885 Gazette Notice declaring Section 1 Survey Office plan 24322 to vest in Queenstown-Lakes District Council in fee simple and proceeds from sale or lease to be paid into Queenstown Reserves Sale Account pursuant to Queenstown Reserves Vesting and Empowering Act 1971- produced 26.7.1976 and entered 1.8.1996 at 2:21 pm

927201.1 Order for new Certificate of Title CT OT18A/1161 issued for Section 1 Survey Office plan 24322 herein - 2.4.1997 at 12:00 am

5014878.1 Lease in renewal of Lease 977983.3 Term 5 years commencing on the 1.4.2000 (renewal clause) CT 3417 issued - 13.12.2000 at 10:03 am

5014878.1 Lease creating the following easements - 13.12.2000 at 10:03 am

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction

Cableway	Part Section 110 Block XX Shotover Survey District - herein	B SO Plan 22971	Section 1 Survey Office Plan 22971 - CT 3417	N/A
Cableway	Part Section 110 Block XX Shotover Survey District - herein	B SO Plan 22971	Section 1 Survey Office Plan 22971 - CT OT9B/769	N/A
Right of way	Section 106 Block XX Shotover Survey District - herein	A, B & C SO Plan 22469	Section 1 Survey Office Plan 24832 - CT 3417	N/A
Right of way	Part Section 110 Block XX Shotover Survey District - herein	A SO Plan 24832	Section 1 Survey Office Plan 24832 - CT 3417	N/A
Right of way	Part Section 110 Block XX Shotover Survey District - herein	D SO Plan 22469	Section 1 Survey Office Plan 24832 - CT 3417	N/A
Right of way	Part Section 110 Block XX Shotover Survey District - herein	A, B, C & E SO Plan 22470	Section 1 Survey Office Plan 24832 - CT 3417	N/A
Right of way	Part Section 110 Block XX Shotover Survey District - herein	A SO Plan 24832	Section 1 Survey Office Plan 24832 - herein	N/A
Right of way	Section 106 Block XX Shotover Survey District - herein	A, B & C SO Plan 22469	Section 1 Survey Office Plan 24832 - herein	N/A
Right of way	Part Section 110 Block XX Shotover Survey District - herein	A, B, C & E SO Plan 22470	Section 1 Survey Office Plan 24832 - herein	N/A
Right of way	Part Section 110 Block XX Shotover Survey District - herein	D SO Plan 22469	Section 1 Survey Office Plan 24832 - herein	N/A
Right of way	Section 4 Block I Mid Wakatipu Survey District - CT OT109/95	D SO Plan 22470	Section 1 Survey Office Plan 24832 - herein	N/A

Subject to a right to convey electricity in gross over part Section 105 Block XX marked A, D and part Section 110 Block XX marked E, G on DP 27560 in favour of Dunedin Electricity Limited created by Transfer 5294434.1 - 24.7.2002 at 3:52 pm

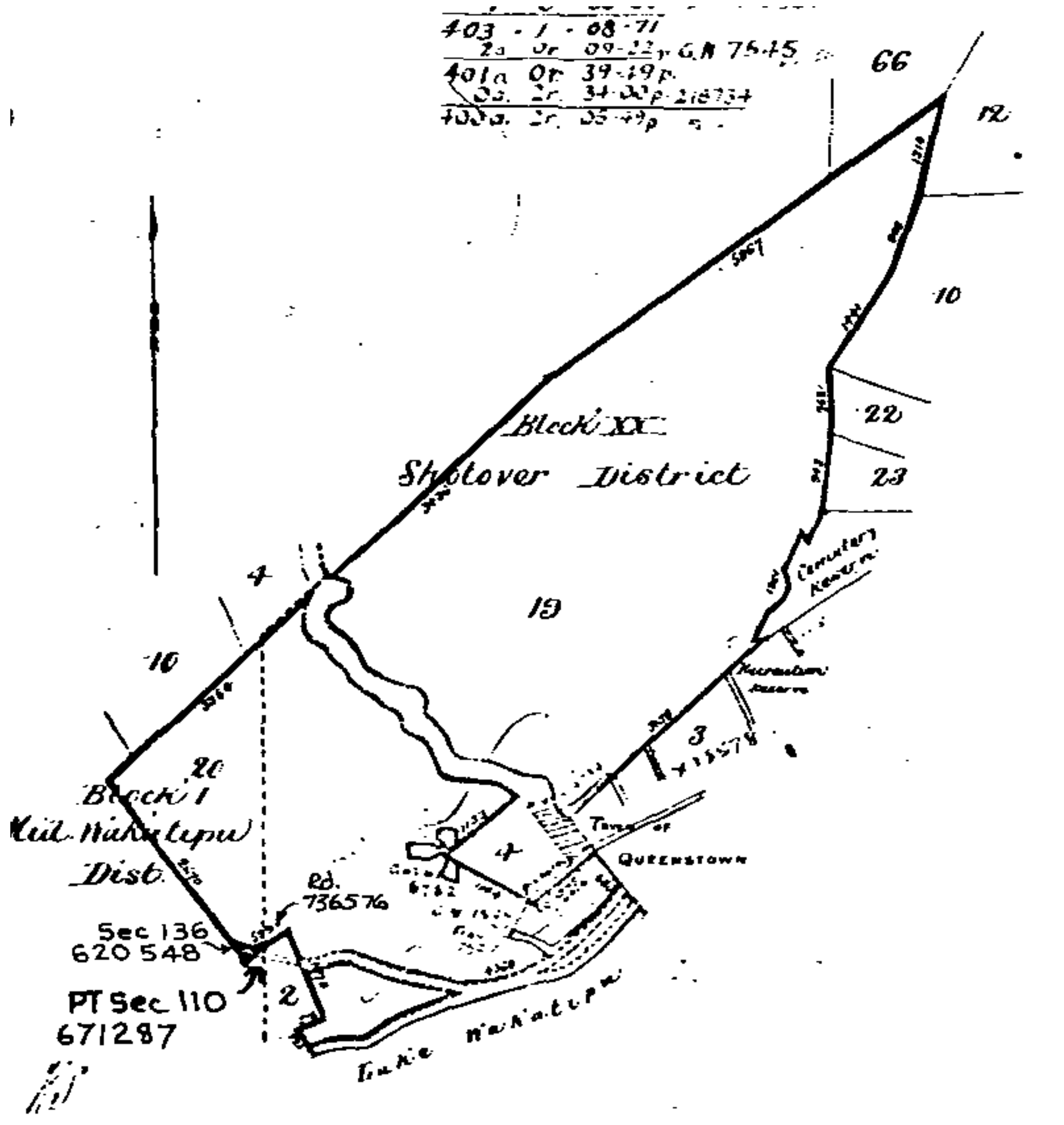
5586336.1 Land Covenant - 14.5.2003 at 9:00 am

Subject to rights to drain stormwater over part Section 107 Block XX marked H and over part Section 110 Block XX marked I on DP 343749 created by Easement Instrument 6327203.3 - 28.2.2005 at 9:00 am

Subject to a right (in gross) to to convey electricity over part marked O, P on DP 343749 in favour of Aurora Energy Limited created by Easement Instrument 6563318.2 - 7.9.2005 at 9:00 am

9109917.1 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - 29.6.2012 at 1:25 pm

12329301.1 Gazette Notice 2019-ln5382 revokes the reservation as Recreation Reserve over now Section 1 SO 519538 (0.0193 ha) formerly part Section 19 Block XX Shotover Survey District and now part Section 110 Block XX Shotover Survey District SO 17256 - 10.12.2021 at 7:00 am


403 . 1 . 08.71
2a 0r 09.22p G.N 7545
401a 0r 39.49p
0a 2r 34.30p 218734
403a 2r 35.49p
66
12
10
22
23
Block XX
Shotover District
19
4
10
20
Block I
Kil. Wakatipu
Dist.
3
x 13578
Town of
QUEENSTOWN
Rd.
736576
Sec 136
620 548
PT Sec 110
671287
2
Lake Wakatipu

DEED OF COVENANT

Between

Mondrian Property Holdings Limited

And

Queenstown Lakes District Council

ANDERSON LLOYD CAUDWELL

BARRISTERS, SOLICITORS & NOTARIES SINCE 1862

QUEENSTOWN, DUNEDIN & CHRISTCHURCH
NEW ZEALAND

Tel: 64 3 442 7570
Fax: 64 3 442 8848
E-mail: lawyers@alclegal.com
PO Box 201
Queenstown

LAWLINK

A NETWORK OF INDEPENDENT LEGAL PRACTICES NATIONWIDE

Deed of Covenant

Date: 3 - 4 - 2003

Parties

1. **Mondrian Property Holdings Limited** at Auckland ("Mondrian")
2. **Queenstown Lakes District Council** ("QLDC")

Background

A. Mondrian is the registered proprietor of the land contained in Certificate of title 11D/474, being Lot 141 Block XX Shotover Survey District (Otago Registry) ("the Servient Land").

B. QLDC holds land ("the Dominant Land") adjacent to the Servient Land, on trust as a reserve for the purpose of a common for the use of the inhabitants of the Town of Queenstown. The Dominant Land is all that parcel of land containing 164.2897 hectares more or less being Section 19 Block XX Shotover Survey District and Section 20 Block I Mid Wakatipu Survey District, being the land contained in Certificate of Title 109/294 (Otago Registry).

C. The parties have reached an agreement as to the permitted use of the Servient Land on the terms and covenants set out below.

This deed records

Mondrian covenants for the benefit of the Dominant Land that:

1. Subject to clause 2 below, Mondrian and its successors in title shall not at any time (unless QLDC or its successors in title shall in its sole discretion otherwise permit) use the Servient Land for any purpose other then for the development of a resort hotel condominium complex for commercial visitors' and travellers' accommodation.
2. Subject to clause 3 below, any residential unit ("Unit") that is situated on the Servient Land may be used by the owner of the Unit ("the Owner") or the Owner's family for residential purposes for any length of time **provided that** the Unit is subject to a management contract ("Management Contract") which requires the Unit to be

available for visitor accommodation purposes at all times other than when it is available to the Owner in accordance with this clause and the Management Contract.

3. Clause 2 above only allows personal, non-commercial use and does not allow the Owner to lease or let its Unit for use by people other than the Owner or the Owner's family for residential purposes (except for visitor accommodation purposes pursuant to a Management Contract).

4. For the purposes of this deed the following definitions apply:

   a. "The Owner" is defined as:

      i. Any of the registered proprietors of a Unit,

      ii. In the case of registered proprietor of a Unit being trustees who hold that Unit on trust, the natural person/s for whom the trustees exclusively or principally hold the Unit on trust.

      iii. In the case of a registered proprietor of the Unit being a company, the natural persons who have beneficial or legal ownership and/or control of that company.

   b. "The Owner's family" is defined as any family member of the Owner including, without limitation, —

      i. Any other person who is or has been related to the Owner by blood, marriage, or adoption:

      ii. Any other person who is a member of the Owner's whanau or other culturally recognised family group:

      iii. In the case of partners who are not legally married, any other person who would be a family member of that Owner pursuant to paragraph (i) or paragraph (ii) of this definition if the partners were, or were able to be, married to each other.

SIGNED by the parties:

SIGNED by)
Mondrian Property Holdings Limited)
)

R.W.J. Yeates (DIRECTOR)

Director

SIGNED for and on behalf of the
Queenstown Lakes District Council
in the presence of:

COMMON SEAL
QUEENSTOWN - LAKES DISTRICT COUNCIL
N.Z

Witness Signature: .....
Name: .....
Occupation: .....
Address: .....

