

APPLICATION AS NOTIFIED

MJ & BP Davies Family Trust

(RM220719)

Submissions Close 01.12.2022

FORM 12

File Number RM220719

QUEENSTOWN LAKES DISTRICT COUNCIL

PUBLIC NOTIFICATION

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

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

MJ & BP Davies Family Trust

What is proposed:

Application under Section 88 of the Resource Management Act 1991 (RMA) for consent to undertake a five lot fee simple subdivision from three existing allotments and establish three residential building platforms on proposed lots 1, 2 and 3 with associated earthworks, access and landscaping.

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

156 Hogans Gully Road, Wakatipu Basin

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

- **74 Shotover Street, Queenstown;**
- **Gorge Road, Queenstown;**
- **and 47 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 RM220719 as the reference <https://edocs.qldc.govt.nz/Account/Login>

The Council planner processing this application on behalf of the Council is Andrew Woodford, who may be contacted by phone at 03 450 1726 or email at andrew.woodford@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:

1 December 2022

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 (MJ & BP Davies Family Trust) as soon as reasonably practicable after serving your submission to Council:

MJ & BP Davies Family Trust
C/- Morgan Shepherd
morgan@brownandcompany.co.nz
Brown & Company Planning Group
PO Box 1467
Queenstown 9348

QUEENSTOWN LAKES DISTRICT COUNCIL



(signed by Alana Standish, Resource Consents Team Leader, pursuant to a delegation given under Section 34A of the Resource Management Act 1991)

Date of Notification: 3 November 2022

Address for Service for Consent Authority:

Queenstown Lakes District Council	Phone	03 441 0499
Private Bag 50072, Queenstown 9348	Email	rcsubmission@qldc.govt.nz
Gorge Road, Queenstown 9300	Website	www.qldc.govt.nz



APPLICATION FOR RESOURCE CONSENT OR
FAST TRACK RESOURCE CONSENT

FORM 9: GENERAL APPLICATION



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:

(Name Decision is to be issued in)

All trustee names (if applicable):

*Contact name for company or trust:

*Postal Address:

*Post code:

*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:

*Phone Numbers: Day

Mobile:

*The Applicant is:

Owner

Prospective Purchaser (of the site to which the application relates)

Occupier

Lessee

Other - Please Specify:



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:

*Phone Numbers: Day

Mobile:

*Email Address:

*Postal Address:

*Postcode:



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:

*Postal Address:

*Post code:

*Please provide an email AND full postal address.

*Email:



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

Owner Name:

Owner Address:

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:

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

District Plan Zone(s):



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? YES NO

If 'yes' please provide information below



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:



CONSENT(S) APPLIED FOR // * Identify all consents sought

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



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:



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 25m³ per 500m²). 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

Are any additional consent(s) required that have been applied for separately?

Otago Regional Council

Consents required from the Regional Council (note if have/have not been applied for):

Yes

N/A



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 if this application 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.

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.

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 – BKNZ22)

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

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

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

*Date of Payment

Invoices are available on request

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.

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.

PLEASE TICK

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

Full name of person lodging this form

Firm/Company

Dated

**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;
- (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.

Information provided within the Form above

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.



UNDER THE FOURTH SCHEDULE TO THE ACT:

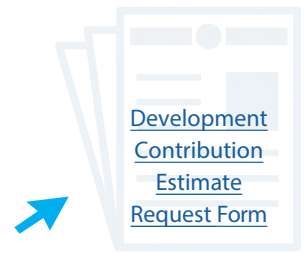
- An application for a subdivision consent must also include information that adequately defines the following:
 - (a) the position of all new boundaries:
 - (b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan:
 - (c) the locations and areas 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.

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 Roding)

[Click here for more information on development contributions and their charges](#)

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



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.

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

MJ & BP Davies Family Trust

**Application for a four-lot fee simple subdivision of two
allotments at 156 Hogans Gully Road, Queenstown**

16 August 2022

BROWN&COMPANY
P L A N N I N G G R O U P



APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 AND SECTION 127
OF THE RESOURCE MANAGEMENT ACT 1991

To: **Queenstown Lakes District Council**

MJ & BP Davies Family Trust

c/- Brown & Company Planning Group Ltd, PO Box 1467, Queenstown, applies for resource consent as follows.

1. The names and addresses of the owner and occupier (other than the applicant) of any land to which the application relates are as follows:

The applicants are the owners of the land.

2. The land to which the application relates ("site") is:

156 Hogans Gully Road. The two sites that are subject to this application are legally described as Pt Lot 1 DP 18290 and Lot 1 DP 25533, which are 16.09 ha and 1.25 ha in area respectively.

Copies of the of the Records of Title are at [Attachment B](#).

3. The type of resource consent sought is as follows:

- Land use consent pursuant to Section 88 of the Act for earthworks; and
- Subdivision consent pursuant to Section 88 of the Act; and

4. A description of the activity to which the application relates is:

The applicant proposes to undertake a four-lot fee simple subdivision of two allotments, establish building platforms, and undertake associated earthworks and landscaping.

A detailed description of the proposal is contained in the Assessment of Environmental Effects ([Attachment A](#)).

5. The following additional resource consents are required in relation to this proposal and have or have not been applied for:

No additional resource consents have been identified; however this application seeks any other consents that are required.

6. I attach an assessment of any effects that the proposed activity may have on the environment in accordance with section 88 of, and the Fourth Schedule to, the Act:

The Assessment of Environmental Effects is at [Attachment A](#).

7. I attach other information (if any), required to be included in the application by the district plan or regional plan or regulations.

All information is contained in the application, the Assessment of Effects on the Environment (**Attachment A**) and the plans provided.

8. Where the application is for subdivision consent:

Not applicable.

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 complete and accurate.

If signing 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 the Fees Information section.

If signing 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 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 the Fees Information section.

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.



.....
for Brown & Company Planning Group
on behalf of

MJ & BP Davies Family Trust

16 August 2022

Address for service of the applicant:

MJ & BP Davies Family Trust
c/- Brown & Company Planning Group
PO Box 1467
Queenstown 9348

Attention: Morgan Shepherd / Caleb Tien

Telephone: 03 409 2258

Mobile: 021 246 7597

Email: morgan@brownandcompany.co.nz / caleb@brownandcompany.co.nz

Address for Invoicing:

MJ & BP Davies Family Trust
156 Hogans Gully Road
RD 1

Queenstown 9371

Attachments

- A** An assessment of effects on the environment in accordance with the Fourth Schedule to the Act
- B** Record of Title & relevant Instruments
- C** Subdivision Scheme Plan
- D** Landscape Plan
- E** Landscape Assessment
- F** Earthworks Plan and Site Sections
- G** Geotechnical Report
- H** Services Report
- I** Form 9

FOURTH SCHEDULE ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

1. A description of the proposal:

1.1 Scope of this Document

This Assessment of Effects on the Environment (**AEE**) is submitted in fulfilment of the applicant's duties under the Resource Management Act 1991 (**RMA**). The AEE addresses matters relating to this land use consent application to the Queenstown Lakes District Council (**QLDC** or **the Council**) for the proposal.

This AEE has been prepared in accordance with the requirements of section 88 and the Fourth Schedule of the RMA and provides all information necessary for a full understanding of the proposal and the effects it will have on the environment. To this end, the AEE contains the following information:

- A description of the Site and surrounding locality;
- A description of the proposal;
- Relevant provisions of the QLDC's District Plan and relevant regional and national planning instruments;
- An assessment of effects on the environment, including analysis of relevant assessment matters;
- Part 2 RMA considerations; and
- Section 95 Assessment.

1.2 The site and locality

The subject site is located at 156 Hogans Gully Road, and is comprised of the following two lots:

- Part Lot 1 Deposited Plan 18290 held in Record of Title OT17C/602
- Lot 1 Deposited Plan 25533 held in Record of Title OT17C/601

Both lots are accessed from Hogans Gully Road which is located to the north of the subject site.

Physical access is located within the easternmost part of the road boundary with Hogans Gully Road, with a driveway running along the eastern boundary of the site which provides physical access to the existing dwelling located on the site.

The site is in three distinct forms: a gently rolling northern paddock adjacent to Hogans Gully Road, a steeper escarpment area through the centre of the site, and a plateau area, containing the existing dwelling, in the southern part of the site.

In the wider context, the site is located to the south of Arrowtown and to the northeast of Lake Hayes. The landscape character is open and pastoral in appearance, and is characterised by fenced paddocks, shelterbelt planting, and well separated dwellings that are often well landscaped around. The character can be generalised as being rural-residential.

The location and extent of the site is illustrated in **Figure 1** below.



Figure 1: Location of the site

Much of the site is covered in grass, with clusters and rows of trees located along the western boundary and along the driveway. The area around the dwelling is landscaped, with a tennis court located to the south of the building.

One of the sites that is subject to this proposal is Part Lot 1 Deposited Plan 18290, and it is comprised of two separate land parcels that are amalgamated together and held within the same title. This is shown below in Figure 2 below:

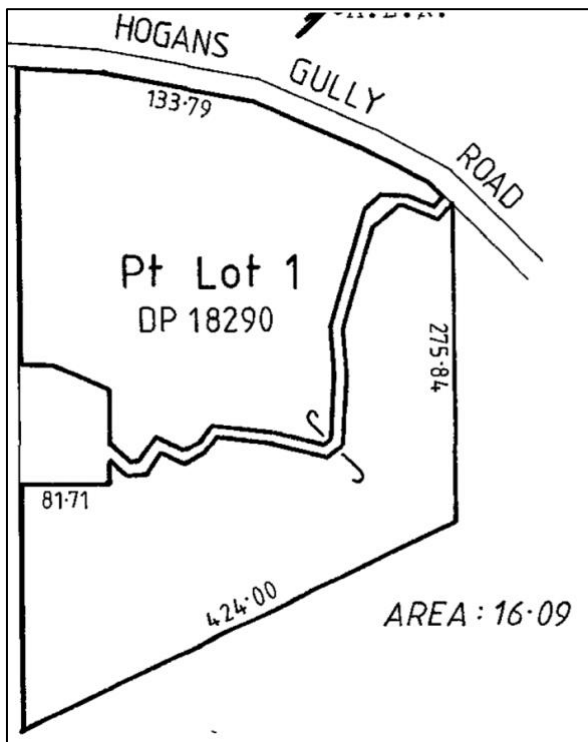


Figure 2: Title Plan of Subject Site

The zoning of the site is split, with the two land parcels zoned differently. The northernmost land parcel is zoned Wakatipu Basin Rural Amenity Zone (**WBRAZ**), and the southernmost land parcel is zoned Hogans Gully Resort Zone (**HGRZ**). This is illustrated in Figure 3 below, with

the WBRAZ shown in blue, and the HGRZ in yellow (noting that the part of the site in light blue is zoned WBRAZ and the part with a greener hue is zoned HGRZ):

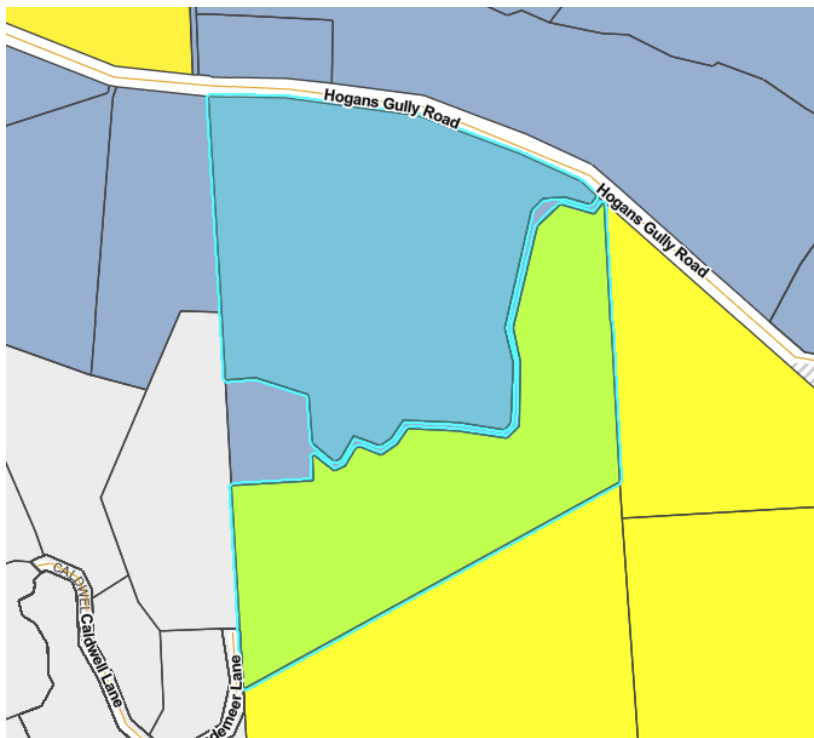


Figure 3: Zoning of Subject Site

The site is located within Landscape Character Unit (LCU) 15: Hogans Gully. This LCU is described as being characterised by buildings integrated by landform and vegetation, with the hummock landform pattern reinforced by planting throughout the LCU. Given this characteristic, this LCU has a moderate capability to absorb additional development.