Consent of Mortgagees

Capital and Merchant Finance Limited, the mortgagee under mortgage number 5316824.2 consent to the registration of the above deed but without prejudice to its rights and remedies under the said mortgage.

Signed for and on behalf of
Capital and Merchant Finance Limited
by:

Neal Medhurst Nicholls
Director

Wayne Leslie Douglas
Director

Bridgecorp Finance Limited, the mortgagee under mortgage number 5316824.3 consent to the registration of the above deed, but without prejudice to its rights and remedies under the said mortgage.

Signed for and on behalf of
Bridgecorp Finance Limited
By:

John Garth Grayson
Authorised Signatory

SEAN STEPHEN MCMILLAN
AUTHORISED SIGNATORY

NICHOLAS DAMPNEY TURNER
LOANS ADMINISTRATOR
AUCKLAND

TO: The District Land Registrar
Otago Land Registry

Please note the land covenants contained in this Deed against the Certificates of Title to the Covenantor's Land and the Covenantee's Land described in Background Clauses A and B pursuant Section 126A of the Property Law Act 1952.

Solicitor for the Covenantor and Covenantee

Correct for the purposes of the
Land Transfer Act 1952

Solicitor for the Covenantor and the Covenantee

IN THE MATTER of the Land Transfer Act 1952

CAVEATOR'S CONSENT TO REGISTRATION OF DEED OF COVENANT

Dunedin Electricity Limited the caveator under Caveat No 5553826.1 **CONSENTS** to the registration of the attached deed of covenant, by the Registered Proprietor affecting all of the land comprised and described in Certificate of Title 11D/474 (Otago Registry) **BUT** without prejudice to its rights and remedies under the Caveat.

DATED the 7th day of May 2003

SIGNED by **Dunedin Electricity Limited** by:

DIRECTOR

DIRECTOR

Certified correct for the purposes of the Land Transfer Act 1952

Solicitor for the caveator

LORNE CHARLES McDOUGALL SINGER
SOLICITOR
DUNEDIN

GEOSOLVE

GEOTECHNICAL

WATER RESOURCES

PAVEMENTS

Geotechnical Report for Resource Consent

Debris Removal, Reavers Catchment

Queenstown

Report prepared for:

Skyline Enterprises Ltd

Report prepared by:

GeoSolve Limited

Distribution:

Skyline Enterprises Ltd

GeoSolve Limited (File)

August 2024

GeoSolve Ref: JN 160073.03

Revision	Issue Date	Purpose	Author	Reviewed
0	1/03/2024	Draft for Client Review	SR/NW	PGF/CM
1	5/03/2024	Final	SR/NW	PGF
2	30/04/2024	Final-Revised Earthworks Plan	SR/NW	PGF
3	13/08/2024	Final-Revised Earthworks Plan	SR/ME	PGF

GEOTECHNICAL WATER RESOURCES PAVEMENTS

Table of Contents

Appendices

1 Introduction

1.1 General

This report presents the results of a geotechnical assessment carried out by GeoSolve Ltd for the risk reduction works associated with the uncontrolled fill present in the upper Reavers Creek catchment.

Figure 1.1: Showing a bulb of uncontrolled debris fill material in the upper Reavers Creek catchment.

1.2 Purpose and Scope of Work

A proposed methodology completed by Skyline Enterprises Ltd (SEL) to remove the uncontrolled fill present in the upper and lower Reavers Creek catchment has been provided to GeoSolve. The aim of removal is to reduce the risk posed by the fill to the lower catchment to an acceptable level of AIFR $1x10^{-5}$, as prescribed by Queenstown Lakes District Council (QLDC).

It is understood that a background level of risk from other natural hazards exists within the Reavers Creek catchment, however, GeoSolve have not assessed the risk posed by these hazards and they are excluded from the scope of works reported herein.

The methodology of the risk reduction works generally comprises:

- Using the existing forestry tracks, repairing, and extending forestry tracks to enable excavation machinery to reach the toe of the upper debris bulb. This will include reinstatement of the Andrews Haulage Track (AHT).

- Construction of a temporary debris flow barrier below the debris bulb in the upper Reavers catchment.
- Machine excavator earthworks to relocate the fill material to a stockpile above the debris flow barrier for removal via the forestry tracks for offsite disposal.
- Downslope of the debris flow barrier the fill material will be removed or redistributed to areas where it is not at risk of being mobilised.
- The debris flow barrier and tracks will be removed/reinstated at the conclusion of the remedial works to restore natural ground contours and overland flow paths.

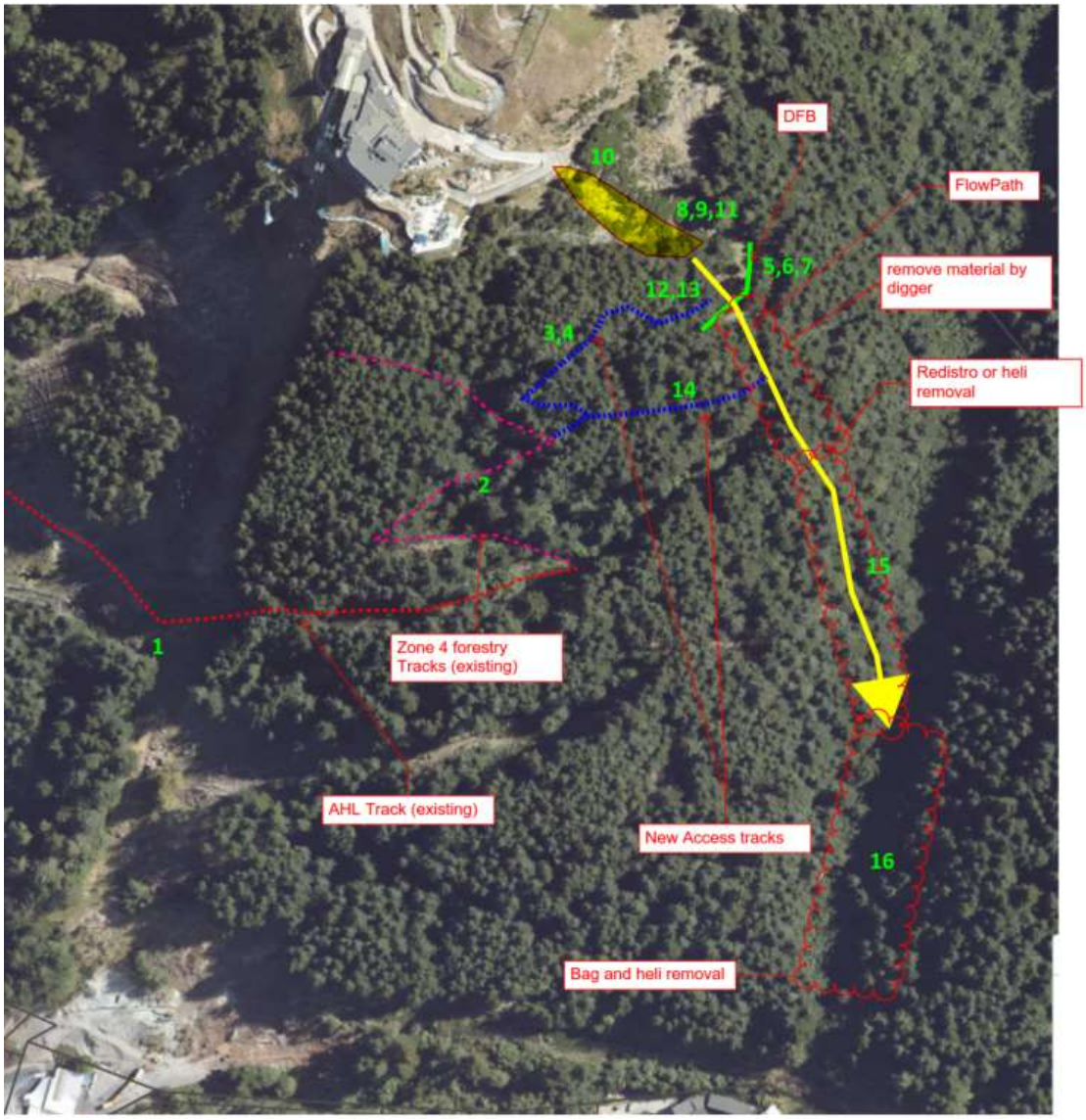


Figure 1.2: Site plan showing locations of proposed methodology tasks (Green) (Source- Skyline)

The enabling works to remove the debris material are temporary and are expected to be of short duration, less than two years. However, the debris flow barrier and associated forestry access tracks will be designed for a 5-year design life to allow some conservatism in the timing estimates and longevity of the works completed.

A site contour plan and proposed earthworks plan showing the existing and proposed forestry tracks and the proposed debris flow barrier, provided by Patterson Pitts Group, is provided in Appendix A.

Earthworks plans of the proposed forestry tracks provided by Patterson Pitts Group Ltd (Appendix A) has been reviewed against geomorphological plans provided for the area, provided in Appendix B.

The earthworks methodology provided to GeoSolve by SEL for review is provided in Appendix C. The methodology is split into "Tasks" to achieve the required outcome, as shown in Figure 1.2.

It is expected that ongoing geotechnical and hydrological input and support will be required through the detailed design and construction phases of the project.

The scope of this report is to provide geotechnical and hydrological assessment of the removal proposal, ground conditions and local catchments, and to provide recommendations as necessary.

The opinions and conclusions presented in this report are based on the following sources of information:

- A walkover inspection and surface mapping of the site by an engineering geologist;
- A review of historic information currently held on the GeoSolve database for the subject site;
- A review of the proposed earthworks plan undertaken by Paterson Pitts Group (PPG);
- A review of the risk assessment undertaken for the preparation of the GeoSolve Report entitled "Risk to Life Assessment Report for Remedial Options of Reavers Catchment, Queenstown", dated 1 December 2023.
- A review of the geotechnical investigations undertaken for the preparation of the GeoSolve Geotechnical Report entitled "Stormwater Discharge- Detailed Hazard Assessment"- GeoSolve Ref: 160073.02 Rev1, dated September 2017;
- Previous hydrological and hydraulic modelling and reporting undertaken by Fluent Solutions Limited to inform the stormwater design of the receiving urban network.
- The New Zealand Forest Road Engineering Manual (2020), as described in Sections 1.3 & 4.

The previous GeoSolve reports pertaining to the proposed works are presented in Appendix D.

1.3 QLDC Expectations Letter

On the 14th of February 2024, QLDC sent a letter to SEL titled 'Expectations of Andrew's Haulage Track Reinstatement', which outlines QLDC expectations with respect to construction of the access road, attached Appendix H. It is noted the QLDC letter specifically relates to the "Task 1 works" (in the Brecon Street catchment), however it is understood the expectations provided will apply to the works in the Reavers and other sub-catchment areas (see Section 2.3 for further details). The expectations, and initial responses to those items are provided below. This Geosolve report constitutes the 'documentation supporting the Resource Consent application,' referenced below and addresses and refers to the below expectations and responses.