The site is located outside of the Lake Hayes Catchment as mapped in Schedule 24.9 of the PDP; the catchment boundary is around 1km to the west of the site. However, in evidence to a Topic 31 case¹ involving the zoning of land on the northern side of Hogans Gully Road at the intersection of Arrowtown-Lake Hayes Road the Otago Regional Council (ORC) has submitted evidence that the boundaries on the Schedule 24.9 map are not accurate, and that in the area of Hogans Gully Road the boundary, based on Laser Imaging, Detection and Ranging (LIDAR) modelling, is around 1.5km to the east, and would contain the site which is the subject of the current application.

The ORC's mapping in this regard is shown in **Figure 4** below, and is confirmed in the Services Report by CFM (**Attachment H**), at Part 5.3.

¹ ENV-2019-CHC-038 – Boxer Hill Trust v QLDC and the ORC

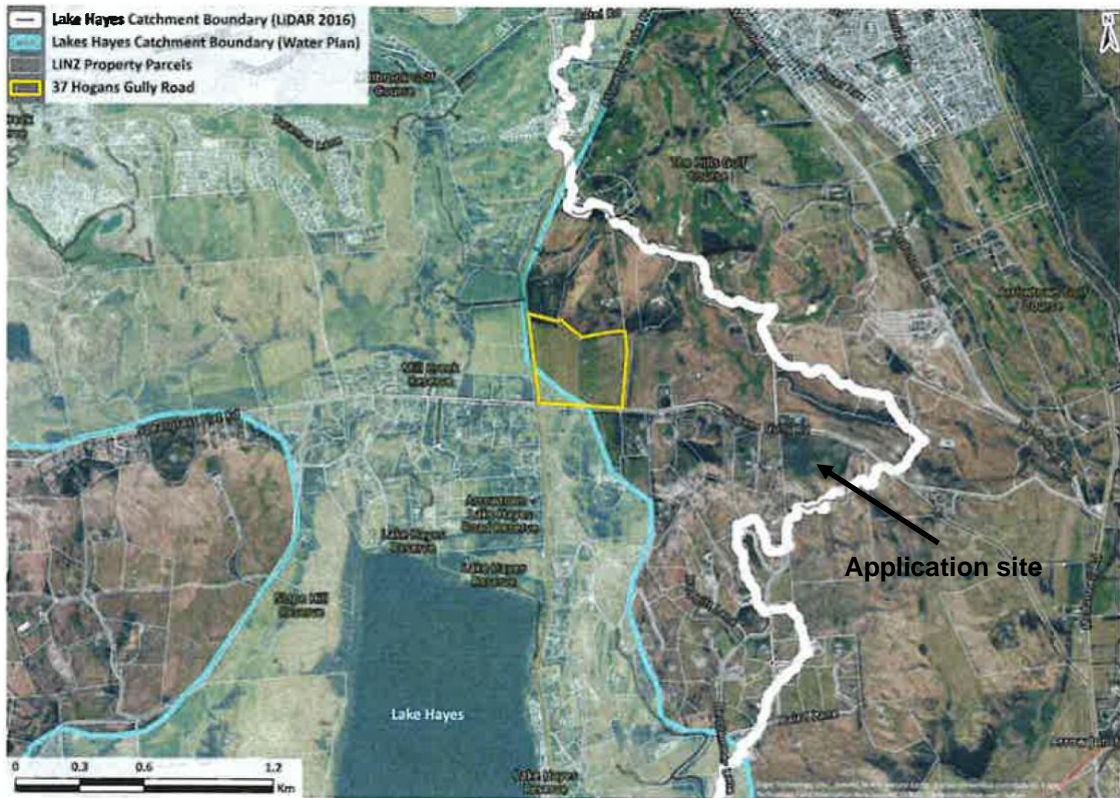


Figure 4: Lake Hayes catchment mapping, from evidence of R A Ozanne for the ORC in ENV-2019-CHC-038, dated 2 May 2022. The blue outlined area is the Schedule 24.9 mapped catchment

1.3 Consent History

The relevant consenting history is set out below:

- RM060563** Land use consent to undertake earthworks, construct a new pool and pool building, and establish a tennis court with associated fencing.
- RM100843** Land use consent to construct a farm building.
- RM180497** Land use and subdivision consent to establish an 18-hole golf course with associated clubhouse, driving range and maintenance facilities, 96 residential and visitor accommodation units, and earthworks to construct the golf course of approximately 500,000m³ in volume.

Of particular note to this application is RM180497 in relation to the proposed subdivision. Currently, Pt Lot 1 DP18290 is made of up two parcels of land that are held together on the existing current title. As part of RM180290, this parcel was subdivided to separate the two parcels of land held within this one title.

1.4 The Proposal

It is proposed to undertake a four-lot fee simple subdivision of two lots, with one allotment already containing an existing dwelling. In association with the subdivision, it is also proposed to undertake associated earthworks and landscaping, with access to be established to each of the proposed residential building platforms (**RBP**) proposed for Lots 1-3.

As Lot 4 will contain the existing dwelling, with landscaping and access already established for this dwelling, minimal works are proposed on this allotment.

A subdivision scheme plan is contained within **Attachment C**, with the associated landscaping in relation to the proposed allotment configuration shown in the landscaping plan prepared by

Baxter Design found within **Attachment D**. This proposed landscape plan is accompanied by a landscape assessment which has also been prepared by Baxter Design, and is contained within **Attachment E**. The layout and general landscaping of the proposed subdivision is shown in Figure 5 below:

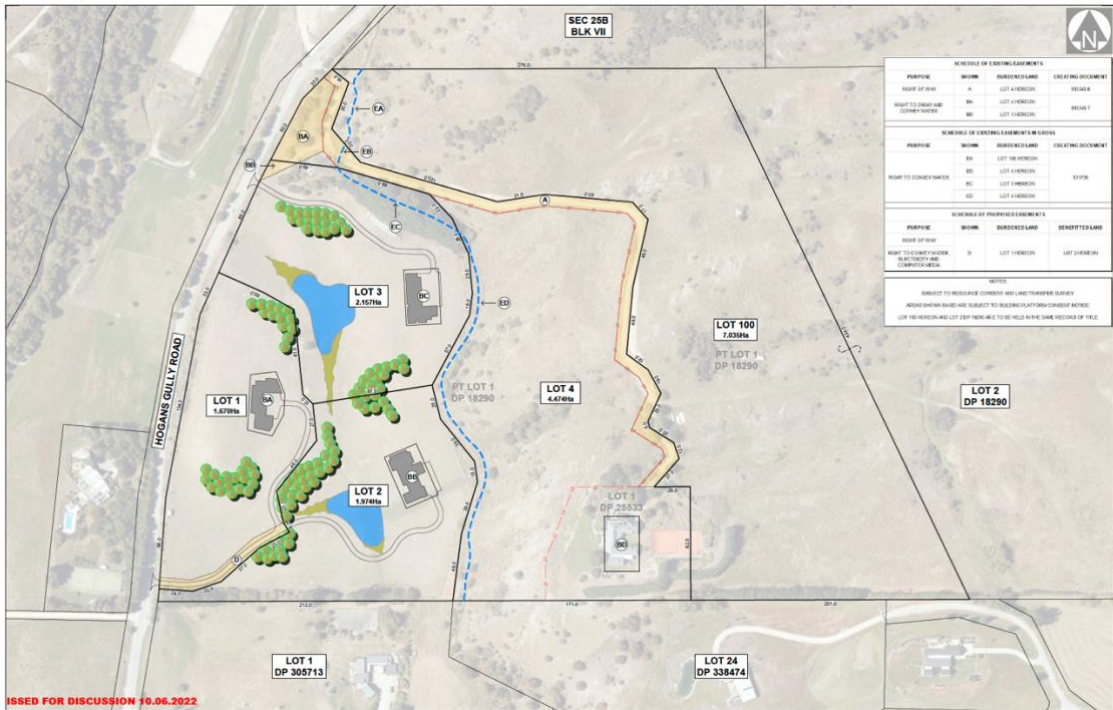


Figure 5. Proposed subdivision layout, location of building platforms, access, and landscaping

The proposed allotments are as follows

Lot No.	Area	RBP Area
Lot 1	1.670 ha	1,000m ²
Lot 2	1.974 ha	1,000m ²
Lot 3	2.157 ha	1,000m ²
Lot 4	4.471 ha	N/A (existing dwelling)
Lot 100	7.035 ha (to be amalgamated)	N/A

As shown in Figure 5 above, a fifth allotment, Lot 100, will also be created. This will be amalgamated with the adjoining allotment to the west (Lot 2 DP 18290), and no RBP is proposed for this lot.

Given the above and the amalgamation of Lot 100 with the adjacent site, with reference to Figure 3 above, as Lot 100 is currently zoned HGRZ and is to be amalgamated with and held in the same title as a site which is also zoned HGRZ, all of the new lots to be created will be within the northernmost land parcel which is zoned WBRAZ. Therefore, for the purposes of this assessment, the rules and standards of the WBRAZ are applied.

Residential Building Platforms and Design Controls

As Lots 1-3 will be vacant of any built form, 1,000m² RBPs will be established on each of these allotments in the locations shown in **Figure 5** above. A list of design controls is found in the Landscape Assessment contained within **Attachment D**. These design controls are volunteered as conditions of consent and are proposed for the purpose of mitigating effects on the landscape. Included in these controls are a number of building design matters to ensure that future built form is integrated with the proposed landscaping and with the landscape within which it is set. These are listed below:

- maximum building heights of 5.5m for Lots 2 & 3, 4.5m for Lot 1
- site coverage restrictions of 55% of the RBPs
- the retention of grassland outside of platforms (aside from farm fencing between lots)
- specific landscape controls within the specified curtilage areas
- site coverage restrictions of 55% of the RBPs
- Exterior cladding limited to two materials on any single elevation, from materials including, natural or stained timber, steel tray, concrete or locally sourced schist stone
- Roof materials limited to a single recessive colour only in steel tray or similar
- All exterior cladding shall be a recessive colour and have an LRV between 7-27%.

As Lot 4 contains an existing dwelling, a 1,000m² RBP will be established around this building.

Access

Access for Lots 1 and 2 will be shared, with physical access in the form of a proposed vehicle crossing established along Hogans Gully Road within the western end of the road boundary. Access for Lot 3 will be directly to Hogans Gully Road, and is 100m to the west of the existing access and vehicle crossing for the dwelling located within Lot 4.

Legal access for Lots 1, 3 and 4 is provided directly to Hogans Gully Road as each allotment adjoins this legal road. Legal access for Lot 2 is to be provided for via a right of way over Lot 1, which is provided Easement Area 'D' as shown on the scheme plan contained within **Attachment C**.

Landscaping

As part of the proposal, a comprehensive landscaping plan and accompanying landscape assessment have been prepared by Baxter Design. These are attached at **Attachment D** and **Attachment E** respectively. It is proposed to undertake planting in the form of mass planted native trees in clusters, the creation of wetland ponds, and a series of mounding and recontouring across the site. The objective of this landscaping, planting, and mounding is to create visual separation and screening of the proposed building platforms. This is outlined and described in greater depth within the landscape assessment, which concludes that the landscape effects of the proposed subdivision are acceptable for the environment within which it is set.

Earthworks

The proposal includes 26,750m³ of cut and 7,400m³ of fill across an area of 3.83 ha. The earthworks will occur over much of the site, and is required to create the mounds and ponds, and to prepare the building platforms and associated accessways. An earthworks plan with associated sections is contained within **Attachment F**.

Also provided with the application is a Geotechnical Report prepared by GeoSolve, which outlines the ground conditions of the site and concludes that the proposed subdivision and associated future development is suitable from a geotechnical perspective. Additionally, this report confirms that each of the sites are able to provide for on-site wastewater and stormwater disposal. This report is contained within **Attachment G**.

The earthworks are to be done in accordance with the relevant QLDC Land Development Standards.

Services

A services report has been prepared by Clark Fortune McDonald & Associates and is contained within **Attachment H**.

This report outlines that stormwater is able to be disposed of on-site, potable water supply to be from the Council reticulated water supply on Hogans Gully Road. Firefighting water provision will be in accordance with the requirements of SNZ PAS 4509-2008 NZ Fire Service Firefighting Water Supplies Code of Practice.

Wastewater from the new lots will be collected and reticulated to, treated and disposed of within Lot 100, within the Arrow River catchment (not in the Lake Hayes catchment), in accordance with **Figure 6** below:

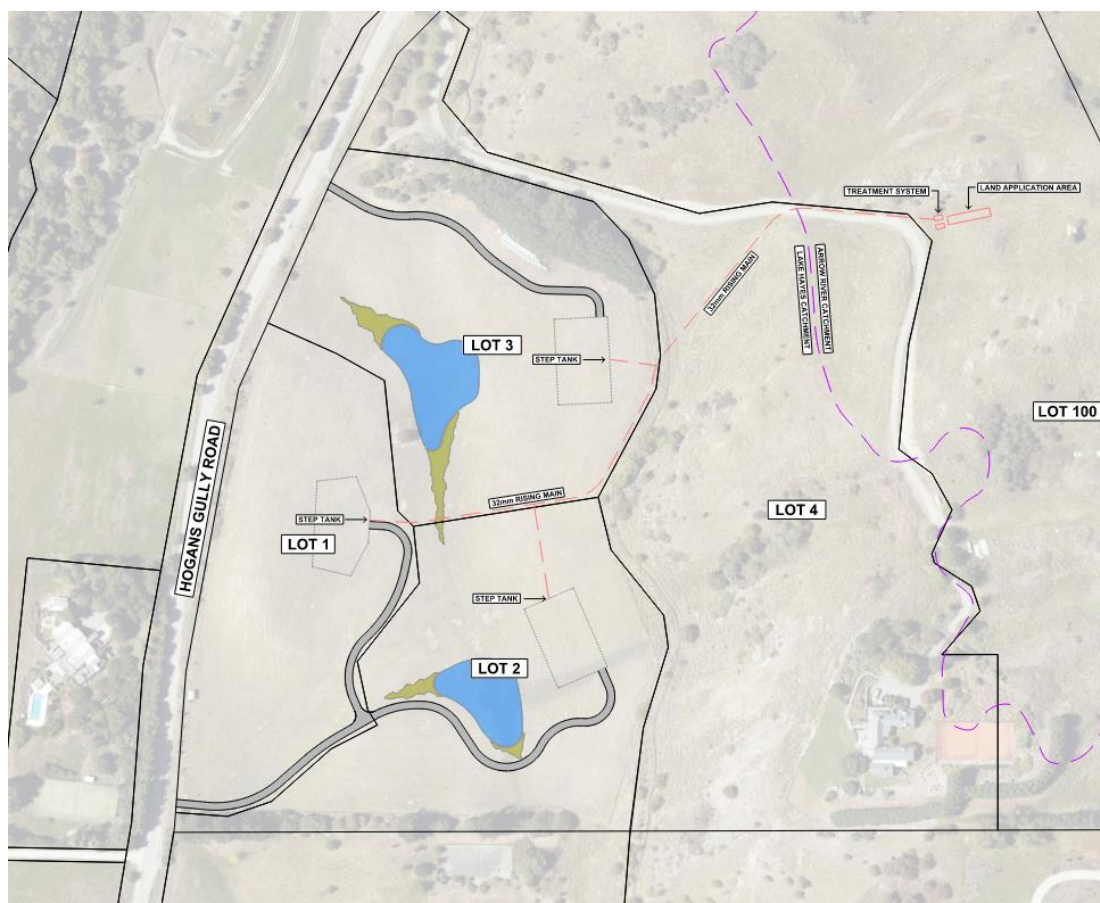


Figure 6 – wastewater reticulation and disposal plan

For electricity and telecommunications connections, letters have been provided by the respective service providers being Aurora and Chorus which confirm the ability to supply the subdivision with these services. These letters are contained within **Attachment H**, which are referenced in the Services Report.

1.5 Resource Management Matters

The District Plan has been progressively reviewed since 2015 and the site has been zoned Wakatipu Basin Rural Amenity Zone (**WBRAZ**) under Stage 2 of the Proposed District Plan (**PDP**), the provisions of which have legal effect. Appeals have significantly progressed, and a number of consent orders have been issued, including on Chapter 24 Wakatipu Basin.

1.5.1 Proposed District Plan

The relevant PDP provisions (activities and standards) are set out in the tables below.

Table 1. Relevant subdivision rules

Provision	Detail	Activity status – consent required?
Chapter 27 – Subdivision & Development		
27.5.9	All subdivision activities, unless otherwise provided for, in the Wakatipu Basin Rural Amenity Zone or the Wakatipu Basin Lifestyle Precinct	Yes – Restricted Discretionary activity consent is required for the proposed subdivision as it is located within the Wakatipu Basin Rural Amenity Zone
27.5.22	Subdivision that does not comply with the minimum lot areas specified in Part 27.6	Yes – Non-complying activity consent is required as all the allotments to be created will not meet the minimum allotment size of 80ha.

Table 2. Relevant subdivision standards

Provision	Detail	Consent required?
Chapter 27 – Subdivision & Development		
27.6.1	Within the Wakatipu Basin Rural Amenity Zone, the minimum lot area is 80 ha.	Yes – Non-Complying activity consent is required for the proposed subdivision as all the proposed allotments do not meet the minimum lot area of 80 ha.

Table 3. Relevant standards

Provision	Detail	Activity status if breached	Consent required?
Chapter 25 – Earthworks			
25.4.2	Earthworks that do not comply with the standards for the maximum total volume of earthworks in Table 25.2	Restricted Discretionary	Yes – Restricted Discretionary activity consent is required for a total quantity of 34,150m ³ of earthworks, which exceeds the maximum permitted quantity of 400m ³ .
25.5.11	Earthworks over a contiguous area of land shall not exceed the following: 1. 2500m ² where the slope is 10° or greater 2. 10,000m ² where the slope is less than 10°	Restricted Discretionary	Yes – Restricted Discretionary activity consent is required as earthworks are to be undertaken over an area of 3.83 ha which exceeds the permitted maximum area.
25.5.12	Erosion and sediment control measures must be implemented and maintained during earthworks to minimise the amount of sediment existing the site, entering water bodies, and stormwater networks	Restricted Discretionary	No – appropriate erosion and sediment control measured will be implemented and maintained.
25.5.15	The maximum depth of any cut shall not exceed 2.4m	Restricted Discretionary	Yes – Restricted Discretionary activity consent is required for up to 4m of cut.

Provision	Detail	Activity status if breached	Consent required?
25.5.16	The maximum height of any fill shall not exceed 2m	Restricted Discretionary	Yes – Restricted Discretionary activity consent is required for up to 3m of fill.
25.5.19	<p>Water bodies</p> <ol style="list-style-type: none"> 1. Earthworks within 10m of the bed of any water body², or any drain or water race that flows to a lake or river, shall not exceed 5m³ in total volume, within any consecutive 12-month period. 2. Within 10m of the bed of any water body, or any drain or water race that flows to a lake or river, earthworks for maintenance or reinstatement of existing water take structures, undertaken on up to two occasions within any consecutive 12-month period, on each occasion shall not exceed 10m³ in total volume. <p>These rules shall not apply to:</p> <ol style="list-style-type: none"> a. Any artificial water body (watercourse, lake, pond or wetland) that does not flow to a lake or river, including Lake Tewa within the Jacks Point Zone; b. Maintenance and repairing of existing hazard protection structures in and around a water body; or c. Earthworks to clear debris affecting existing structures including water intakes. 	Restricted Discretionary	No – there are no waterbodies located within the parts of the site where earthworks are proposed
25.5.21	<p>Cleanfill³</p> <p>No more than 300m³ of Cleanfill shall be transported by road to or from an area subject to earthworks</p>	Restricted Discretionary	Yes – Restricted Discretionary activity is required for up to 19,350m ³ to be transported from the site.

1.5.2 Summary of consents required

In summary, the following consents are required for the proposal:

² **Waterbody:** means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.

³ **Cleanfill:** means material that, when buried, will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil and rock, and other inert materials, such as concrete or brick, that are free of:

- a. Combustible, putrescible, degradable or leachable components;
- b. Hazardous substances;
- c. Products or materials derived from hazardous waste treatment, hazardous waste stabilisation, or hazardous waste disposal practices;
- d. Materials that may present a risk to human or animal health, such as medical and veterinary waste, asbestos or radioactive substances; or
- e. Liquid waste

- A **restricted discretionary** activity resource consent pursuant to Rule 27.5.9 for the proposed subdivision that is located within the Wakatipu Basin Rural Amenity Zone.
- A **non-complying** activity resource consent pursuant to Rule 27.5.22 as all of the proposed lots are not able to meet the minimum area of 80 ha.
- A **restricted discretionary** activity consent pursuant to Rule 25.4.2 to breach the maximum earthworks volumes;
- A **restricted discretionary** activity consent pursuant to Rule 25.5.15 for cut exceeding 2.4m in depth;
- A **restricted discretionary** activity consent pursuant to Rule 25.5.16 for fill exceeding 2m in height;
- A **restricted discretionary** activity consent pursuant to Rule 25.5.21 to transport more than 300m³ of cleanfill from the site; and

Overall, consent for a **non-complying** activity is required.

2. **Where it is likely that an activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:**

The proposal does not result in any significant adverse effects on the environment for the reasons set out in Part 3 below.

3. **An assessment of the actual or potential effect on the environment of the proposed activity:**

3.1 **Introduction**

The assessment of effects on the environment addresses:

- Permitted baseline and existing environment;
- Effects on landscape character associated with the proposed subdivision and future buildings within proposed building platforms;
- Effects of landform modification and landscaping;
- Assessment matters in relation to water quality and related ecological values;
- Effects relating to infrastructure and servicing;
- Effects on rural amenity values; and
- Summary of effects.

3.2 **Permitted baseline and existing environment**

When determining the actual and potential effects of an application for resource consent, the permitted baseline allows a comparison of the potential adverse effects of the proposal against

what is permitted under the District Plan (the permitted baseline) and what has been lawfully undertaken on the site (the existing environment).

Permitted baseline

In this instance, in relation to earthworks, the permitted activity includes 400m³ of earthworks and a maximum fill height of 2m and depth of 2.4m, provided they are setback 10m from the bed of any waterbody.

Existing environment

The existing environment includes the following:

- An existing residential dwelling, including a swimming pool located within the building platform;
- A second residential dwelling located to the north of the driveway to the main dwelling. This building is commonly referred to as 'the cottage';
- A shed in the vicinity of the cottage
- Two ponds; and
- Associated access, servicing and mature landscaping.

3.3 Effects on landscape character associated with the proposed subdivision and future buildings within proposed building platforms

The site is located within the Hogans Gully Landscape Character Unit (LCU 15). This LCU is identified as having a moderate capability to absorb additional development given that the land use is characterised as being a mix of rural residential and rural, with the pattern of development being sparse and consisting of buildings integrated into the landscape by landform (i.e. mounding) and landscaping.

The proposed allotments will each contain a RBP located centrally within the site, which will be surrounded by a mixture of mounding and planting to fit within the character of development of this LCU, which is built form integrated into the landscape by landform and landscaping. This character, as outlined in the Landscape Assessment contained within [Attachment E](#), will be continued by the proposed development, and will be sympathetic to the surrounding rural residential characteristics given the form and location of the building platforms being located in and amongst the landform and landscaping of the site.

In terms of visibility, earth-shaping and recontouring of the site will be undertaken to modify the site in a manner which will screen or significantly soften views of buildings within the RBPs when viewed when travelling along Hogans Gully Road. With the landscaping and planting that is to be undertaken in and around the mounding, in conjunction with the site controls relating to building design, future built form within the RBPS are able to be adequately screened, and will not be readily discernible in passing. With reference to the Landscape Assessment contained within [Attachment E](#), the mitigation planting in combination with the building design controls will result in an overall effect on landscape views and adjacent private properties that will be low. Although glimpses of buildings within the platforms may be achieved, these will be fleeting and for a very short duration. When factoring in the requirement for built form to be recessive in appearance, the structural landscaping is able to reduce the level of visibility to a point where effects will be less than minor when viewed in the context of an environment where rural residential development is a visible feature.

In terms of the form and density of development proposed, the surrounding environment, particularly to the west, is characterised by allotments that are of a similar size to the lots proposed by this application. The proposed subdivision and subsequent land use is a continuation of the development within the immediate surrounds, and will not compromise the

existing landscape characteristics within this part of LCU 15 given the close proximity to LCU 12, which is of a more intensified rural residential land use. The sparse scatterings of dwellings that are set back from the road, as outlined in the Landscape Assessment contained within **Attachment E**, will continue with the form of development proposed by this application. Future built form within each of the vacant RBPs within Lots 1 – 3 will be controlled by a number of conditions to be imposed via consent notice condition that will require buildings to be of a specific bulk, design, appearance, and location. This will ensure that the buildings within the allotments are restricted to being located within the RBPs, and that the built form will be of an appearance that is recessive, and of a scale that is appropriate for the nature of the site and subdivision it is located within. Further assessment of this is provided within the Landscape Assessment contained within **Attachment E**. As such, the form and density of development to eventuate from this subdivision will be appropriate for the site and context within which it is located.

Taking into account the assessment above, in conjunction with the Landscape Assessment contained within **Attachment E**, the proposed subdivision, although of a density that is greater than that prescribed by the PDP, is appropriate for the site and surrounding area given that this rural living form of land use characterises this part of the Wakatipu Basin and LCU15. The proposed recontouring of the site in combination with the landscaping will result in a development that is a continuation of the development already present within this part of Hogans Gully Road, and one that is largely in keeping with the character of the site and surrounding environment. Therefore, it is considered that the proposal will have effects on the environment that will be no more than minor.

3.4 Effects of landform modification and landscaping

The proposal requires earthworks to contour the site to provide for the placement of the proposed RBPs, with the mounding to contribute toward the screening for the future built form within each of the platforms. This landscaping via landform modification also includes the creation of two ponds that are to be located within Lots 2 and 3. Earthworks are also required to shape and create the tracking of the accessways for each of the allotments, and to prepare the RBPs as illustrated in the Earthworks Plan contained within **Attachment F**. Overall, the earthworks have been carefully designed to ensure that the resulting landform will remain within the character and appearance of the surrounding environment, and will not be of an extent that is a departure from the context of the surrounding landscape.

In respect of the earthworks that are to be undertaken, the applicant is prepared to accept the standard Environmental Management conditions to ensure the appropriate measures are implemented to avoid any potential adverse effects associated with earthworks during the construction phase.