Our (QLDC's) expectations are summarised as follows:

1. ***Familiarisation and demonstrated understanding of the site.***

    a. ***SEL to demonstrate an understanding of appropriate decision-making required in completing the Task 1 Works, i.e., based on experience and knowledge of the 'front face' of the Reserve, what conditions were encountered and how this influenced methodologies. Written documentation demonstrating this understanding is required.***

SEL, engaged consulting engineers such as GeoSolve and Enviroscope, and engaged contractors such as Beavers Contractors are familiar with and understand the site from years of experience with it, including observations, testing, analysis/reporting and construction works. Conditions encountered as a part of the Task 1 works, and how they have influenced construction methodologies, are to be observed and recorded during construction supervision and site walkover with site direction provided by way of site inspection records to the project team. Further details and specific methodology will be provided to support a Resource Consent application, which is being prepared as a matter of priority.

2. ***The standard that the AHT (and other roads during the works) has been designed to.***

    a. ***QLDC's expectation is that the road has been designed to the described standards within the NZ Forest Road Engineering Manual (2020).***

The access tracks, proposed to enable the removal of the introduced material from the area, are to be designed and constructed in general agreement with the described standards within the NZ Forest Road Engineering Manual (NZFREM) (2020), as per QLDC's expectations. In terms of NZFREM general classifications:

- *The erosion susceptibility for the site has been determined to be Low, as per the NES-PF Erosion Susceptibility Classification tool (www.teururakau.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/erosion-susceptibility-classification), as recommended by the NZFREM. The potential for erosion as a result of the is to be addressed by an appropriate Erosion and Sediment Control Management Plan (ESCMP), which is being prepared as a part of the documentation to support a Resource Consent application. It is noted that the NZFREM states regarding these classifications: Most activities, including earthworks, are permitted in low and moderate risk areas and can be carried out without the need for consent, subject to complying with the permitted activity regulations. Activities in higher erosion risk areas will generally require resource consents.*
- *As per the NZFREM, the other two of the three primary drafting gates for risks in the National Environmental Standards for Plantation Forestry (NES-PF) are the Fish Spawning Indicator, which is not considered applicable to this site, and Wilding Tree Risk, which is not applicable to road engineering (as per the NZFREM).*
- *In terms of soil classification, and their potential effect on the fill placement and compaction methods, the NZFREM states 'Determining soil and rock properties requires a technical background' and recommends seeking specialist advice where required. GeoSolve will provide that specialist advice, and ensure fill placement and compaction is undertaken as appropriate. This will be detailed documentation to support a Resource Consent application.*

    b. ***SEL to demonstrate to what classification within the NZ Forest Road Engineering Manual the road has been designed to and why that is suitable for its intended purpose.***

In terms of Road Class, this is also to be determined as per the NZFREM, which states:

- *'[Road classes] vary with the purpose of the road. They include the required width, maximum grade and curve radius';*
- *'Many forest companies develop their own set of road standards to suit their specific needs and conditions. Standards may need to be flexible. For example, the maximum grade may need to be exceeded for very short segments in difficult terrain to reach a critical control point like a river crossing or landing, or to meet environmental requirements', and;*
- *'Note that WorkSafe's Approved Code of Practice for Safety and Health in Forest Operations states that the maximum grade for any road used for log cartage with on-highway trucks is not to exceed 20% (or 11 degrees) at its steepest. The exception is that roads used by off-highway or other specialist vehicles may be steeper, provided: They are designed to cope with the steeper gradient; and the operation has a written site-specific hazard control procedure.'*

Given the above information, and the fact that the terrain constrains the road to have a maximum grade of up to 32% for very short segments, the road class in this case would be most similar to an Access Track, one that is suitable for the removal of the introduced material in order to suit the site's needs and conditions. In order to comply with the NZFREM and be suitable for its intended purpose; it will be designed for low speed and dry weather access, used by vehicles designed to cope with the steeper gradient, and the operation will have a written site-specific hazard control procedure.

c. ***SEL to demonstrate how all facets of roading design, i.e., drainage, grade, etc. have been designed.***

This information will be provided within the documentation to support a Resource Consent application (which is being prepared as a matter of priority).

3. Demonstration to QLDC that the works are being designed and completed appropriately.

a. ***QLDC's expectation is that, suitably qualified person(s) have been engaged by SEL to design all facets of the road (incl. water management and control of stormwater). This should then have been peer reviewed (by suitably qualified person(s) per component), with the work to be provided to QLDC. If the peer review has not yet happened, please arrange that now.***

Suitability qualified person(s) have been engaged to prepare the design, including a CPEng certified engineer with stormwater competencies (as per the QLDC Code of Practice). The design will be reviewed before approval, by a separate CPEng certified engineer. Due to the availability of CPEng certified engineers, this review may be conducted within the suitability qualified person's organisation. This information will also be provided within the documentation to support a Resource Consent application (which is being prepared as a matter of priority).

b. ***Following provision of the above, QLDC will have the work further peer-reviewed (as we have across other work streams) and this feedback will be passed onto SEL for consideration.***

This process will be complied with to QLDC's satisfaction.

2 Site Description

2.1 General

The Reavers Creek catchment is situated on the eastern slopes of Bobs Peak above Queenstown CBD, as shown in Figure 2.1 below.

Figure 2.1: Site location plan

During a single rainfall event on the 21st - 22nd of September 2023 uncontrolled fill at the top of the catchment became saturated triggering rapid downslope movement of the material. The resulting debris flow reached Reavers Creek and the culvert at the top of Reavers Lane, several hundred metres below. The volume of material overwhelmed the culvert and resulted in debris inundation of the adjacent residential area.

Following the event, uncontrolled fill material has remained distributed on the slope, and within the creek, between the top of the catchment and the culvert. Table 2.1 below summarises the locations and estimated volumes of the remaining debris. Volumes have been estimated by LiDAR, site survey and on the ground measurements. Figure 2.2 below shows a general view of the area.

Table 2.1: Summary of remaining debris locations and volume.

Debris Location Description	Estimated Volume (m^3)
Zone A: Upper Site- The original source area at the top of the catchment	~2,500
Zone B: Reavers Channel and the slopes between the top source area and Reavers Creek Culvert.	500-750
Total Remaining	~3,250

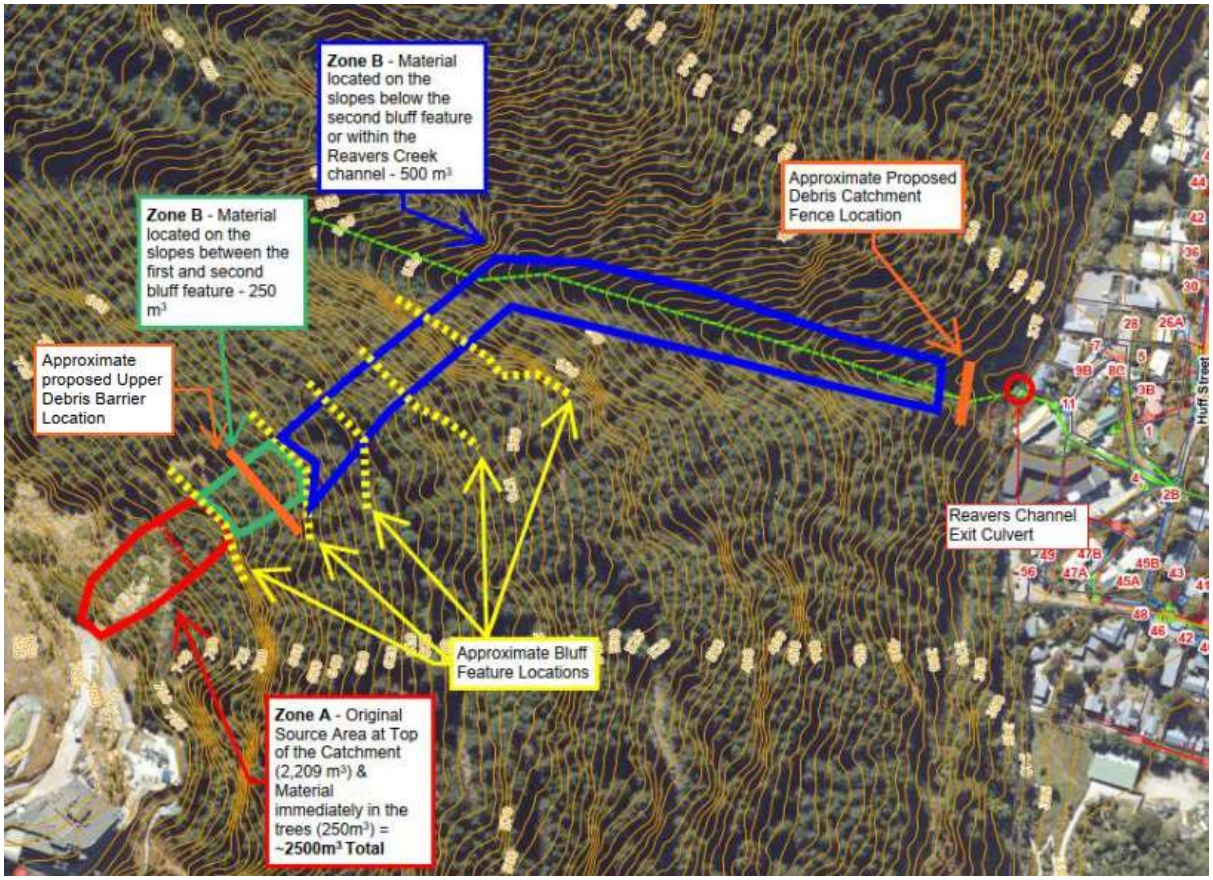


Figure 2.2: General view of the Site showing debris location zone areas.

2.2 Completed Mitigation Works

Previous works have been undertaken to install a debris flow barrier at the lower Reavers Creek exit, as shown in Figure 2.2 above. Further details regarding this barrier can be found in the GeoSolve report entitled "Debris Catchment Fence Design, Reavers Creek Exit, Queenstown", dated 12th December 2023.

The design philosophy for the lower debris flow barrier is such that the remaining fill volume in mid slope areas and Reavers Creek (Zone B above) can wash downslope over time to the Reavers Channel Exit where it can be managed and removed at the lower debris fence installed just above the culvert.

Mitigation works comprising drainage and erosion matting have been installed on the debris bulb in Zone A.

2.3 Topography and Surface Drainage

There are multiple drainage catchments affecting the proposed works in the Bobs Peak area. The 'Brecon Street catchment' leads from the Skyline top terminal building towards the bottom terminal building (located on Brecon Street). The 'Reavers Lane catchment' leads north-east from near the top terminal building to the Reavers Lane culvert. Between the two main catchments multiple smaller sub-catchments exist. See Figure 2.4 for a schematic of the local topography.

The proposed earthworks require the construction of an access track across each of the catchment zones. Drainage design is to ensure that rainfall reaches the flow path it would have naturally runoff towards and is not diverted to a different catchment by the earthworks.

The Brecon Street catchment has previously been hydrologically and hydraulically analysed by Fluent Solutions; report provided in Appendix E. The Fluent report focuses primarily on the effect of the proposed re-development of the Skyline infrastructure, and the required upgrades to the receiving stormwater infrastructure on Brecon Street.

The results of the Fluent hydrologic and hydraulic modelling are relevant to the works proposed by this report and have been considered as preliminary information for the analysis being undertaken by GeoSolve to inform the drainage design. The results of Fluent's most recent update to the modelling of the Brecon Street Catchment are presented as Figure 2.3 below.