An assessment of the proposed earthworks against the relevant matters of discretion is contained below:

Soil Erosion and Sediment

The proposed works are not considered to accelerate hazards such as soil erosion, with re-stabilisation, landscaping, and re-grassing of earthworked areas to be undertaken. Conditions requiring appropriate sediment management and suppression to be undertaken are anticipated as part of the environmental management measures and will effectively mitigate the potential effects relating to soil erosion and sediment run-off.

Effects on Infrastructure, Adjacent Sites and Public Roads

There are not anticipated to be effects on infrastructure, adjacent sites, and public roads above that which is anticipated by standard earthworks given the location of the site. All earthworked areas are to be appropriately set back from adjacent sites, and will be confined within the boundaries of the site. It is acknowledged that there is a large quantity of earthworks to be undertaken, with some of the cut to be removed from the site. Where appropriate, and where

traffic movements and the operation of Hogans Gully Road will be affected, traffic management measures will be employed. Therefore, any effects on infrastructure, adjacent site, and public roads will be less than minor.

Land Stability

The findings of the Geotechnical Report undertaken by GeoSolve (**Attachment F**) concludes that the proposed earthworks are feasible and are able to be undertaken given the soil composition and underlying stability the ground subject to modification. Recommendations are made in relation to the angle of batter slopes and subsequent stabilisation which is able to be done. Where fill is required, this is to be done in accordance with the relevant standards to ensure that the fill and slopes created will also be of a grade to ensure there are no effects relating to land stability.

Heritage and Archaeological Sites

The proposed earthworks are not considered to have an effect on heritage and archaeological sites given that this has not been identified.

Nuisance Effects

Given the anticipated imposition of conditions by Council to control hours of operation, and the required management before, during and after earthworks, it is considered that the level of effects relating to nuisance will be no more than what is able to occur from permitted earthworks given the large area of the site and physical separation from neighbours, albeit for a longer duration given the larger overall quantities. Despite this, the works must comply with NZS 6803:1999 which sets out noise limits for construction and associated works. It is therefore considered that the effects in respect of nuisance will be no more than minor.

Natural Hazards

With reference to the QLDC hazard mapping and appended geotechnical report, although an area of rockfall hazard has been identified on the site within the area immediately south of Lots 2 and 3 (schist outcrops and low bluffs), given the separation of the building platforms within the two sites, any rockfall is unlikely to reach either of the building platforms.

Additionally, although the site is considered to be 'possibly susceptible' to liquefaction, no further assessment in this regard considered necessary as building foundations are to be designed and assessed at the time of building consent.

Therefore, any effects associated with natural hazard will be less than minor.

Summary – Effects of Earthworks and Landform Modification

As has been assessed above, the extent of earthworks will not detract from the character and amenity of the environment within which it is located. The landform modification through the contouring proposed will remain in keeping with the rural context, and in combination with the planting will maintain the bucolic character of the surrounding environment. The works are able to be carried out in a manner where effects on the environment can either be avoided or appropriately managed and mitigated, either through the inclusion of appropriate conditions and via an appropriate EMP.

Overall, any potential adverse effects arising from landform modification and landscaping will be less than minor.

3.5 Effects on Water Quality and related Ecological Values

There are no nearby waterbodies, and the sediment and erosion controls required as part of this consent will prevent sediment from entering into any nearby overland flow paths.

As discussed in Part 1.2 above, the site is within the Lake Hayes catchment with reference to LIDAR mapping. The water quality within the Lake Hayes catchment will not be adversely affected by the proposal given:

- The distance of the site from the lake itself, and to any contributing waterways;
- The *in situ* works required by Chapters 25 (earthworks) and 27 (subdivision) for avoiding any adverse effects from runoff, sedimentation and contamination of water bodies, and the requirement for works to be carried out in accordance with the code of practice for subdivision and development and an Environmental Management Plan (EMP) to be required prior to commencement of construction;
- The reticulation of wastewater from the 3 new lots away from the Lake Hayes catchment, for disposal to a reticulated system or to land within the Arrow River catchment, as discussed in the report by CFM at **Attachment H**.

Policy 24.2.4.2 of the WBRAZ requires that subdivision and development is restricted unless it can contribute to improvement of water quality in the Lake Hayes catchment. Rule 27.5.9 (subdivision within the WBRAZ and Wakatipu basin Lifestyle Precinct), which is a restricted discretionary activity if meeting the relevant standards, contains matter of discretion (q) which reads:

- q. Where the site is located within the Lake Hayes Catchment as identified in Schedule 24.9, the contributions of, and methods adopted by, the proposal to improving water quality within the Lake Hayes Catchment**

The relevant assessment matters are set out in Part 27.3.9.9 (dd) – (jj) and contain the methods for achieving water quality improvement. These are addressed as follows:

Lake Hayes Catchment	
In addition to the matters above, where the site is located within the Lake Hayes Catchment identified in Schedule 24.9, the following are applicable.	
Assessment matter	Comments
dd. The extent to which the proposal minimises erosion or sediment during construction, having regard to the provisions of Chapter 25 Earthworks, in particular Policies 25.2.1.1 and 25.2.1.7 and Assessment Matters 25.8.2 and 25.8.6.	The construction earthworks will be undertaken in accordance with the relevant code of practice and an environmental management plan to be required by the usual conditions of consent for subdivision and development.
ee. The extent to which the proposal avoids or mitigates any potential adverse effects on surface waterbodies and ecological values through the adoption of measures to reduce stormwater runoff adverse effects from the site, including the implementation of low impact design techniques.	There are no relevant surface waterbodies directly affected, and Lake Hayes, and any contributing surface water bodies, are a significant distance from the site. The proposal includes the construction of wetland areas in the low lying parts of the site, which will reduce any potential adverse stormwater runoff effects. Wastewater from the new lots will be collected and reticulated to a disposal field on the part of the site within the Arrow River catchment, thereby avoiding any disposal within the Lake Hayes catchment.

ff. Where a waterbody is located on the site, the effectiveness of riparian planting to filter sediment and reduce sediment concentrations in stormwater runoff.	The wetlands to be constructed will be planted with suitable wetland species to filter sediment and reduce sediment concentrations from runoff from larger rainfall events.
gg. The extent to which erosion and sediment management and/or on-site stormwater management systems are commensurate with the nature, scale, and location of the activity.	The proposed stormwater management methods are commensurate with the scale of the proposal and the location which is distant from Lake Hayes.
hh. The extent to which the proposal contributes to water quality improvement, including by: <ul style="list-style-type: none"> i. Stabilising the margins of waterways, riparian planting and ongoing management; ii. Reducing inputs of phosphorus and nitrogen into the catchment; iii. Implementing a nutrient management plan; iv. Restoring, maintaining, and constructing new, wetlands for stormwater management; v. Offering any voluntary contribution (including financial) to water quality improvement works off-site in the catchment. 	The water quality of the catchment will be improved from the following methods: <ul style="list-style-type: none"> • Avoidance of the use of phosphorus and nitrogen into the catchment, through consent notice conditions to be volunteered; • Avoidance of commercial stock grazing; • Construction of the wetlands to contribute to reduction in sedimentation and runoff from the site; • If necessary, the offering of a voluntary contribution for off-site improvement works in the catchment.
ii. Practicable constraints limited to situations where no further improvements to stormwater runoff management can be achieved.	The proposal maximises the opportunities for water quality improvement, using the methods identified above.
jj. Whether new development can be connected to reticulated services, or if connections are not available, whether onsite systems provide for the safe disposal of stormwater and wastewater without adversely affecting natural water systems and ecological values.	The wastewater will be collected and disposed of to land on the part of the site within the Arrow River catchment. This onsite system will not adversely affect any natural water systems or ecological values and will not affect water quality in the Lake Hayes catchment. Stormwater is to be managed as discussed above.

In summary, the methods promoted in Part 27.3.9.9 of the PDP, for water quality improvement in the Lake Hayes catchment, are adopted for this subdivision and the proposal will contribute to water quality improvement in the catchment.

3.6 Effects relating to infrastructure and servicing

The services report (**Attachment H**) outlines that each of the proposed allotments can be appropriately serviced and connected to the required infrastructure. Potable water is to be provided via a connection to the reticulated Council service located within Hogans Gully Road. Stormwater is able to be disposed on-site, with a requirement to include relevant consent notice conditions anticipated and accepted in principle. On-site wastewater disposal is able to be provided, as confirmed by the geotechnical report (**Attachment G**). Similar to stormwater disposal, a requirement to include relevant consent notice conditions anticipated and accepted in principle. It is noted that a communal wastewater system could also be provided, however the method is still yet to be finalised.

Electricity and telecommunication services are able to be established to the subdivision, with confirmation from Aurora and Chorus contained within **Attachment H**.

Firefighting water supply can be provided on site within tanks or alternatively sprinklers can be installed within the proposed buildings to comply with SNZ PAS 4509 – 2008, and is to be addressed by way of including relevant consent notice conditions on each of the new allotments requiring this.

Given the above, and the ability of each proposed allotment to be adequately serviced, there will be no adverse effects on infrastructure as a result of the proposal.

3.7 Effects on rural amenity values

Rural amenity values include a sense of spaciousness, privacy, quietness and relative low levels of traffic and overall activity. The proposal has been designed to ensure that the rural and rural living qualities and character are maintained, with respect to the amenities of neighbouring and nearby properties' amenity values due to the nature and scale of the subdivision, the setbacks of RBPs from boundaries, the design and landscaping controls, the consistency of the character of the proposal with existing rural living character of the area, and the maintenance of views across the landscape including to distant ONLs/ONFs.

Overall, the proposal will not give rise to adverse rural amenity effects that are minor or more than minor.

3.8 Summary of Effects

Overall, the proposal will have effects on the environment that will be no more than minor.

4. Assessment under the relevant objectives and policies of the Proposed District Plan

The objectives and policies of Chapter 24 (Wakatipu Basin) of the PDP are relevant. These are assessed below in **Table 4**, and also assessed within the Landscape Assessment contained within **Attachment E**.

Table 4. *Wakatipu Basin – Objectives and Policies⁴*

(*) indicates provisions still subject to outstanding appeal points

Provision	Detail of Provision	Assessment
Objective 24.2.1*	<i>Landscape character and visual amenity values in the Wakatipu Basin are maintained or enhanced.</i>	As discussed above and within the Landscape Assessment (Attachment D) the proposal maintains the landscape character and visual amenity values of LCU 15. The proposal is therefore not contrary to this objective.
<i>Policy 24.2.1.1*</i>	<i>Require an 80 hectare minimum net site area be maintained within the Wakatipu Basin Rural Amenity Zone outside of the Precinct.</i>	This policy is not able to be achieved as all the proposed allotments are less than the minimum site area of 80 hectares.
<i>Policy 24.2.1.2*</i>	<i>Ensure subdivision and development is designed (including accessways, services, utilities and building platforms) to minimise inappropriate modification to the natural landform.</i>	The proposal does not result in inappropriate modification to the natural landform. All earthworks are sympathetically designed and will be revegetated to maintain the naturalness and existing landscape character.

⁴ Consent order dated 27 July 2021 and 6 August 2021

Provision	Detail of Provision	Assessment
		The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.3*</i>	<i>Ensure that subdivision and development maintains or enhances the landscape character and visual amenity values identified in Schedule 24.8 - Landscape Character Units.</i>	The proposal maintains the landscape character of the Hogan Gully LCU by being a form of subdivision and future development that is in keeping with the existing pattern of development, which is built form integrated by landform and vegetation. The mounding and landscaping proposed is consistent with the surrounding landscape. The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.4*</i>	<i>Maintain or enhance the landscape character and visual amenity values associated with the Rural Amenity Zone including the Precinct and surrounding landscape context by controlling the colour, scale, form, coverage, location (including setbacks from boundaries) and height of buildings and associated infrastructure, vegetation and landscape elements.</i>	The proposal will maintain the landscape character and visual amenity values associated with the Rural Amenity Zone through the proposed mounding and landscaping, as well as through the imposition of a number of design controls for future development within each of the proposed lots. The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.5*</i>	<i>Require all buildings to be located and designed so that they do not compromise the landscape and amenity values and the natural character of Outstanding Natural Features and Outstanding Natural Landscapes that are either adjacent to the building or where the building is in the foreground of views from a public road or reserve of the Outstanding Natural Landscape or Outstanding Natural Feature.</i>	The proposal has been carefully designed to ensure it does not compromise the surrounding landscape and amenity values. The imposition of design controls to manage and control the appearance, bulk, scale, and location of future buildings via consent notice conditions will ensure that buildings will be located and design so that they do not compromise landscape values. The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.9</i>	<i>Control earthworks and vegetation clearance to minimise adverse effects on landscape character and visual amenity values.</i>	The proposed earthworks are required to reshape the site, form mounding, and to prepare building platform areas. Any potential adverse effects relating to landscape character and visual amenity values are therefore minimised through the planting and contouring that is to occur. The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.10*</i>	<i>Enable residential activity within approved and registered building platform subject to achieving appropriate standards.</i>	Future built form and residential activity will be restricted to being within building platforms, with related controls and conditions to be imposed via consent notice conditions. The existing dwelling on the site is to be contained within a building platform and is to be subject to the same design controls as the rest of the subdivision.

Provision	Detail of Provision	Assessment
		The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.12</i>	<i>Manage lighting so that it does not cause adverse glare to other properties, roads or public places or degrade views of the night sky.</i>	Any external lighting (present or future) is to comply with the relevant glare standard (24.5.17) and therefore not cause adverse glare to other properties, roads or public places. The proposal is therefore not contrary to this policy.
<i>Policy 24.2.1.15</i>	<i>Require buildings, or building platforms identified through subdivision, to maintain views from roads to Outstanding Natural Features and the surrounding mountain Outstanding Natural Landscape context, where such views exist; including by:</i> <i>a. implementing road setback standards; and</i> <i>b. ensuring that earthworks and mounding, and vegetation planting within any road setback, particularly where these are for building mitigation and/or privacy, do not detract from views to Outstanding Natural Features or Outstanding Natural Landscapes; while</i> <i>c. recognising that for some sites, compliance with a prescribed road setback standard is not practicable due to the site size and dimensions, or the application of other setback requirements to the site.</i>	Future built form and residential activity will be restricted to being within building platforms, with related controls and conditions to be imposed via consent notice conditions. The existing dwelling on the site is to be contained within a building platform and is to be subject to the same design controls as the rest of the subdivision. The proposal is therefore not contrary to this policy.
Objective 24.2.4	<i>Subdivision and development, and use of land, maintains or enhances water quality, ecological quality, and recreation values while ensuring the efficient provision of infrastructure.</i>	The proposal will result in positive effects to water quality through the installation of appropriate infrastructure to treat and dispose of stormwater and wastewater to land. The proposal is therefore not contrary to this objective.
<i>Policy 24.2.4.1</i>	<i>Avoid adverse cumulative impacts on ecosystem services or nature conservation values.</i>	The proposal will not give rise to adverse cumulative impacts on ecosystem services or nature conservation values. The proposal is therefore not contrary to this policy.
<i>Policy 24.2.4.2</i>	<i>Restrict the subdivision, development and use of land in the Lake Hayes catchment, unless it can contribute to water quality improvement in the catchment commensurate with the nature, scale and location of the proposal.</i>	As discussed in Part 3.6 above, the proposal can contribute to the improvement of water quality in the catchment, commensurate with the location, scape and nature of the proposal.

Provision	Detail of Provision	Assessment
Policy 24.2.4.4*	<i>Provide adequate firefighting water and emergency vehicle access to ensure an efficient and effective emergency response.</i>	As outlined and discussed in the Servicing Report (Attachment H) the proposal can be adequately serviced with firefighting water supply. The proposal is therefore not contrary to this policy.
Policy 24.2.4.5	<i>Ensure development has regard to servicing and infrastructure costs that are not met by the developer.</i>	The costs associated with the proposal will be met by the applicant. The proposal is therefore not contrary to this policy.
Policy 24.2.4.9	<i>Encourage the planting, retention and enhancement of indigenous vegetation that is appropriate to the area and planted at a scale, density, pattern and composition that enhances indigenous biodiversity values, particularly in locations such as gullies and riparian areas, or to provide stability.</i>	The subject site is currently vacant of any indigenous vegetation as it is currently grassed pasture. As part of the proposed landscaping, indigenous plant species will be established on the site. The proposal is therefore not contrary to this policy.

The objectives and policies of Chapter 25 (Earthworks) of the PDP are relevant. These are assessed below in **Table 5** below.

Table 5. Earthworks – Objectives and Policies

(*) indicates provisions still subject to outstanding appeal points

Provision	Detail of Provision	Assessment
Objective 25.2.1	<i>Earthworks are undertaken in a manner that minimises adverse effects on the environment, including through mitigation or remediation, and protects people and communities</i>	The proposed earthworks will be undertaken in accordance with appropriate environmental management measures as required by conditions of consent. This will ensure all potential adverse effects arising from the proposed earthworks are minimised. The proposal achieves this objective and the relevant policies.
Policy 25.2.1.1	<i>Ensure earthworks minimise erosion, land instability, and sediment generation and offsite discharge during construction activities associated with subdivision and development.</i>	The appropriate earthworks and associated sediment management will be implemented at site to minimise erosion, land instability and sediment generation and offsite discharge during construction activities. The proposal achieves this policy.
Policy 25.2.1.3	<i>Avoid, where practicable, or remedy or mitigate adverse visual effects of earthworks on visually prominent slopes, natural landforms and ridgelines.</i>	As discussed in the Landscape Assessment (Attachment E), the proposed earthworks will be carefully contoured to fit in with the surrounding landscape and landforms, and will therefore not be visually prominent within the receiving landscape. The proposal achieves this policy.
Policy 25.2.1.6	<i>Ensure that earthworks are designed and undertaken in a manner that does not adversely affect infrastructure, buildings and the stability of adjoining sites.</i>	The earthworks are located centrally within the site and there will be no adverse effects on infrastructure, buildings and the stability of adjoining sites. The proposal achieves this policy.

As has been assessed above, the proposal is consistent with the relevant objectives and policies of Proposed District Plan.

5. Non-Complying Activity – Section 104D Assessment

Pursuant to section 104D of the Resource Management Act if a proposal is a non-complying activity then it must pass at least one of the tests of either section 104D(1)(a) or section 104D(1)(b) before an application can be assessed to make a decision under section 104B of the Act. If the application fails both tests of section 104D then the application must be declined.

Section 104D(1)(a) – Adverse effects on the environment will be minor

Section 104D(1)(a) of the Act requires that the Council have regard to any adverse effects on the environment of allowing the activity.

Pursuant to section 104(2), when forming an opinion for the purposes of section 104D(1)(a), a council may disregard an adverse effect of the activity on the environment if the plan or a national environmental standard permits an activity with that effect (i.e. the council may consider the “permitted baseline”).

The adverse effects on the environment of allowing the activity for which resource consent is sought are identified and assessed in this Assessment of Environmental Effects above. It is concluded that the proposal will result in less than minor effects on the environment.

The test in s104D(1)(a) is satisfied.

Section 104D(1)(b) – Proposal will not be contrary to the objectives and policies of the District Plan

An assessment has been undertaken with respect to the relevant PDP objectives and policies for the zone above in Section 3. It concludes that the proposal is not contrary to the objectives and policies of the PDP.

The test in s104D(1)(b) is satisfied.

6. Partially Operative and Proposed Regional Policy Statements for Otago

These documents set out the direction for future management and promotion of the sustainable management of the Region’s natural and physical resources. They provide the policy context for the four regional plans and establishes the framework for district plans. Other resource management plans (regional and district plans) reflect the provisions of the RPS and cannot be inconsistent with it. The provisions of Chapters 24 (Wakatipu Basin), 25 (Earthworks) and 27 (Subdivision and Development) of the PDP are consistent with the Partially Operative RPS, and also have regard to the Proposed RPS 2021.

In particular, of relevance to this application are the RPS objectives and policies relating to water quality and landscape values. Through the assessment of the relevant objectives and policies of the PDP, it is concluded that the proposal is consistent with the relevant operative and proposed RPS provisions.

Accordingly, no further consideration of these two regional planning instruments is required.

7. National Planning Instruments

Given the context of the site and application, the NPS-FW is relevant. Taking into account the assessments undertaken above within Sections 4 and 6 of this report above, the provisions of the NPS-FW are given effect to through the water quality provisions contained within Chapters 24 (Wakatipu Basin), 25 (Earthworks) and 27 (Subdivision and Development) of the PDP. Therefore, this national planning instrument does not need to be further addressed. Other than addressed in this application, no other NES or NPS is of relevance.

8. Part 2 of the Resource Management Act 1991

8.1. Section 5 – Purpose

The purpose of the Act is “to promote the sustainable management of natural and physical resources”. Section 5(2) of the Act defines “sustainable management” as:

... managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while –

- (a) Sustaining the potential of natural and physical resources... to meet the reasonably foreseeable needs of future generations; and*
- (b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
- (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

The proposal will enable the creation of new rural living sites in a desirable location in an established rural living area within the Wakatipu Basin.

The proposal will not have adverse landscape or amenity effects and will not be seen as out of character with the surrounding environment given the existing form, density, and appearance within the surrounding area.

Water quality will be maintained as it has been established that on-site wastewater and stormwater disposal is feasible, and the proposal can contribute to water quality improvement in the Lake Hayes catchment, as discussed above.

The proposal is consistent with the purpose of the Act.

8.2. Section 6 – Matters of national importance

No Section 6 matters are relevant. The land is not within an Outstanding Natural Landscape and Feature; it is not near or adjacent to the coastal marine area; lakes or rivers; it does not contain any significant indigenous vegetation or significant habitats of indigenous fauna; it has no cultural values of any significance, no historic heritage values; and there are no significant risks from natural hazards.

8.3. Section 7 – Other matters

Section 7 of the Act identifies other matters that should be considered. Regard must be had to the following relevant Section 7 matters:

- (b) the efficient use and development of natural and physical resources:*
- (c) the maintenance and enhancement of amenity values:*
- (f) maintenance and enhancement of the quality of the environment:*

(g) any finite characteristics of natural and physical resources:

The proposal achieves this relevant Section 7 matters as the subdivision is an efficient use and development in that it provides for the demand for rural living opportunities in the finite number of areas within the Basin where the landscape can absorb such change with minimal actual or potential adverse effects. The amenity values and quality of the environment of the area will be maintained for the reasons discussed in the Landscape Assessment ([Attachment E](#)).

Accordingly, the proposal is consistent with and achieves Part 2 of the Act.

9. Where the activity includes the use of hazardous substances and installations, an assessment of any risks to the environment, which are likely to arise from such use:

Not applicable to this proposal.

10. Where the activity includes the discharge of any contaminant:

Not applicable.

11. A description of the mitigation measures (safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual and potential effect:

As part of the proposal, a number of design controls for the future development that is to take place within the proposed RBPs. This is in addition to the landscape plan that is required to be implemented. These mitigation measures, which form part of the application, will avoid or adequately mitigate any potential adverse effects of the proposal development.

The proposed approach to wastewater and stormwater management will prevent any potential adverse effects on water quality and will on balance contribute to improvement of water quality in the Lake Hayes catchment.

12. Identification of affected persons

In light of the assessment undertaken within Section 3 of this report above, the effects on adjoining properties will be less than minor given that the proposed subdivision and associated works will be in keeping with the character of the surrounding environment. As outlined within the accompanying Landscape Assessment ([Attachment E](#)), the physical works and the resulting subdivision in the form of contoured mounding and associated landscaping is in keeping with the landscape character and setting of the environment within which the site is located. From a landscape perspective, the proposed subdivision is appropriate and will not detract from the amenity of the surrounding sites.

When experienced from the surrounding sites, the subdivision will be consistent with the rural living environment already present further to the west along Hogans Gully Road. As outlined within the Landscape Assessment ([Attachment E](#)) and assessed above, the extent of landscaping, planting, and mounding proposed is considered to sufficiently screen any views of future built form within each of the RBPs.

Overall, the proposed subdivision and subsequent built form will be in keeping with the rural residential land use located within the surrounding environment, and will have effects on persons that will be less than minor.

13. Where the scale or significance of the activity's effect are such that monitoring is required, a description of how, once the proposal is approved, effects will be monitored and by whom:

No monitoring is required apart from that normally undertaken by a Council in monitoring consent conditions.