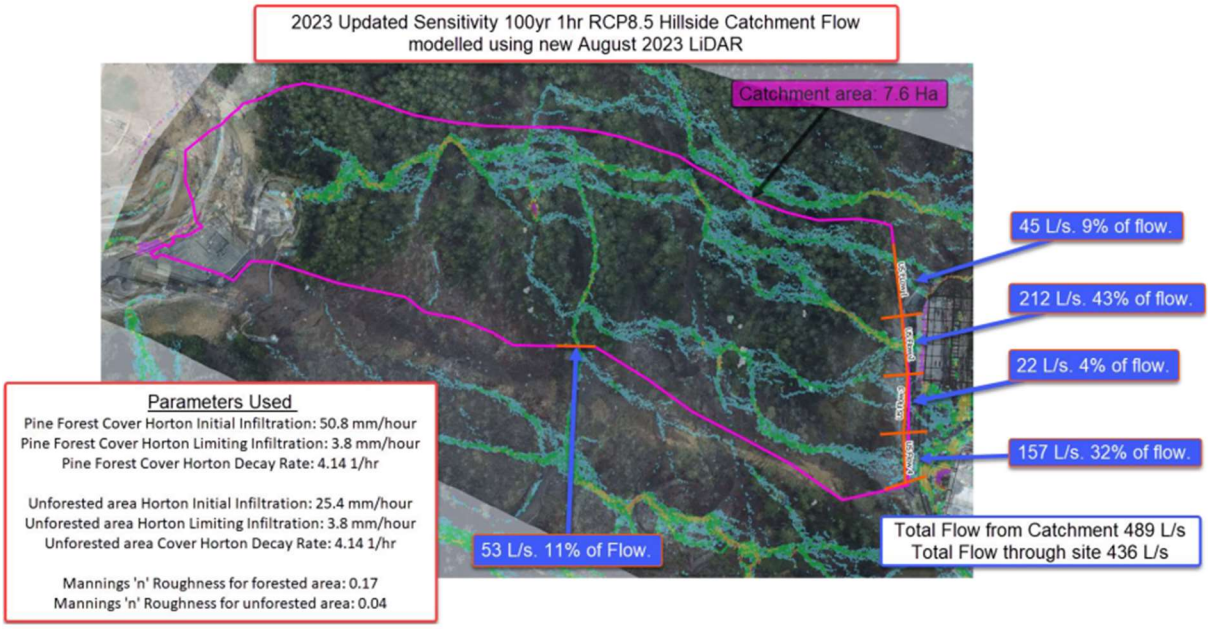


Figure 2.3: Hydraulic modelling results focusing on the Brecon Street catchment (Fluent, updated 2023)

The site has been partially surveyed by PPG and the topography in combination with available LiDAR is shown in Appendix A. Separately, a Digital Elevation Model (DEM) of the proposed access tracks, as provided by PPG, has been overlaid on 2021 LiDAR and is presented as Figure 2.4 (LiDAR only).

For further detail on the proposed track and its integration into existing geomorphic features and hydrological flow paths refer to Figures 1-3, Appendix B.

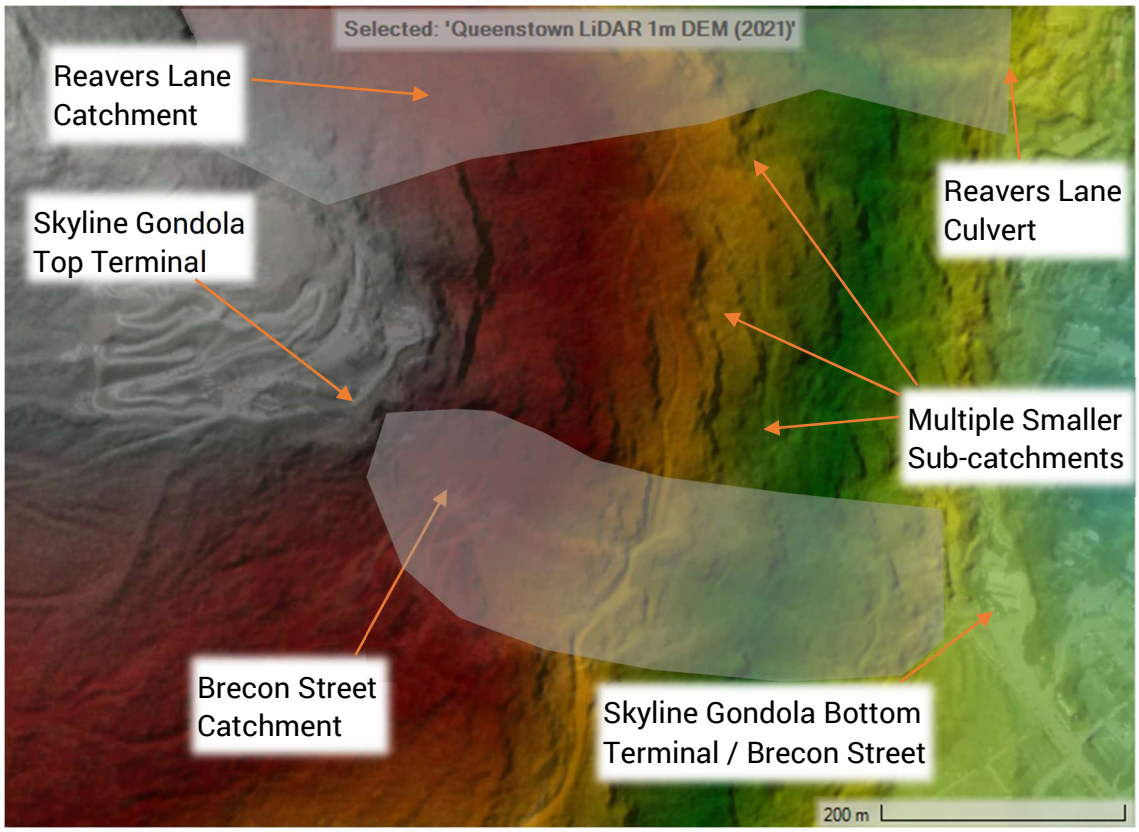


Figure 2.4: A DEM of the area based on LiDAR, showing the local catchments (drawn approximated)

3 Subsurface Conditions

3.1 Geological Setting

The site is located on the upper flanks of Bobs Peak. The steep basement Otago Schist slopes of the mountain have been predominantly carved by glacial advances and erosion with the last glacial event approximately 10,000-20,000 years ago. Colluvial degradation and mechanical erosion of the slopes is ongoing to the present time.

No active fault traces are observed in the field or have been reported in this vicinity. However, a significant seismic risk exists in the Wakatipu area from potentially strong ground shaking likely to be associated with a seismic rupture of the Alpine Fault, located along the West Coast of the South Island. There is a high probability that an earthquake of Magnitude 8.0 will occur along the Alpine Fault within the next 50 years resulting in strong and prolonged shaking in the Queenstown region.

3.2 General Stratigraphy

3.2.1 General

Detailed geological and geomorphological mapping of the slopes adjacent to the proposed and existing tracks has been completed with specific attention to the existing and modified flow paths. A site geomorphological map is provided with the proposed earthworks plan overlain in Appendix B.

The areas of interest for the proposed works generally comprise the debris bulb, proposed and existing forestry access tracks, debris barrier footprint and the flow path beneath the debris bulb in the mid to lower Reavers Catchment. The areas of interest have varying underlying geological conditions. The general geological stratigraphy comprises:

- **Localised uncontrolled fill**, (where deposited) overlying;
- **Colluvium**, overlying;
- **Glacial till** overlying;
- **Schist bedrock**.

Uncontrolled Fill materials- The debris bulb fill material mostly comprises excavated schist rock scalpings. The excavation process has broken the rock into well graded granular material primarily comprising gravel, cobble and boulder sizes with a minor sand and silt fraction. The materials are generally considered loose to medium dense as some consolidation is expected to have occurred at depth. The uncontrolled fill materials stand at an overall angle of approximately 40 degrees, the assumed angle of repose.

The fill material in the mid and lower areas of the Reavers catchment comprises finer grained excavated schist rock that has been mobilised from the debris bulb. The material is confined to the overland flow path beneath the debris bulb. The material is shallow in depth (< 1.0m), and of limited lateral extent, with distribution typically being channelised in the overland flow paths or Reavers Creek.

Colluvium is variable in composition and comprises a mixture of loose sand, gravel and cobbles, boulders (up to 3.0 m diameter) or soft silt. Strengths are typically loose or soft depending on the principal material type. Glacial till may underlie colluvium deposits in some locations.

Glacial till has been observed in localised pockets around the areas of interest and typically comprises a light brown sandy silt or silt sandy with variable fractions of gravel and cobbles. The till is relatively thin, weathered and is typically firm to stiff or medium dense.

Schist bedrock underlies the areas of interest at shallow to moderate depth and is exposed at the surface in many locations. The schist is variable in composition across the site, generally comprising semi psammitic/psammitic schist.

3.3 Groundwater

The site is in an elevated mountain environment and the regional groundwater table is expected to be several tens of meters below the subject site.

Perched groundwater conditions are expected to be present at the schist/colluvium contact and in some locations through fracturing in the rock mass. Localised groundwater flows may develop as seeps or ephemeral streams following periods of extended rainfall.

4 Engineering Considerations

4.1 General

No specific intrusive investigations have been undertaken by GeoSolve for this assessment and therefore all conclusions and recommendations within this report should be considered preliminary.

Specific investigation and assessment should be completed at the detailed design and construction phases of the project to confirm the recommendations provided in this report.

4.2 Enabling Works

4.2.1 Debris Flow Barrier

Instability of the remaining uncontrolled fill material on the Reavers Catchment slopes has the potential to cause a debris flow event.

In order to mitigate the debris flow risk posed to the residential area near the Reavers Lane culvert a debris flow barrier is proposed at the base of the debris bulb. The barrier will serve to eliminate the debris flow risk temporarily while the uncontrolled fill removal works are being undertaken.

The ground conditions underlying the barrier comprises of fill material overlying colluvium and Schist bedrock at shallow depths. Barrier base plates and anchors for the debris flow barrier should be founded on/within competent schist bedrock where applicable.

Figure 4.1: Schematic representation of a typical debris flow barrier. (Source GeoBrugg)

The proposed location, extent and concept details for the debris flow barrier beneath the debris bulb are provided in Appendix F. The barrier will be subject to detailed design including a maintenance schedule.

4.2.2 Access Track Excavations

The stability of proposed excavations will need to be considered as part of the proposed works. Temporary slope stability (particularly during construction) will depend on the construction sequencing and methodology.

An earthworks plan for the proposed access tracks has been provided by PPG, Appendix A.

The access tracks are understood to be 3 m in width with an additional metre width for a crest bund to act as edge protection. The cut and fill batters are variable based on site conditions.

Cut excavations with a maximum height of approximately 7.4 m are required to form the proposed access track. It is expected cuts will predominantly be formed in surficial colluvium/glacial till soils and schist bedrock.

The stability of cut slopes in schist rock is governed by the strength and orientation of the defects present within the rock mass (joints, fractures, crush zones, foliation shear zones etc). In some cases, the defects interact to form kinematically unstable blocks.

Due to the variability of schist terrain, and the random occurrence of secondary defects, it is recommended that a staged approach be adopted for excavations within schist bedrock to enable any additional support measures, if required, to be confirmed on a case-by-case basis. Geosolve recommend batter slopes in rock are constructed at 0.25H:1.0V, subject to review during construction.