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy




R.W. Muir
Registrar-General
of Land

Identifier **OT17C/601**
Land Registration District **Otago**
Date Issued 03 September 1996

Prior References
OTB2/611

Estate Fee Simple
Area 1.2506 hectares more or less
Legal Description Lot 1 Deposited Plan 25533
Registered Owners
Bridget Patricia Davies

Interests

831796 Transfer creating the following easements in gross - 14.6.1993 at 10.46 am

Type	Servient Tenement	Easement Area	Grantee	Statutory Restriction
Convey water	Lot 1 Deposited Plan 25533 - herein	EH Transfer 831796	Arrow Irrigation Company Limited	

915349.6 Easement Certificate specifying the following easements - 3.9.1996 at 12.03 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Right of way	Lot 1 Deposited Plan 25533 - herein	A DP 25533	Part Lot 1 Deposited Plan 18290 - CT OT17C/602	Section 243 (a) Resource Management Act 1991

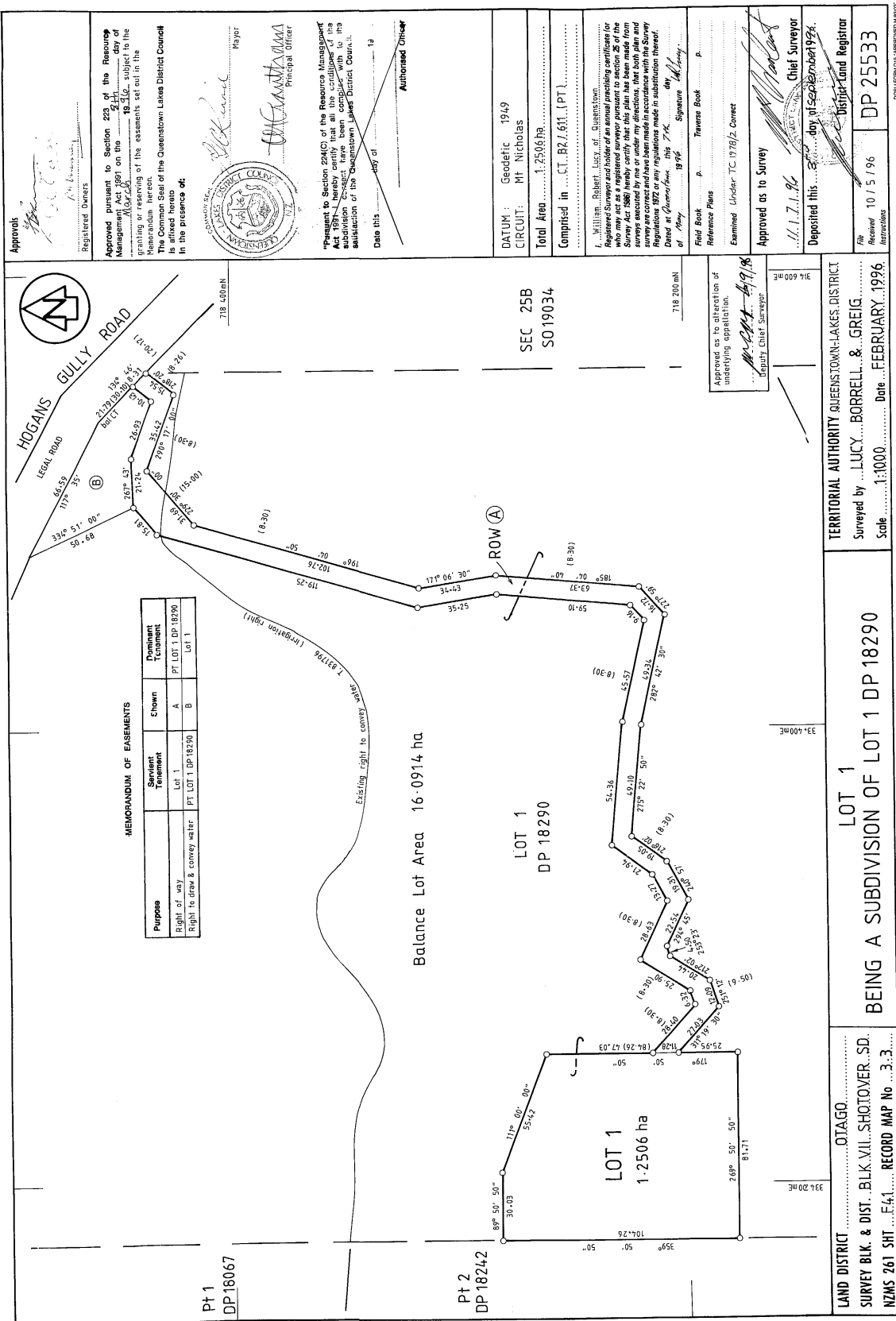
915349.7 Transfer creating the following easements - 3.9.1996 at 12.03 pm

Type	Servient Tenement	Easement Area	Dominant Tenement	Statutory Restriction
Draw and convey water	Part Lot 1 Deposited Plan 18290 - CT OT17C/602	B DP 25533	Lot 1 Deposited Plan 25533 - herein	Section 243 (a) Resource Management Act 1991

Land Covenant in Easement Instrument 6626529.1 - 28.10.2005 at 9:00 am

Land Covenant in Easement Instrument 11041762.1 - 4.4.2018 at 4:10 pm

Land Covenant in Easement Instrument 11041762.2 - 4.4.2018 at 4:10 pm



Approvals

Registered Owners

Approved pursuant to Section 223 of the Resource Management Act 1991 on the 10/05/1996 subject to the conditions of the easements set out in the Memorandum hereon.

The Common Seal of the Queenstown Lakes District Council is affixed hereto in the presence of:

[Signature]
Mayor

[Signature]
Principal Officer

Pursuant to Section 224(C) of the Resource Management Act 1991 I hereby certify that all the conditions of the subdivision certificate have been complied with to the satisfaction of the Queenstown Lakes District Council.

Date this 10th day of May 1996

[Signature]
Authorised Officer

DATUM: Geodetic 1949
CIRCUIT: M. Nicholas

Total Area: 1.2506 ha

Comprised in: CT 827.611 (PT)

I, William Robert, Surveyor, do hereby certify that this plan has been made from surveys executed by me or under my direction, that both plan and survey enclosures have been measured according to the Survey Act 1981 and that the same are true and correct to the best of my knowledge and belief.

Dated at Queenstown this 7th day of February 1996

[Signature]
Surveyor

Field Book p. Traverse Book p.

Reference Plane

Examined Under T.C. 1776/2 Correct

Approved as to Survey

Deposited this 10th day of February 1996

Chief Surveyor

District Land Registrar

File No. DP 25533

Registered 10/5/96

TERRITORIAL AUTHORITY QUEENSTOWN-LAKES DISTRICT

Surveyed by LUCY BORRELL & GREIG

Scale 1:1000 Date FEBRUARY 1996

LAND DISTRICT OTAGO

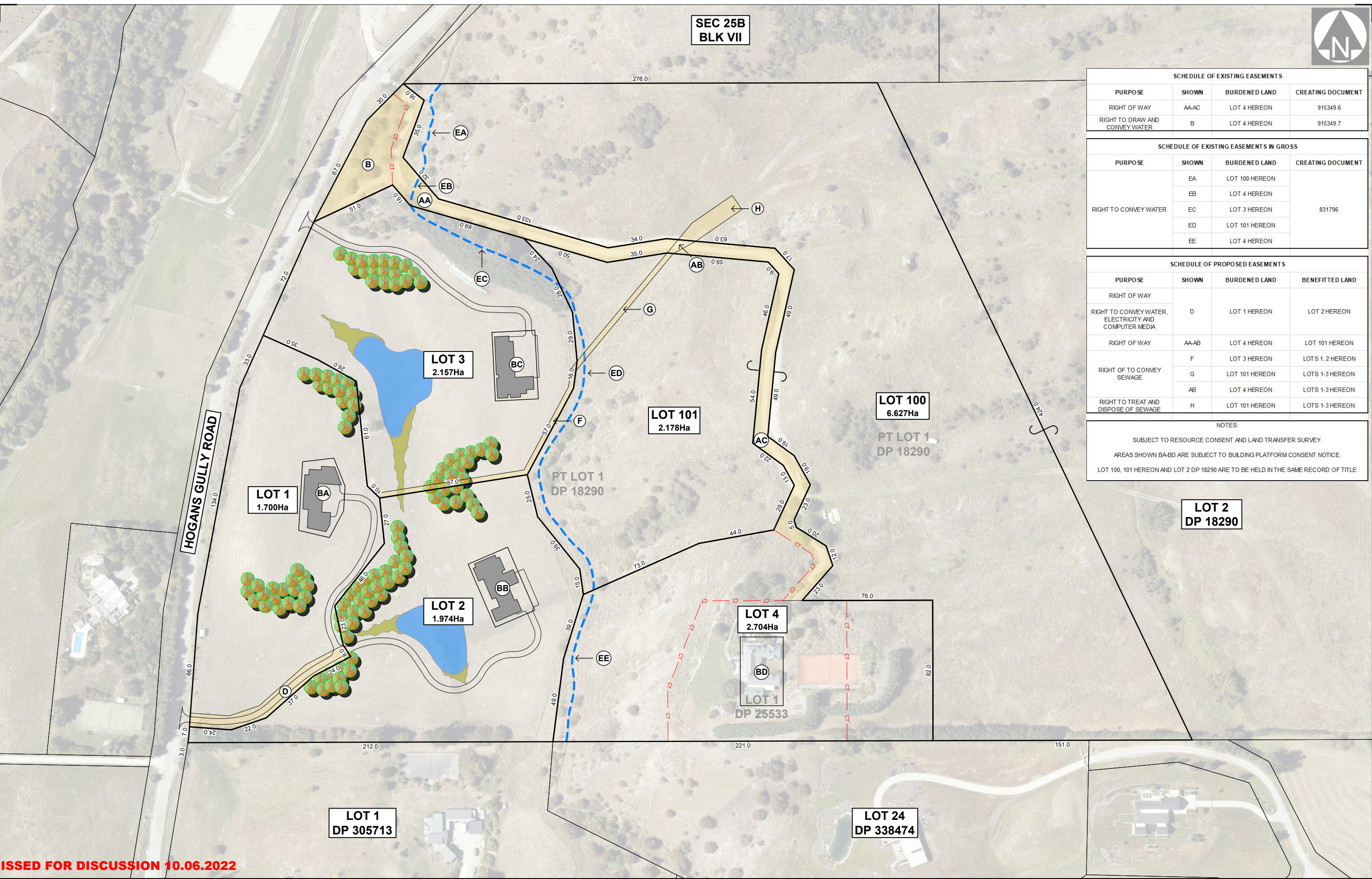
SURVEY BLK. & DIST. BLK.VII. SHOTOVER.SD.

NZMS 261 SHIT E41 RECORD MAP No 3.3.3

W.A. ROBERTSON, SURVEYOR GENERAL, DEPARTMENT OF SURVEY AND LAND INFORMATION, NEW ZEALAND



SEC 25B
BLK VII



SCHEDULE OF EXISTING EASEMENTS			
PURPOSE	SHOWN	BURDENED LAND	CREATING DOCUMENT
RIGHT OF WAY	AA-AC	LOT 4 HEREON	915349.6
RIGHT TO DRAW AND CONVEY WATER	B	LOT 4 HEREON	915349.7

SCHEDULE OF EXISTING EASEMENTS IN GROSS			
PURPOSE	SHOWN	BURDENED LAND	CREATING DOCUMENT
RIGHT TO CONVEY WATER	EA	LOT 100 HEREON	831796
	EB	LOT 4 HEREON	
	EC	LOT 3 HEREON	
	ED	LOT 101 HEREON	
	EE	LOT 4 HEREON	

SCHEDULE OF PROPOSED EASEMENTS			
PURPOSE	SHOWN	BURDENED LAND	BENEFITTED LAND
RIGHT OF WAY			
RIGHT TO CONVEY WATER, ELECTRICITY AND COMPUTER MEDIA	D	LOT 1 HEREON	LOT 2 HEREON
RIGHT OF WAY	AA-AB	LOT 4 HEREON	LOT 101 HEREON
RIGHT OF TO CONVEY SEWAGE	F	LOT 3 HEREON	LOTS 1, 2 HEREON
	G	LOT 101 HEREON	LOTS 1-3 HEREON
RIGHT TO TREAT AND DISPOSE OF SEWAGE	AB	LOT 4 HEREON	LOTS 1-3 HEREON
	H	LOT 101 HEREON	LOTS 1-3 HEREON

NOTES:
 SUBJECT TO RESOURCE CONSENT AND LAND TRANSFER SURVEY.
 AREAS SHOWN BA-BD ARE SUBJECT TO BUILDING PLATFORM CONSENT NOTICE.
 LOT 100, 101 HEREON AND LOT 2 DP 18290 ARE TO BE HELD IN THE SAME RECORD OF TITLE

ISSUED FOR DISCUSSION 10.06.2022

Clark Fortune McDonald & Associates
 Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD
 3 LOWE STREET, ADDINGTON
 60 TENNYSON STREET
 14 MERSEY STREET

QUEENSTOWN TEL (03)441-6044
 CHRISTCHURCH TEL (03)348-1025
 DUNEDIN TEL (03)470-1582
 GORE TEL (03)208-6474

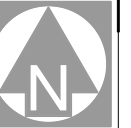
EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	06.07.22	AMEND BOUNDARIES (LOT 101)	JJ

**LOTS 1-4, 100 AND 101 BEING A PROPOSED
 SUBDIVISION OF PART LOT 1 DP 18290 AND
 LOT 1 DP 25533
 HOGANS GULLY ROAD, ARROWTOWN**

Client	DAVIES	SURVEYED	---	Job No.	15672	Drawing No.	001
		DESIGNED	---	Scale	1:1000 @ A1		SHEET 001
		DRAWN	JJ	10.06.22	1:2000 @ A3		
		CHECKED	---	Datum & Level	MT NIC 2000 / NZVD		Rev. A
		APPROVED	---				

NOTES:
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SEC 25B
BLK VII



SCHEDULE OF EXISTING EASEMENTS			
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RIGHT OF WAY	AA-AC	LOT 4 HEREON	915349.6
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SCHEDULE OF EXISTING EASEMENTS IN GROSS			
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	EB	LOT 4 HEREON	
	EC	LOT 3 HEREON	
	ED	LOT 101 HEREON	
	EE	LOT 4 HEREON	

SCHEDULE OF PROPOSED EASEMENTS			
PURPOSE	SHOWN	BURDENED LAND	BENEFITTED LAND
RIGHT OF WAY			
RIGHT TO CONVEY WATER, ELECTRICITY AND COMPUTER MEDIA	D	LOT 1 HEREON	LOT 2 HEREON
RIGHT OF WAY	AA-AB	LOT 4 HEREON	LOT 101 HEREON
RIGHT OF TO CONVEY SEWAGE	F	LOT 3 HEREON	LOTS 1, 2 HEREON
	G	LOT 101 HEREON	LOTS 1-3 HEREON
RIGHT TO TREAT AND DISPOSE OF SEWAGE	AB	LOT 4 HEREON	LOTS 1-3 HEREON
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 LOT 100, 101 HEREON AND LOT 2 DP 18290 ARE TO BE HELD IN THE SAME RECORD OF TITLE

LOT 2
DP 18290

ISSUED FOR DISCUSSION 10.06.2022

Clark Fortune McDonald & Associates
 Licensed Cadastral Surveyors - Land Development - Planning Consultants
 309 LOWER SHOTOVER ROAD
 3 LOWE STREET, ADDINGTON
 60 TENNYSON STREET
 14 MERSEY STREET
 EMAIL: admin@cfma.co.nz

QUEENSTOWN
 CHRISTCHURCH
 DUNEDIN
 GORE

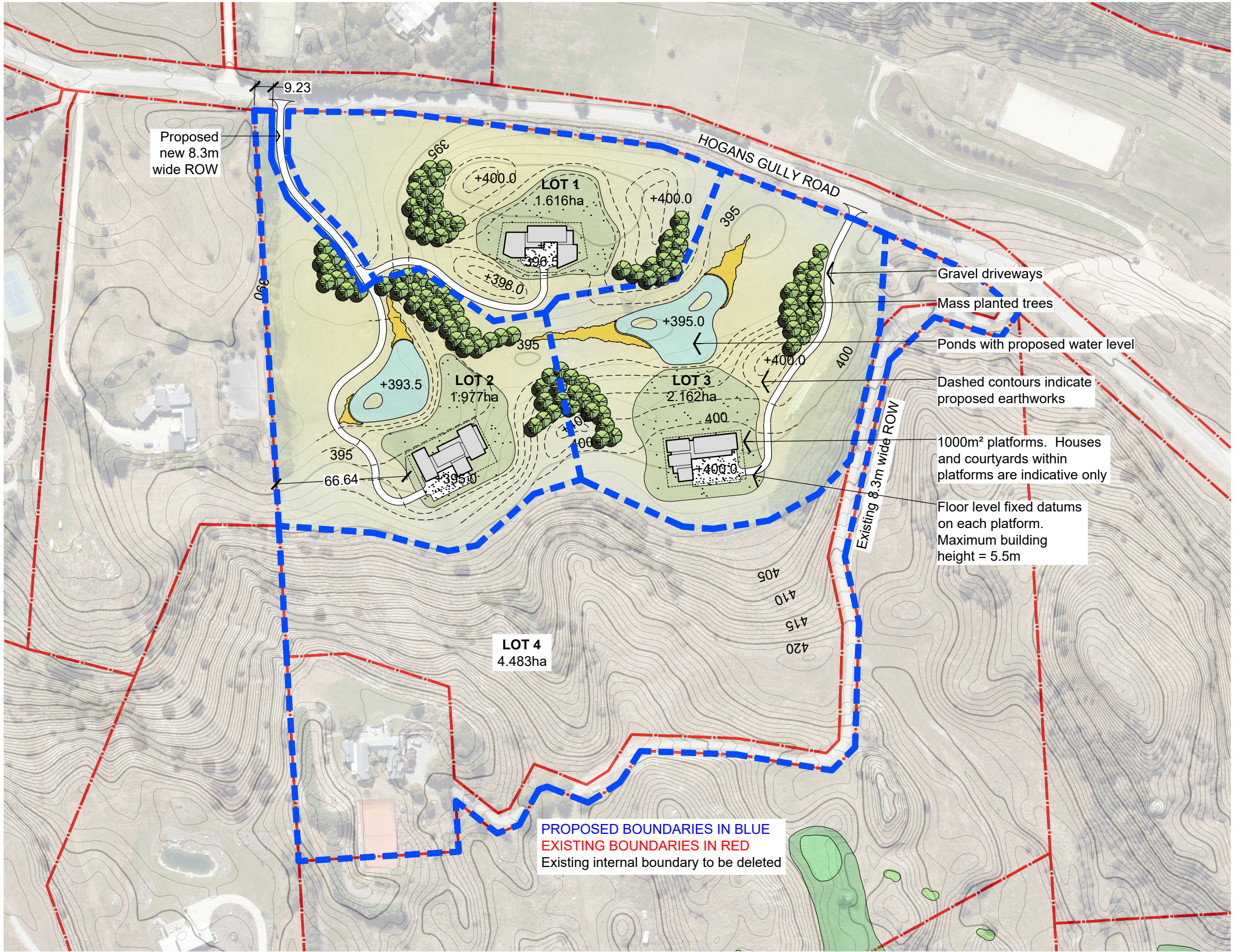
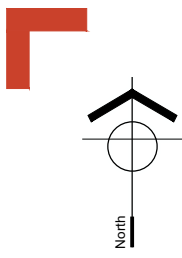
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 TEL (03)348-1025
 TEL (03)470-1582
 TEL (03)208-6474

Rev.	Date	Revision Details	By
A	06.07.22	AMEND BOUNDARIES (LOT 101)	JJ

**LOTS 1-4, 100 AND 101 BEING A PROPOSED
 SUBDIVISION OF PART LOT 1 DP 18290 AND
 LOT 1 DP 25533
 HOGANS GULLY ROAD, ARROWTOWN**

Client	DAVIES	SURVEYED	---	Job No.	15672	Drawing No.	001
		DESIGNED	---	Scale	1:1000 @ A1		SHEET 002
		DRAWN	JJ	10.06.22	1:2000 @ A3		
		CHECKED	-		Datum & Level	MT NIC 2000 / NZVD	Rev. A
		APPROVED	-				

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DRAFT



Davies – Hogans Gully Road
Landscape Assessment
August 2022

INTRODUCTION

1. This landscape assessment has been prepared by Baxter Design to assess the potential visual effects of the subdivision of an existing title into 4 lots, creating 3 new lots with residential building platforms and amending boundaries to include an existing dwelling on the 4th lot. This report includes:

- Description of the site and background,
- Description of the proposal,
- Landscape classification and methodology
- Landscape assessment,
- Conclusion.

2. The following **Attachments** are included in this report:

Attachment A: Site wide context plan	(Baxter Design 4345 – SK06)
Attachment B: Proposed New Lots	(Baxter Design 4345 – SK09)
Attachment C: Earthworks plan	(Baxter Design 4345 – SK11)
Attachment D: Aerial Context – West	(Baxter Design 4345 – D)
Attachment E: Aerial Context – East	(Baxter Design 4345 – E)
Attachment F: Aerial Context – South	(Baxter Design 4345 – F)
Attachment G: Catchment Character Photos	(Baxter Design 4345 – G)
Attachment H: Adjacent Lot Sizes	(Baxter Design 4345 – SK12)
Attachment I: QLDC LCU Map	

DESCRIPTION OF SITE AND BACKGROUND

3. The site ('site' being the land subject to this application) is located on the south side of Hogans Gully Road, approximately 1.1 kilometres from the intersection of Hogans Gully Road and Arrowtown – Lake Hayes Road and approximately 1.4 kilometres from the intersection of Hogans Gully Road and McDonnell Road.
4. The existing site sits against the major escarpment that borders the landforms south of Hogans Gully Road, being the Hogans Gully 'valley'. That escarpment is clearly defined (refer **Attachments D-F**) and runs from the eastern portion of the site, continuing west along Hogans Gully Road towards Lake Hayes Arrowtown Road, turning south and then forming the eastern edge of the Lake Hayes 'valley' landscape. The escarpment is a clearly formed and visible landscape feature, broadly separating the wide plateau on the south of the

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escarpment that contains the moraine based hummocky hills of the Bendemeer rural - residential area from the Hogans Gully Road 'valley'.

5. The Hogans Gully 'valley' is a clearly defined landform, originating in in the vicinity of the site and then opening up to the west, near the Arrowtown – Lake Hayes Road. Towards the eastern end of the 'valley', in the vicinity of the site, the landform is defined by hummocky moraine within the wider enclosing elements of the Bendemeer plateau and rising rolling land to the north of Hogans Gully Road. The valley landform within the vicinity of the site is complex in character, gently rolling and rising towards the east.
6. West of the site from Arrowtown Lake Hayes Road to the site and south of Hogans Gully Road, and to the immediate west of the site, the landscape displays a complex mix of well-established rural residential blocks, with shelterbelts, dwellings, small open paddocks and all the trappings of an established rural residential landscape.
7. The land southeast of the intersection of Arrowtown Lake Hayes Road and Hogans Gully Road is a reasonably open and semi pastoral landscape, albeit fragmented by small paddocks and equestrian associated structure. That land was previously zoned Rural Residential in the ODP and is located in the Wakatipu Basin Lifestyle Precinct (WBLP) in the PDP and it is realistic to expect that semi-pastoral landscape will develop into a more rural – residential character over time, similar in appearance to the established rural residential character of the south side of Hogans Gully Road.
8. To the north of Hogans Gully Road, moving east from Arrowtown – Lake Hayes Road, the landscape character is open and pastoral, characterised by fenced paddock, shelterbelt and well separated dwellings. Heading east, the Hogans Gully 'valley' narrows in width, in a still rolling moraine landscape, rising and visually contained within higher landform with small wetlands to the north of the road.
9. The Hogans Gully roadside landscape character is characterised by a continuous mix of Hawthorne hedge, Poplar shelterbelts and established tree plantings, interspersed with the occasional stone wall, gateway features, mailboxes and driveways, clearly an established rural – residential character.



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Aerial drone photo looking east across site February 2022

10. The site itself is located in a well - defined and visually and physically enclosed landscape. The south edge of the site is bordered by the steeply rising escarpment described earlier in this report. That portion of the escarpment is covered in exotic grasses with occasional Matagouri, Elderberry and sweet briar. The escarpment wraps around the site up towards Hogans Gully Road on the eastern edge of the site and 'bookending' the lower landforms that exist between the escarpment face and Hogan Gully Road, from this site and continuing towards Lake Hayes – Arrowtown Road. The central portion of the landscape, within which the residential building platforms (RBP's) are to be located, is a gently rolling landform of cultivated and managed grassland.



The site – existing landform

11. From the south boundary of the site, the land drops to the north approximately 5 metres over gently sloping land to a minor valley then rises approximately 5 metres to a small hillock centrally located within the site, adjacent to Hogans Gully Road located. There are no distinguishing landform characteristics within the site aside from the rolling pastoral landform.
12. An established block of Pine is located on the eastern boundary of the site behind which a driveway accesses off Hogans Gully Road to an established dwelling on the peak of the escarpment, to be Lot 4. That dwelling is well established, approximately 25 years old, with established garden and shelterbelt. To the direct west, bordering the site, is a shelterbelt, with an established rural residential dwelling on approximately 2 ha of land.
13. Directly across Hogans Gully Road, to the north, the landform extends into a small 'valley' contained by a minor escarpment to the north. An established rural – residential block, with established plantings and a dwelling, is located directly adjacent to Hogan Gully Road on that lot.
14. To the north of Hogans Gully Road the Hogans Gully valley is flanked by a small kanuka covered escarpment that visually contains the top eastern end of the valley. Further east up Hogans Gully Road, on the north side of the road, is a recently completed dwelling and shed, visible from the road, with an equestrian dressage area adjacent to that dwelling and sheds.

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15. Continuing to the north along Hogans Gully Road the enclosing landform reduces in scale with the landscape character becoming less visibly rural – residential in character, aside from an established dwelling directly adjacent to the road. A small wetland system, developed by the owner to the north of Hogans Gully Road is visible adjacent to the road.
16. To the east and south of the development is the Bendemeer Zone and the Hogans Gully Resort Zone, which are separated from this site both visually and physically by landform.
17. The site is located within landscape unit (refer **Attachment G**) LCU 15 (Schedule 24.8 Landscape Character Units QLDC Proposed District Plan) where the landform patterns are described as '*Gully framed by moraine type landform, with the latter characterised by hummocky hills interspersed with plateaus*'. LCU 15 extends over and covers the recently re-zoned area containing the Hogans Gully Resort zone with the site located in a small finger of that LCU in its northwest corner. (It is noted that, from a landscape perspective it appears that the site could have been located more logically within LCU 12 Lake Hayes Rural Residential as that zone extends up Hogans Gully Road within the eastern end of that LCU located amongst existing and established rural residential development as opposed to the end of it. There is a landscape logic for that unit to extend to the end of that valley landform at the east, enclosing the site and the existing rural residential development that surrounds it).