Recommendations for temporary soil slope batters are provided in Table 4.1. Slopes that are required to be steeper than those described below should be considered for structural retention or subject to specific geotechnical design. Low soil cuts (less than 1.5 m) can stand well for short construction periods and practical site management measures such as staged excavation and construction of the permanent walls, protecting the exposed soil faces with polythene sheeting, and visual inspections should be employed to ensure no issues arise.

All slopes should be periodically monitored during construction for signs of instability and excessive erosion, and, where necessary, corrective measures should be implemented to the satisfaction of a Geotechnical Engineer or Engineering Geologist.

A geotechnical practitioner should inspect any seepage, spring flow or under-runners that may be encountered during construction.

Table 4.1: Recommended Maximum Batter Angles for Cut Slopes in dry soil materials up to 5.0 m in height.

Material Type	Recommended Maximum Batter Angles for Temporary Cut Slopes Formed in Soil (horizontal to vertical) in dry ground
Topsoil and Colluvium	2.0H : 1.0V
Glacial Till	1.0H : 1.0V

4.2.3 Access Track Fill Slopes

Earthworks plans provided show that fill required to form the proposed accessway has a maximum depth of 4.9 m.

Site preparation of fill slopes should include the removal of topsoil, existing uncontrolled fill and unsuitable materials from beneath the fill footprint. Fill placed on sloping ground will require benching into the existing slope. The stripping and benching associated with fill placement preparation should be inspected by Geosolve prior to fill placement. Recommended un-retained fill slope batters are provide as follows:

- All un-retained fill slopes which are **less than 2.5 m high** should be constructed with a batter slope angle of **1.2-1.5H: 1.0V (horizontal to vertical)** or flatter.
- All un-retained fill slopes which are **more than 2.5 m** high should be constructed with a batter slope angle of **1.5-1.75H: 1.0V** or flatter.
- For all slopes heights a **setback of 1 metre** should be allowed for between the crest of the fill slope and the vehicle carriageway.

Fill slopes higher than 5 metres should be subject to specific design during the detailed design phase of the project.

It is understood that fill material for the access tracks will be sourced from the debris material (crushed rock) and cut earthworks which will also comprise mostly rock material. The excavated rock being well graded and angular is expected to be well suited for use as engineered fill. Preferential use of good quality rock fill in key engineering locations, e.g. higher slopes, can be considered during the construction.

The debris material can be used as access track fill if construction is completed during good weather and in accordance with a suitable earth fill specification.

In some locations the natural hillside is similar in gradient to the proposed fill batter. This results in the fill slope extending down the hillside for several metres. Where this is the case, it is unlikely to be practical to construct the fill slope and steepening the batter will be required to assist construction and contain the fill footprint.

Steepening of the fill batters from the proposed design is achievable by installing geogrid reinforcement or specific assessment.

All geogrid reinforced engineered slopes or similar solutions should be subject to engineered design to ensure the final solution achieves suitable project term stability.

Fill compaction will generally be undertaken by excavator track rolling or plate compaction. The application of method will be dependent on the fill slope characteristics and spatial

location. A risk-based approach will be undertaken during construction to provide instruction to the contractor on the appropriate methodology.

All cut and fill earthworks should be inspected during construction and appropriateness confirmed by a GeoSolve Engineer.

4.2.4 Access Track Retaining

All retaining walls should be designed by a Chartered Professional Engineer.

Due allowance should be made during the detailed design of all retaining walls for forces such as surcharge due to the sloping ground surface behind the retaining walls, groundwater, seismic loads and traffic loads.

Any adversely orientated rock mass defects encountered during construction will need to be supported or otherwise removed by excavation. This will need to be confirmed following the initial cuts. Additional loads on retaining walls may result from adversely orientated defects.

All temporary slopes for retaining wall construction should be battered in accordance with the recommendations presented in Section 4.2.2 of this report.

Groundwater has the potential to develop following completion of the earthworks as a result of heavy or prolonged rainfall. To ensure potential groundwater seeps and flows are properly controlled behind the retaining walls, the following recommendations are provided:

- A minimum 0.3 m width of durable free draining granular material should be placed behind all retaining structures;
- A heavy duty non-woven geotextile cloth, such as Bidim A14, should be installed between the natural ground surface and the free draining granular material to prevent siltation and blockage of the drainage media; and
- A heavy-duty (TNZ F/2 Class 500) perforated pipe should be installed within the drainage material at the base of all retaining structures to minimise the risk of excessive (perched) groundwater pressures developing. Each drainage pipe discharge location will be subject to location-specific detailed design to ensure outflow to the respective natural catchment is maintained.

4.2.5 Access Track Hydrological Considerations

It is anticipated that perched groundwater seepages may be encountered during earthworks. Installation of drainage measures during construction to address seepage into excavations may be required, which will be assessed and addressed appropriately on a case-by case basis to the satisfaction of the supervising engineer.

A catchment analysis and drainage plan has been prepared by Enviroscope as a part of their Environmental Management Plan and is presented as Figure 4.2 (schematic only) below. It is presented in full, including the associated calculations and flow rates, as Appendix G. The catchment sizes appear to be appropriately conservatively estimated.

The largest catchment group (sub-catchments 5a, 5b, 5c and 5d combined) has a total area of ~1.5 ha, and a calculated flow rate of ~82 l/s (0.08 m^3/s), with the minimum standard

culvert size calculated to be required for that flow rate is ~220 mm. The other catchment groups have smaller areas, and the minimum culvert sizes calculated to be required range from 150 to 220 mm. GeoSolve understand that these calculations are based on a 5% AEP (20 year ARI) storm, which is considered to be appropriate for the maximum 5 year design life of the track, and given the conservative culvert sizing it is believed that a significantly larger storm flow could be conveyed by this drainage infrastructure.

It is noted that the culvert sizes calculated to be required are smaller than the minimum size of 325 mm stated in the New Zealand Forestry Road Engineering Manual (NZFREM) (2020), which the QLDC has stated that they expect the forestry track is to be designed to. For that reason, a 325mm ID culvert is to be used to drain each catchment group, in the locations shown on Figure 4.2 and in Appendix G (which would provide ~1% AEP storm capacity), in accordance with the NZFREM, with additional smaller intermediary culverts installed where required, in order to reduce flow volumes and velocities and mitigate potential scouring. See Section 4.4.2 for further details regarding the proposed culvert size and spacing, and Appendix G for the full set of Enviroscope's calculations.

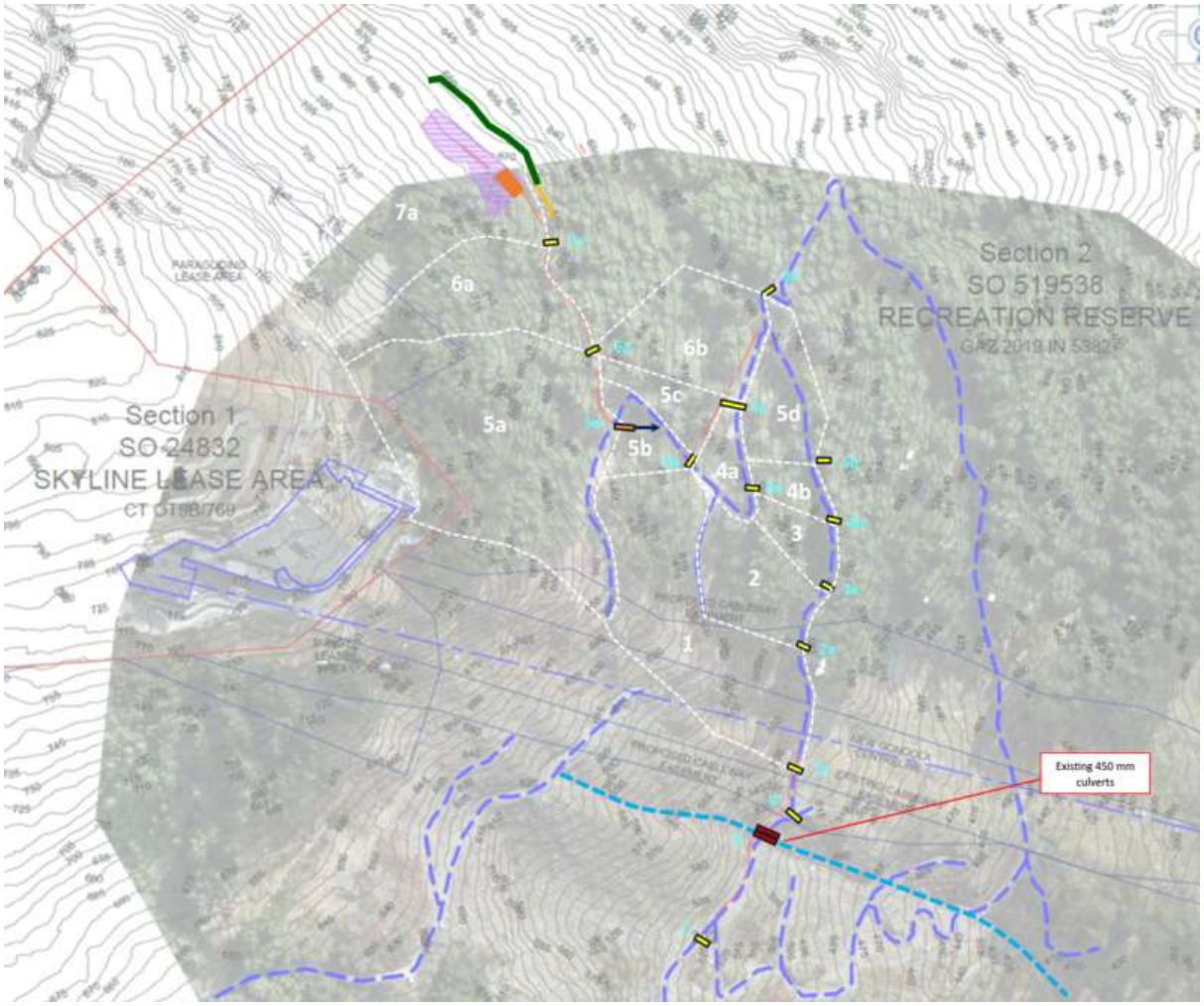


Figure 4.2: Catchment plan (Enviroscope, 2024) for areas where runoff would lead to the proposed haulage track. See Appendix G for respective calculations.

4.2.6 Task 1 Works

The primary flow path of the Brecon Street catchment, which crosses the AHT with 'Existing 450 mm culverts' on Figure 4.2, has been conservatively assessed to have an incoming catchment area of approximately 4 ha, potentially generating a flow rate of 225 l/s (0.25 m^3/s) in a 5% AEP storm. The minimum standard culvert size calculated to be required for that flow rate is 325 mm, however 2 no. 450 mm culverts have been placed under the track crossing it in order to provide ~1% AEP drainage for the area and allow for the full blockage of one of the culverts.

Two further 325 mm culverts, also greater than the size assessed to be required but the minimum as per the NZFREM, have been installed for the access track sub-catchments north of the primary Brecon Street catchment flow path. Site instruction records detailing the above are provided in Appendix I.

Further information regarding the drainage design of the access track is provided in Section 4.4.

4.2.7 Material Removal Zone

To avoid the need for a 'hairpin' turn in steep terrain and the construction of a substantial mechanically stabilized earth (MSE) structure, it is proposed to build a smaller MSE structure on a section of the existing track. The structure will facilitate the controlled transportation of fill material from one stretch of the track to the adjacent lower level by ensuring trucks are able to safely reverse and transport the material. Additionally, the lower-level track will have a downslope catch bund to prevent material travelling further downslope.

The location of the material removal zone is shown on the appended earthworks plan (Appendix A) and Figure 4.3 below.

The geotechnical design for the material removal zone is included with this report as Appendix J.

Construction of the Material Removal Zone is detailed in Section 4.3.2 below.

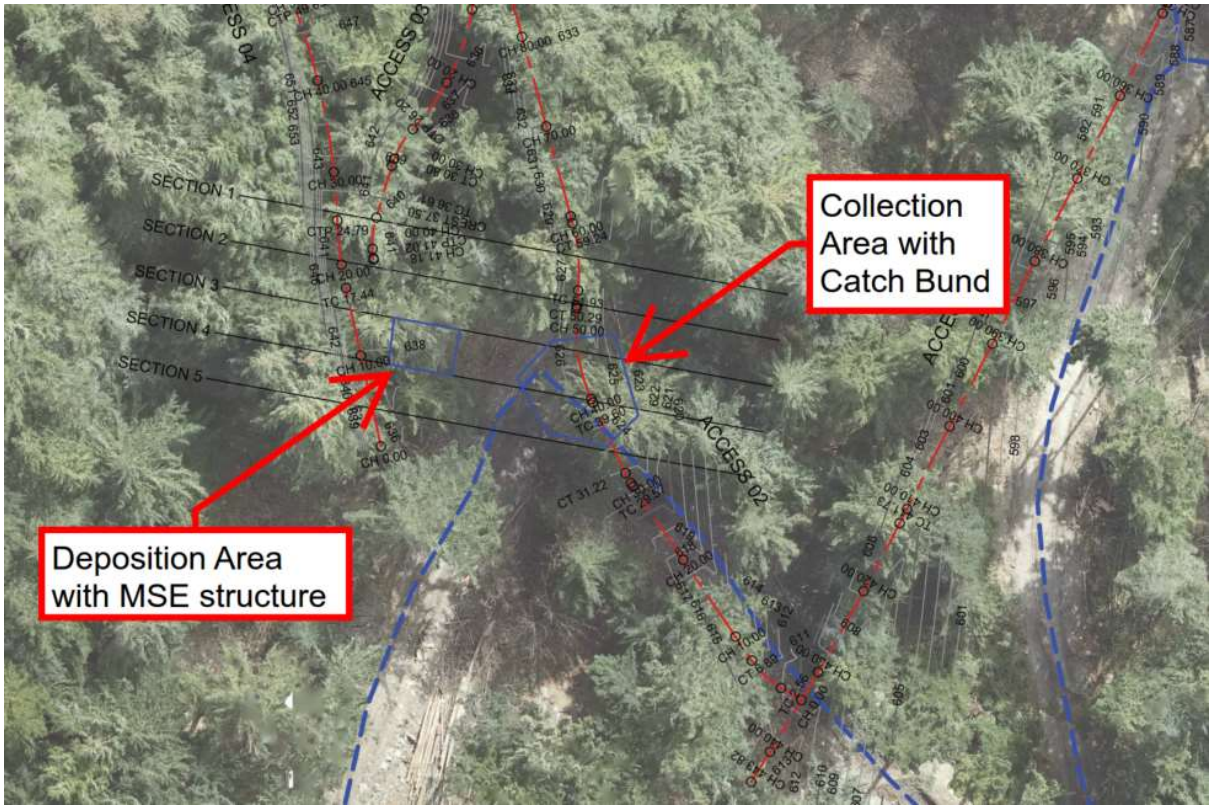


Figure 4.3: Material Removal Zone showing location of deposition and collection areas.

4.3 Construction Phase

4.3.1 Fill Movement

Initially a tethered spider excavator will mobilise the debris bulb material to a stockpile area beneath the existing tree cover and above the debris flow fence. A machine excavator will form a track to the debris and progressively lower a horizontal bench down to the stockpile location.

During the works it is recommended that:

- The excavator has a 2-metre horizontal setback from the crest of the working bench batter slope.
- The working downslope batter slope below the bench is generally maintained at an angle of 1.2H:1.0V.
- Works are undertaken in conditions where rainfall doesn't exceed 5 mm per hour & 25 mm per day.
- Cut-off drains are installed where instructed by the hydrological engineer.
- Supervision of the works is undertaken a qualified geotechnical engineer.
- Appropriate precautions and exclusion zones are maintained.
- The use of spotters for higher risk actions and communications between site personal during these activities is appropriate.
- All personnel to monitor the site (regularly during work operations) for signs of further land movement or rock falls, unexpected release of water, soil, logs, or any type of debris.

Below the debris barrier, at the location of the lower proposed access track (as shown in Figure 1a, Appendix B), debris removal will occur laterally from the overland flow path. Debris will be stockpiled and prepared for redistribution or removal, based on suitability. These works will be undertaken in sloping terrain and appropriate precautions and exclusions zones should be implemented in combination with oversight from spotters and regular inspections by a geotechnical engineer.

Where machine excavators are unable to access areas of spoil it is understood that manual collection of spoil into bags for helicopter removal is proposed. Alternatively, it may be redistributed to areas outside the influence of overland flow paths or geotechnical instability where the risk of remobilisation is negligible. These areas are subject to approval by the hydrological and geotechnical engineers and can be identified during the detailed design phase of the project.

4.3.2 Material Removal Zone

Construction methodology and Contractor responsibility for the Material Removal Zone is provided in the attached design report (Appendix J).

GeoSolve will be required to inspect and approve construction of the embankment at the following key stages:

- (1) - Pre-construction site meeting (Joint meeting with the Contractor to discuss identified geotechnical issues, soil water content relative to optimum, compaction methodology, groundwater, drainage, Miragrid construction and downslope bund construction, geogrid installation and set out)
- (2) - Upon completion of the excavations (To confirm the ground conditions and inspect the subgrade before any fill and geogrids are placed) – inspection required for both the reinforced removal zone area and the bund.
- (3) - On site during testing of a trial pad (usually formed before or as part of the first layer of fill to prove compaction methodology).
- (4) - Upon completion of the Geogrid embankment set out. (With respect to this inspection it should be noted that the Contractor is fully responsible for ensuring that the proposed works are correctly surveyed and set out, and, that the construction tolerances stipulated in the specification and drawings have been met).
- (5) - Upon completion of three layers of geogrid (i.e. after a 0.6 m depth of fill has been placed) (to confirm that the prescribed construction methodology is being followed, that tolerances are being met, and that the embankment is being constructed to a high quality).
- (6) - Upon completion of first wrapped geogrid layer (to confirm geogrid installed in accordance with supplier guidelines).
- (7) - A final inspection of completed Geogrid Embankment.
- (8) - A final inspection of completed downslope catch bund.
- (9) - At any other time as required by the Engineer.

The Contractor shall not proceed to any stage of the Works until the Engineer has inspected, approved and where necessary measured the Works at the previous stage (above mentioned as stages 1-9).

The contractor shall not put the material removal zone into service until the geogrid reinforcement and downslope catch bund has been verified to be constructed in accordance with the design documentation provided by GeoSolve.

Due to the high consequence of an upper material removal zone MSE structure and downslope catch bund failure, service inspections will be required. Findings of the inspections shall be reported to and reviewed by a suitably qualified engineer. The inspections should include, but are not limited to, the following (Table 4.2 below)

Table 4.2 – Material Removal Zone monitoring details and frequency

Components	Recommended Minimum Inspection Interval*
Examination of mechanical components (e.g. geogrid and facing matting etc) for damage. Inspection of condition of tipping head surface ground condition. Inspection of condition of downslope stockpile area (below upper material removal MSE area) including the bund.	**Daily Inspection Prior to First Load Entering Upper Material Removal MSE Area during Service:** Walkover by contractor to confirm all mechanical components are not damaged from material removal works and no observed ground movement/scour/damage, slope and catchment bund.
	Weekly Inspection in Service: Walkover by designer to confirm all mechanical components and ground around the upslope material removal MSE structure and bund are not being damaged by material removal works and are working effectively.
*A round of monitoring should also be undertaken by the designer during or immediately following rainfall events exceeding the following amounts or any seismic event: 1. Rainfall exceeding 9 mm per hour; and, 2. Daily cumulative rainfall amounts exceeding 47 mm.	

4.3.3 Debris Flow Barrier Maintenance

The upslope anchors of the barrier should be protected by way of a gravel bund formed using the surrounding debris material. Provision for replacing the brake elements of the upslope anchors regularly should be allowed. Regular barrier inspection of the barrier's components should be undertaken to confirming performance capacity throughout the construction phase of the project.

Inspection of the barrier will be detailed in the design report of the debris barrier during the detailed design phase of the project.

4.3.4 Fill Removal/Disposal

From the stockpile location the fill material will be loaded to dumpers for forwarding to Skyline access road and disposal. It is understood that numerous vehicle movements will be required and the hydrological and geotechnical conditions affecting the stability of the tracks should be monitored throughout the works.

Where instability is noted remedial solutions such as drainage, erosion protection or retention can be employed to mitigate instability.

Any fill material proposed to be retained on site will be subject to assessment and suitability confirmation by a qualified engineer professional from a hydrological and geotechnical perspective.

4.4 Drainage Considerations

It is considered that past soil failure events at the site were partially caused by insufficient drainage having been installed, and that the below drainage measures to be provided as part of the construction of the access track will assist in mitigating future events.

4.4.1 Working Conditions

Works are to be undertaken during dry weather, in fully drained conditions with no free water on the working surfaces. If heavy rainfall is forecast then the site is to be prepared and stabilised accordingly in order to prevent significant sediment transport, such as by fill surfaces being graded and rolled. Any materials that have become too wet or soft should be removed and dried or replaced. Silt fences and similar sediment transport management measures are to be installed pre-emptively.

Although almost all flowpaths in the area are ephemeral, the installation of each culvert is to be performed in less than 10 hours in order to prevent excessive time being spent in a potentially wetted bed.

See Section 4.4.4 below for further working condition considerations relating to 4.4.4 Maintenance and Sediment Control Measures.

4.4.2 Culvert Spacing and Sizing

As described in Section 1.3, the erosion susceptibility for the site has been determined to be Low, as per the NES-PF Erosion Susceptibility Classification tool[1] (recommended by the NZFREM). The recommended culvert spacing based on the Erosion Susceptibility Classification (as per the NZFREM) is provided as Figure 4.3 below.

[1] www.teururakau.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/erosion-susceptibility-classification

Recommended maximum spacing (m) for road drainage culverts located on roads traversing mid and lower slopes				
	Soil or rock erodibility and distance spacing guide (m)			
Grade	High	Moderate	Low	Non-erosive rock
18% (1 in 6)	40	80	120	200
14% (1 in 7)	50	90	140	220
12% (1 in 8)	55	100	160	240
11% (1 in 9)	60	115	180	260
10% (1 in 10)	65	130	210	300
8% (1 in 12)	80	165	250	350

Figure 4.3: NZFREM recommended culvert spacing, the Erosion Susceptibility Classification is low for this area

As per the above table, the maximum culvert spacing for the site would generally be ~120m, as it is steep and in the Low ESC category. As per the NZFREM, 325 mm culverts are to be installed at that spacing.

It is noted however, that the proposed access track will be of a steeper grade in places than the grades shown in the NZFREM table above. The steepest grade is to be ~36%, which will be trafficked by specialist off-road vehicles (as per the NZFREM). Safety in the construction and trafficking of the access track is a paramount consideration, and in addition to this report a Job Safety Analysis (JSA) is being prepared by Beavers Contracting, who has been engaged to construct and traffic the access track.

In the steepest areas of the track the spacing of 325 mm culverts is to be ~60 m or less. In addition, there may be areas where culverts or cutoff drains are considered to be required (additional to NZFREM standards) in order to further mitigate sediment transport, or ensure that runoff reaches its natural flowpath location. It is considered that culverts or cutoff drains (a.k.a. water bars) further to the NZFREM requirements would be beneficial to the design, which are to be sized and spaced on a case by case basis to fulfil their required purpose, based on Enviroscope and GeoSolve's ongoing hydrological analysis of the area.

Culverts are to be installed at least 300 mm depth below the reinstated surface level (preferably more), and a minimum of 300 mm depth to the crown of the pipe is to be maintained during the use of the track.

Sediments traps are to be constructed immediately prior to culvert inlets. These are to be constructed in a way that directs flow into the inlets as smoothly as possible, but minimises the risk of the inlets becoming blocked by debris falling into the inlet depression.

Culverts and cutoff drains are to be monitored at regular intervals, and after any significant rainfall event, in order to ensure they are functioning as designed and not becoming blocked with sediment. They will be cleaned out as required in order to ensure continuing function.

Culverts are to have a minimum gradient of 3%, and the outlet areas of the culvert pipes are to be positioned appropriately to mitigate protected from scour by the installation of flumes, socks, rip-rap basins or other appropriate erosion-resistant materials.

The area is to be inspected following each of the first 3 significant rainfall events after its installation by a GeoSolve staff member or other suitably qualified person, and works to improve/ensure its continuing performance are to be undertaken if necessary. Ongoing regular assessment of their condition is to be undertaken for the rest of their working lives.

The recommendations of the NZFREM are also to be followed wherever practical, especially those of Section 7.4.1.

4.4.3 Drainage Ditches, Riprap and Bunding

Minor bunding is to be placed and compacted on the outside (downslope) side of the access track wherever possible, to assist in mitigating scour risk from stormwater running down the fill batters. The access track is also to slope inwards, away from the bund/slope crest.

A drainage ditch (a.k.a. water table) of 0.6 m top width is to be provided on the inside (upslope) side of the access track, though a lesser top width is acceptable for short distances in constrained locations.

The drainage ditches are to be lined with appropriately sized riprap. It is understood that site-won riprap is available, and is considered fit for purpose. A photograph of the available site-won riprap is below, and can be compared to the adjacent recommended riprap configuration from the NZFREM. The riprap material shown in Photograph 4.1 is of at least a sufficient size to provide scour protection, and if necessary can be reduced in size by track rolling or a similar rock breaking process in order to provide sufficiently well-graded material. GeoSolve have performed preliminary hydraulic modelling calculations, which indicated maximum velocities of 3-4 m/s along the proposed access track/drainage ditches (if untreated), which are considered to be mitigatable to non-significantly erosive velocities with this riprap material.

Photograph 4.1: Site-won material available to be used as drainage ditch riprap (left). Right: a recommended example riprap configuration from the NZFREM

4.4.4 Maintenance and Sediment Control Measures

An Environmental Management Plan is provided by Enviroscope in Appendix G. As per the NZFREM, the track is to be inspected regularly, or after a storm or an extended wet period. The results from these inspections are to be used to develop a maintenance plan, features of which should include (as a minimum):

Regularly check drainage ditches and other channels to:

- Remove debris build up or other blockages.
- Evaluate potential scour and remedy/future proof accordingly.
- Remove vegetation growth from any unwanted locations.
- Ensure all culvert entrances are free of debris accumulation.

During/immediately after rainfall check for:

- Ponding on the road surface or the drainage ditches.
- Surface flooding.
- Blockages.
- Leaking flumes/socks.
- Leaking culvert joins.
- Seepage.
- Water runoff across the road instead of into the ditch.

Other Considerations:

- Relevant signage. This must comply with the appropriate Health and Safety Code of Practice and JSA.
- Prevention of the spreading of excessive dust.

4.5 Reinstatement

4.5.1 Debris Flow Barrier

Removal will be undertaken following completion of the works. The installed ground anchor will remain in perpetuity.

4.5.2 Debris Bulb Area

Removal of the material will expose the underlying soils that are likely subject to entrainment during rainfall events. Sediment control should remain in place until the slope has begun to revegetate.

4.5.3 Access Track Cut and Fill Slopes

The access track fill slopes and drainage measures of the access tracks will be removed following the completion of the works. The cut slopes should be revegetated. The granular debris material can be utilised to reinstate tracks in place of colluvium/organic soils.

4.5.4 Water flow

As runoff will be directed to its natural catchment/flow path by culverting or similar where required, no significant reinstatement is anticipated to be required upon the decommission

of the access track. On final inspection of the track before decommissioning, further cutout drains (a.k.a. water bars) could be excavated adjacent to any culverts considered critical, in order to provide redundancy to their operation.

5 Natural Hazard Risk Assessment

A previous GeoSolve report entitled "Risk to Life Assessment Report for Remedial Options of Reavers Catchment, Queenstown", dated 1 December 2023, has been prepared for the site.

The risk assessment is solely for the purpose of evaluating the potential decrease in Annual Individual Fatality Risk (AIFR) following implementation of various remedial options proposed by SEL to address the fill.

In order to mitigate the debris flow risk posed to the residential area near the Reavers Lane culvert multiple remedial options have been considered within this report, such as stabilisation and/or removal of the introduced fill in the Reavers Creek catchment. Based on the assumptions outlined in the previous report, the AIFR results have been calculated for the various remedial options and are presented in Table 5.1 below (taken from the previous report).

Table 5.1: Summary of AIFR results for the various proposed remedial options.

Area of Catchment	Remedial Option	Comments	Estimation of the Annual Individual Fatality Risk (AIFR)
Zone A & B	No Remediation - Background Risk Assessment for Reavers Debris Bulb	Prior to remedial works, excluding natural hazards in the Reavers Catchment.	**1.25×10^{-2}**
Zone A	Stabilise fill material in Place (2500m3)- by soil nail support.	Design Life 100 years. Material Present in Zone B.	**2.75×10^{-3}**
Zone A	Removal of upper fill material (2500m3)	Material still present in Zone B.	**2.75×10^{-3}**
Zone A	Install Fence at top of catchment to take 2500m3	Material still present in Zone B. Design Life 25 years.	**2.75×10^{-3}**
Zone B	Install Fence at bottom of catchment to take 750m3	Material still present in Zone A. Design Life 25 years.	**5.96×10^{-3}**
Zone A & B	Install Fence at the bottom (750m3) and remove/stabilise the upper fill material.	Fence Design Life 25 years.	***1.45×10^{-6}**
Zone A & B	Install Fence at top of catchment to take 2500m3. Install Fence at bottom of catchment to take 750m3.	Fence Design Life 25 years.	***1.45×10^{-6}**
* No spatial impact was determined following remedial measures in Zone A & B; therefore, this value is conservative and required to enable an AIFR assessment to be completed. Therefore, the risk is negligible.			

Calculated risk values for undertaking remedial works in both Zone A and Zone B of the catchment are significantly lower than the tolerable risk guidelines provided in AGS 2007, noting that the design life of engineered structures is limited in risk reduction in perpetuity.

The calculated risk values for undertaking remedial works in both Zone A and Zone B are also lower than the acceptable level of AIFR 1x10-5, as prescribed by Queenstown Lakes District Council (QLDC).

Therefore, as the proposed methodology outlined in this report is to remove the fill material in Zone A & B it is expected that the residual risk level following the proposed works is acceptable.

Further, the interim risk during construction works to the downslope user during the works will also be managed by the installation of an upper and lower debris barrier.

6 Neighbouring Structures/Hazards

Natural Hazards: A risk of debris flow has been identified for that area and mitigation comprises a debris flow barrier is proposed to initially mitigate the hazard and to aid in the removal of the debris material upslope of the barrier. Additional natural hazards are known to be present within the Reavers Catchment, however are outside the scope the report herein.

Distances to adjoining structures: No adverse geotechnical implications apply for neighbouring properties during construction provided the above excavation considerations are noted.

Aquifers: No aquifer resource will be adversely affected by the development.

Erosion and Sediment Control: The site presents some potential to generate silt runoff and this would naturally drain downslope. Effective systems for erosion control are runoff diversion drains and contour drains, while for sediment control, options are earth bunds, silt fences, hay bales, vegetation buffer strips and sediment ponds. Only the least amount of subsoil should be exposed at any stage and surfacing established as soon as practical.

We recommend advice be sought from a qualified specialist where compliance with local and regional erosion and sediment control regulations is uncertain. Given the area of the development site an Environmental Management plan (EMP) in line with QLDC guidelines is expected to be required.

Noise: Rock-breaking is likely to be required. The construction contractor should take appropriate measures to control the construction noise, and ensure QLDC requirements are met in regard to this issue.

Dust: Regular dampening of soil materials with sprinklers should be effective if required.

Vibration: Given the distance from the site to neighbouring properties the risk of vibration issues for 3rd parties is expected to be very low.

7 Conclusions and Recommendations

In conclusion the proposed works are considered feasible from a geotechnical and hydrological perspective provided the recommendations of this report are followed and there is further geotechnical input during the detailed design and construction phases of the project.

The following conclusions and recommendations are provided:

Site Geology

- The site geology comprises schist bedrock at shallow to moderate depths with a varying soil veneer of fill, colluvium and glacial till materials.
- Perched groundwater conditions are expected to be present at the schist/colluvium contact and through fractures in the rock in some locations. Localised groundwater flows could develop following periods of extended rainfall.
- Specific investigation and assessment should be completed at the detailed design and construction phases of the project to confirm the specific ground model in key locations.
- It is expected that ongoing geotechnical input will be required throughout the detailed design phase of the project and during construction/earthworks.

Debris Barrier

- Debris flow barrier base plates and anchors for the debris flow barrier should be founded on/within competent schist bedrock where applicable.
- The upslope anchors of the debris flow barrier should be protected by way of a gravel bund formed using the surrounding debris material. Provision for replacing the brake elements of the upslope anchors regularly should be allowed. Regular barrier inspection of the barrier's components should be undertaken to confirming performance capacity throughout the construction phase of the project.
- Inspection of the barrier will be detailed in the design report of the debris barrier during the detailed design phase of the project.

Excavations and Fill slopes

- Recommendations on appropriate batter angles for earthworks design are provided in Section 4.2.2
- Due to the variability of schist terrain, and the random occurrence of secondary defects, it is recommended that a staged approach be adopted for excavations within schist bedrock to enable any additional support measures, if required, to be confirmed on a case-by-case basis. Rock cut batter slopes are recommended to be at 0.25H:1.0V.
- All slopes should be periodically monitored during construction for signs of instability and excessive erosion, and, where necessary, corrective measures should

be implemented to the satisfaction of a Geotechnical Engineer or Engineering Geologist.

- Site preparation of fill slopes should include the removal of topsoil and unsuitable material, and excavation of benches into the slope.
- All un-retained fill slopes which are less than 2.5 m high should be constructed with a batter slope angle of 1.2-1.5H: 1.0V (horizontal to vertical) or flatter.
- All un-retained fill slopes which are more than 2.5 m high should be constructed with a batter slope angle of 1.5-1.75H: 1.0V or flatter.
- A setback of horizontal metre should also be allowed for between the crest of the fill slope and the vehicle track.
- Debris material, and material sourced form site cut, will primarily be crushed rock. This material is considered suitable for used as engineered fill.
- Additional recommendations regarding fill slope construction are provided in Section 4.2.3.
- All cut and fill earthworks should be inspected during construction and appropriateness confirmed by a GeoSolve Engineer.
- It is understood that there will be numerous vehicle movements during the spoil cartage and the hydrological and geotechnical conditions affecting the stability of these tracks should be monitored throughout the works.

Retaining/ Reinforced Earth

- All retaining walls or reinforced earth should be designed by a Chartered Professional Engineer using location specific geotechnical design parameters. Due allowance should be made during the detailed design of all retaining walls for forces such as surcharge due to the sloping ground surface behind the retaining walls, groundwater, seismic loads and traffic loads.
- A specific material removal zone has been designed and the details are provided in Appendix J.

Debris Removal

- A specific methodology will be required to safely lower the debris and recommendations are provided in Section 4.3.1

Slope Drainage

- The drainage design ensures that rainfall reaches the flow path it would have naturally runoff to and is not diverted to a different catchment by the earthworks. Further information is presented in Appendix G.
- Although almost all flowpaths in the area are ephemeral, the installation of each culvert is to be performed in less than 10 hours in order to prevent excessive time being spent in a potentially wetted bed.

- With the exception of the 2 no. 450 mm culverts already installed in the Brecon Street catchment flowpath, the remaining culverts required have been calculated have a minimum of 150-220 mm diameter. The NZFREM recommends 325 mm culverts as a minimum, which will be followed, at the spacing recommended by NZFREM (in the steepest areas of the track this is to be ~60 m or less). If/where further culverts/cutoff drains are considered to be required for scour protection and/or natural runoff path maintenance, these will be sized and spaced on a case-by-case basis, anticipated to be at ~20-40 m centres. Further information is presented in Appendix G.
- Works are to be undertaken during dry weather, in fully drained conditions with no free water on the working surfaces. If heavy rainfall is forecast then the site is to be prepared and stabilised accordingly in order to prevent significant sediment transport, such as by fill surfaces being graded and rolled.
- Culverts are to be installed at least 300 mm depth below the reinstated surface level (preferably more), and a minimum of 300 mm depth to the crown of the pipe is to be maintained during the use of the track.
- Sediments traps are to be constructed immediately prior to culvert inlets. These are to be constructed in a way that directs flow into the inlets as smoothly as possible, but minimises the risk of the inlets becoming blocked by debris falling into the inlet depression. Further information is presented in Appendix G.
- Culverts are to be monitored at regular intervals, and after any significant rainfall event, in order to ensure they are functioning as designed and not becoming blocked with sediment. They will be cleaned out as required in order to ensure continuing function. Further information is presented in Appendix G.
- Culverts are to have a minimum gradient of 3%, and the outlet areas of the culvert pipes are to be positioned appropriately to mitigate protected from scour by the installation of flumes, socks, rip-rap basins or other appropriate erosion-resistant materials. Further information is presented in Appendix G.
- The area is to be inspected following each of the first 3 significant rainfall events after its installation by a GeoSolve staff member or other suitably qualified person (such as an Enviroscope staff member), and works to improve/ensure its continuing performance are to be undertaken if necessary. Ongoing regular assessment of their condition is to be undertaken for the rest of their working lives.
- The recommendations of the NZFREM are also to be followed wherever practical, especially those of Section 7.4.1.
- Bunding is to be placed and compacted on the outside (downslope) side of the access track wherever possible, to assist in mitigating scour risk from stormwater running down the fill batters. The access track is also to slope inwards, away from the bund.
- A drainage ditch (a.k.a. water table) of 0.6 m top width is to be provided on the inside (upslope) side of the access track, though a lesser top width is acceptable for short distances in constrained locations.

- The drainage ditches are to be lined with riprap. It is understood that site-won riprap is available, which is considered fit for purpose, and if necessary can be reduced in size by track rolling or a similar rock breaking process in order to provide sufficiently well-graded material. Further information is presented in Appendix G.
- The track is to be inspected regularly, or after a storm or an extended wet period. The results from these inspections are to be used to develop a maintenance plan. See Section 4.4.4 of this report for a recommended inspection and maintenance plan.

8 Applicability

This report has been prepared for the benefit of Skyline Enterprises Limited with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

It is important that we be contacted if there is any variation in subsoil conditions from those described in this report.

Report prepared by:

.....

Simon Reeves
Senior Engineering Geologist

Report prepared by:

.....

Neil Williman
Senior Water Resources Engineer (CPEng)

Reviewed for GeoSolve Ltd by:

.....

Paul Faulkner
Senior Engineering Geologis

Appendix A: Site & Earthworks Plan

SKYLINE ENTERPRISES LIMITED
QLDC BEN LOMOND RECREATION RESERVE, QUEENSTOWN
REAVERS DEBRIS REMOVAL

PLAN INDEX

PLAN INDEX

NOTES

REVISION E
-Issued for Construction
-Track width reduced from 4m to 3m width
-Track 2 intersection modified
-Notes tidied
-WIP ESC plans removed from plan set

REVISION F
-Tracks modified for temporary stockpile site, Access 02 machine access only design, removing requirement for large reinforced earth fill

REVISION G
-Access 02 split into 02 & 03, with hairpins removed and track pushed further uphill.
-Access 03 renamed Access 04 and section removed.
-Long Sections and Cross sections revised to suit layout changes and re issued as Revision F

REVISION H
-Remove existing consented track linework
-Change exist tracks to be reinstated
-Update legends

patersons.
Land Professionals

QUEENSTOWN
1092 Frankton Road
Frankton
Queenstown 9300

T +64 (3) 441 4715
E queenstown@patersons.co.nz

Client & Location:

SKYLINE ENTERPRISES LIMITED

QLDC BEN LOMOND RECREATION RESERVE

Purpose & Drawing Title:

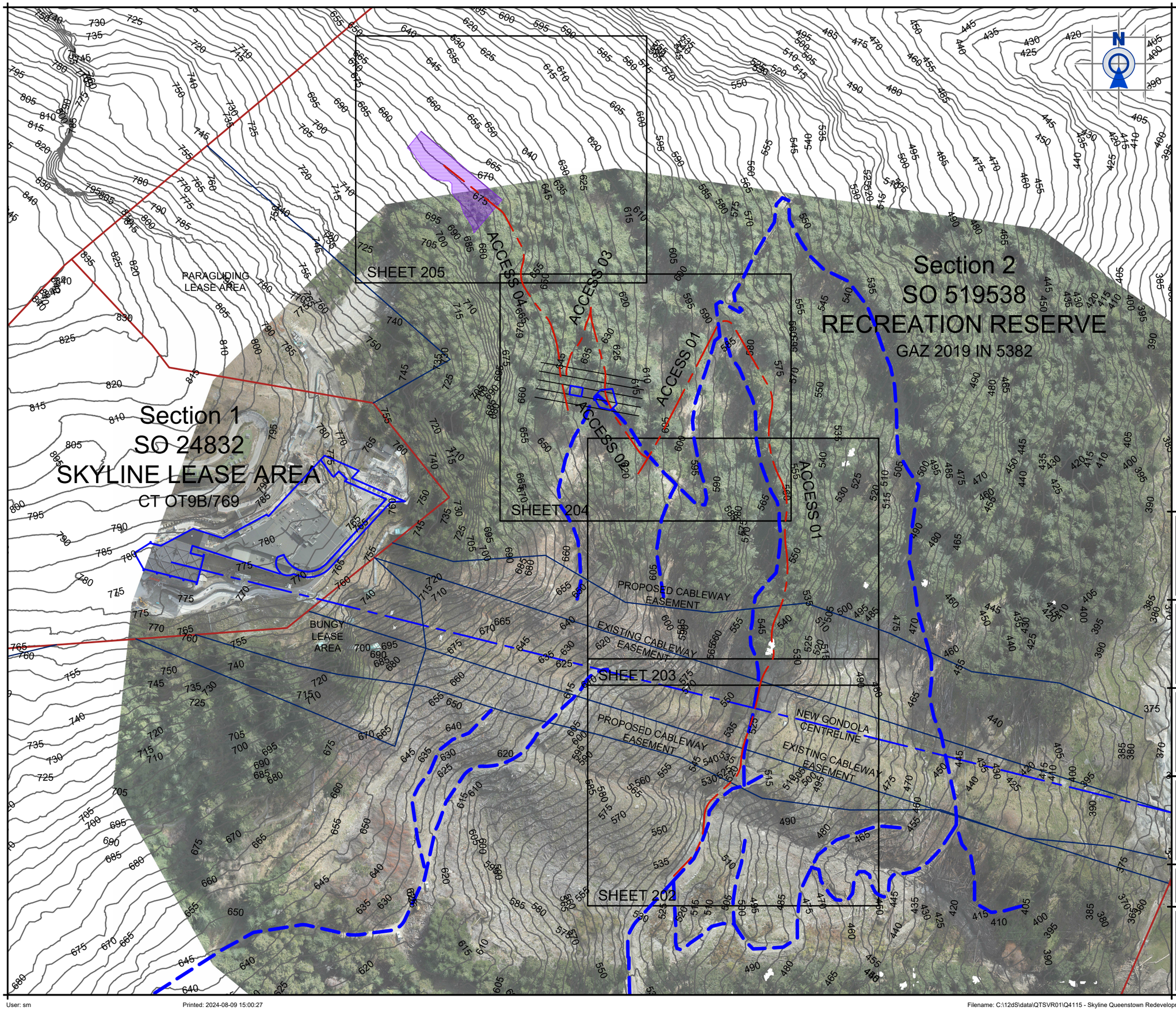
REAVERS DEBRIS REMOVAL

COVER SHEET

FOR CONSTRUCTION

Surveyed by:	AWJ	Original Size:	Scale:
Designed by:	SAM	A3	
Drawn by:	SAM		
Checked by:	SAM		
Approved by:			DO NOT SCALE

Job No:	Drawing No:	Sheet No:	Revision No:	Date:
Q4115	7-6-2	101	H	06/08/2024



LEGEND

- 305 — 5m EXISTING CONTOURS
- 1m EXISTING CONTOURS
- EXISTING TRACKS
- PROPOSED TRACKS
- BOUNDARY
- EASEMENTS
- CATCH FENCE FILL AREA

patersons.
Land Professionals

QUEENSTOWN
1092 Frankton Road
Frankton
Queenstown 9300

T +64 (3) 441 4715
E queenstown@patersons.co.nz

Client & Location:

SKYLINE ENTERPRISES LIMITED

QLDC BEN LOMOND
RECREATION RESERVE

Purpose & Drawing Title:

REAVERS DEBRIS REMOVAL

EXISTING CONTOURS OVERVIEW

FOR CONSTRUCTION

Surveyed by:	AWJ	Original Size:	Scale:
Designed by:	SAM	A3	1:2000
Drawn by:	SAM		
Checked by:	SAM		DO NOT SCALE
Approved by:			
Job No:	Drawing No:	Sheet No:	Revision No: / Date:
Q4115	7-6-2	201	H / 09/08/2024