DESCRIPTION OF THE PROPOSAL

18. The application seeks to subdivide the wider property into 4 lots, which will include:
 - Lot 1 – 1.616 hectares with RBP
 - Lot 2 – 1.977 hectares with RBP
 - Lot 3 – 2.162 hectares with RBP
 - Lot 4 – 4.483 hectares with an existing dwelling and established garden / tree planting.
19. The existing residential dwelling located on Lot 4 is located on the top of the escarpment on relatively flat land directly south of proposed Lot 2, elevated approximately 45 metres above proposed lot 2 and accessed by an existing driveway from Hogans Gully Road.
20. The attached plans (refer **Attachments A + B**) show the three proposed building platforms (RBP's) on Lots 1, 2 + 3.
21. The proposed development includes 3 lots ranging in size from 1.616ha to 2ha. To be located on the rolling piece of land south of Hogans Gully Road. There are 2 proposed new driveways off Hogans Gully Roads, one on the northeast corner of the site to access the proposed RBPs on Lots 1 & 2 and another driveway in the northeast corner of the site to access Lot 3. **Attachments A-C** show the proposed layout of the development.
22. The following is noted:
 - Earthworks will be undertaken on the site to enable flat RBP's to be formed and to enable appropriate outdoor living areas.
 - Each lot shows a specific RBP of 1000m², shaped to fit the lot and land, with a datum fixed for floor level

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- Two small pond / wetland areas are shown in the minor 'valley' landform in front of Lots 2 & 3, utilising existing low areas and a small portion of the existing water rights from the Arrow Irrigation race.
- Mass planting of Mountain Beech outside of platforms

23. A specific set of design controls has been developed for the site . The principal components of those controls include:

- maximum building heights of 5.5m for Lots 2 & 3, 4.5m for Lot 1
- site coverage restrictions of 55% of the RBP's
- the retention of grassland outside of platforms (aside from farm fencing between lots)
- specific landscape controls within the specified curtilage areas
- site coverage restrictions of 55% of the RBP's
- Exterior cladding limited to two materials on any single elevation, from materials including, natural or stained timber, steel tray, concrete or locally sourced schist stone,
- Roof materials limited to a single recessive colour only in steel tray or similar,
- All exterior cladding shall be a recessive colour and have an LRV between 7-27%.

24. As above, the proposed RBPs will require levelling of the proposed curtilage area and driveway. The earthworks have been designed to continue the soft rolling forms which currently exist on site. There will be disturbance during construction however, as has been undertaken on many other adjacent sites, the extent of earthworks will not be distinguishable when completed and grassed.

LANDSCAPE CLASSIFICATION AND METHODOLOGY

25. The assessment of effects scale used in this assessment is based on the New Zealand Institute of Landscape Architects (NZILA) 'Landscape Assessment and Sustainable Management 10.1' Best Practice Note. Appendix 1 outlines this ranking and associated explanation.
26. The proposed site is classified as within the Rural General Zone in the Operative District Plan (ODP) and in the Wakatipu Basin Rural Amenity Zone (WBRAZ) in the Proposed District Plan (PDP).

LANDSCAPE ASSESSMENT

Effects on natural and pastoral character

27. The proposed development will be located within the confines of the escarpment landform that contains the existing and established rural residential neighbourhood of Hogans Gully Road. That pattern of development abuts the site and continues, although decreasingly, east up Hogans Gully Road. **Attachments D - F** shows the existing landscape character of the Hogans Gully Road catchment. Existing dwellings in the immediate vicinity are accessed by private driveways and shared ROWs off Hogans Gully Road. The landscape character of the Hogans Gully Road corridor is an established rural residential landscape, particularly on the south side of the road. That landscape is characterised by mailboxes, entry features to driveways (stone and timber), large groups of established exotic and native vegetation in both groups and shelterbelts and continuous glimpses of dwellings, basically all the trappings of established rural residential development, within a visibly enclosed 'valley' landscape.

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28. From Hogans Gully Road and the surrounding private properties, nearby existing dwellings are partially visible through breaks in the foreground vegetation and landform. Partial visibility of dwellings is not unexpected within this established rural residential neighbourhood.
29. The scale and recessive architectural design of the proposed dwellings (on proposed Lots 1-3) will continue that character and will be sympathetic to the surrounding rural residential characteristics. The location of the proposed RBPs responds to that natural landform with the site enclosed by the escarpment landform to the south and east of the site.



Aerial Drone photo looking southwest over site February 2022

30. Taking into account the above, it is considered that the proposed development responds appropriately to the surrounding rural residential landscape and will have a low adverse effect on the existing landscape characteristics and quality.

Visibility of development

31. The visual assessment locations considered in this report include potential visibility from Hogans Gully Road and nearby private properties.
32. Visibility of the site, from public places, is restricted to a short section of Hogans Gully Road, over approximately 350 metres of the road. Dwellings on the proposed RBP's will be glimpsed from short sections of Hogans Gully Road from the northeast and northwest corners of the site, over approximately 30-40m of the road at each of those corners, although the proposed mountain beech planting will restrict those views mostly. Dwellings on proposed RBPs 2 & 3 will be located approximately 75-90 metres south from Hogans Gully Road, a similar distance to the setback from Hogans Gully Road of the existing dwelling directly west of the site.

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33. Minor earth shaping will be undertaken around the Lot 1 RBP to mitigate visibility of a future dwelling on the site and the recommended building height, in the proposed design controls, has been set at 4.5m above a foxed datum (after site analysis), 1m lower than dwellings on the RPBs of Lots 2 & 3, to mitigate visibility of a future dwelling on that site. A dwelling on the RBP on Lot 1, although 25 metres back from Hogans Gully Road, will be largely screened by the existing rising landform between Hogans Gully Road and the platform and will be less visible than dwellings of a similar separation from the road directly across Hogans Gully Road and to the east.
34. To mitigate potential visibility of the dwellings from Hogans Gully Road, clustered mountain beech tree planting is proposed around the lots (refer **Attachments A & B**). The proposed tree planting is shaped around the finished landform.
35. Taking the above into account, dwellings on the proposed RBP's may be glimpsed only from Hogans Gully Road. Given the rural-residential character of Hogans Gully Road, from Arrowtown – Lake Hayes Road to the site and past the site, the experience of glimpses of dwellings at distance is entirely appropriate and in accord with the character of Hogans Gully Road. It would be realistic to expect that landowners may undertake further planting within their curtilage areas to screen those views, albeit minor. In this context, total screening is inappropriate.
36. Taking the above into account, any potential visibility will have a very low effect on the existing landscape character and quality.
37. There are currently 3 properties which may view parts of the proposed development. It is understood that, at the time of this report, the existing dwellings on proposed Lot 4 and that neighbour directly west of the proposed development have signed APA's. Views from the dwelling directly over Hogans Gully towards the site are substantially screened by established vegetation. It is understood that the applicant has an APA from the neighbour directly across Hogan Gully Road to the north.
38. Taking into account the proposed mitigation planting, lack of visibility and recessive materials that must be used in the architectural design of future dwellings, it is considered that the proposed development will have a low potential adverse effect on landscape views from adjacent private properties.

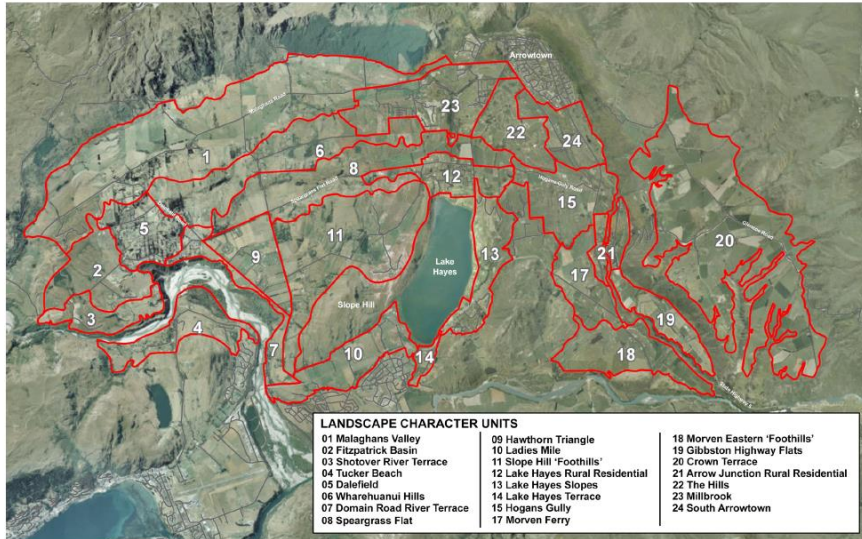
Commented [JB1]: 25 or 35? (you say 35 later on)

Form and density of development

39. The proposal subdivides the wider property into 4 lots, at an average size of 2.55 hectares per lot including Lot 4 or 1.91 ha per lot for Lots 1-3. This is in keeping with the landscape characteristics of the surrounding rural residential neighbourhood to the west of the site. **Attachment H** shows the size of nearby lots in the Hogans Gully area. The scale of the development and the proposed lots will not compromise the existing landscape characteristics and any visibility will be appropriately mitigated through the design controls and proposed planting (refer **Attachment B**).
40. LCU 15 describes the settlement patterns in this landscape unit as '*Sparse scatterings of dwellings, generally set back from the road and / or well contained by landform / vegetation patterns. Not consented but unbuilt platforms evident. Typical lot sizes: predominantly greater than 20ha. Some smaller lots (less than 4ha and 4-10ha) at northwest corner of unit*'. This statement describes more realistically the settlement patterns of the wider part of LCU 15, and is not a relevant description of this portion of LCU 15, being the western part of the Hogans Gully Road Valley because of the well-established rural living character.

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24.8 Schedule 24.8 Landscape Character Units



Extract PDP Schedule 24.8 Landscape Character Units

41. The settlement description in LCU 15, The Lake Hayes Rural Residential Unit, better describes the density of development in this portion of Hogans Gully Road, being 'Typical lot sizes: almost all of the lots under 10ha'. With naturalness in that LCU described as 'Generally a low degree of naturalness as a consequence of the frequency and exposure of buildings.
42. This report now assesses the relevant matters set out in Chapter 24 of the PDP and refer to relevant matters in the LCU12 description during that assessment, describing the alignment of the proposed development against those matters.

PDP - Chapter 24 – Wakatipu Basin

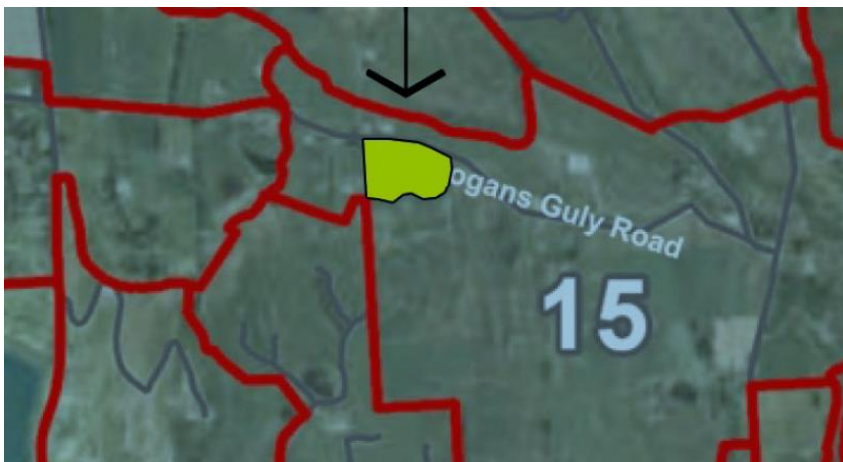
43. **Objective 24.2.1 Landscape character and visual amenity values in the Wakatipu Basin are maintained or enhanced**
44. The proposed development is located within the LCU 15 landscape unit. The landscape character of this unit is largely an open rolling landscape covering predominantly the upper plateau area where the Hogans Gully Resort Zone (HGRZ) is located. The southern portion of that landscape, being the flatter open land located directly north of SH6 is also within the HGRZ (and within LCU17) but is described as a rural protection area under the HGRZ approved structure plan. The landscape character of the site is visually and physically separated from the broad landscapes of LCU15. To that end the landscape character and visual amenity values of LCU15 will not be adversely affected by this development.

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45. The site is approximately 1.25km from the intersection of McDonnell Road and Centennial Avenue. Approaches to the site from both west and east along Hogans Gully Road traverse through a well-established quasi rural residential 'valley' with amenity values that are distinctly separate from the surrounding and enclosing landscapes. The site is enclosed roughly in the centre of the Hogan Gully Road length and the addition of 3 dwellings on this site in the location and form proposed is entirely appropriate given the surrounding landscape values. Any potential adverse effects on the existing character of the Hogan Gully Road landscape character and amenity values would be low.

Commented [JB3]: See equivalent comment in para 40 above - to discuss

Commented [JB4]: I think this is not relevant but happy to discuss



Extract from **Attachment I** showing site location on QLDC LCU map

46. From private views, the same conclusion is reached.
47. Overall, it is established the landscape character and visual amenity values of the Wakatipu Basin, and in particular LCU15 (and the neighbouring LCU12) will be maintained, and the proposal achieves Objective 24.2.1.

PDP Chapter 24 Policies

48. 24.2.1.2 Ensure subdivision and development is designed (including accessways, services, utilise and building platforms) to minimise inappropriate modification to the natural landform.

49. The proposed development will require landscaping to establish the platforms, noting that the 3 proposed dwellings will be on fixed datums. This approach gives certainty to the final shape of the land after development. Where there will be changes to the landform, those changes are shaped to mimic the larger glacial landforms and are not 'bunds' as such. Earthworks were undertaken south of Hogans Gully Road on the lot directly west of the site and, after grass has established, is not perceptible as earthworks. The same applies to this site. Two driveway entries are proposed,

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approximately 410 metres apart which is entirely consistent with the pattern of entries on Hogans Gully Road.

50. **24.2.1.2** *Ensure that subdivision and development maintains or enhances the landscape character and visual amenity values identified in Schedule 24.8 – Landscape Character Units.*

51. The LC15 unit has a moderate absorption capability for additional development. In general, the descriptions in the LCU15 chart appear to be more appropriate for the wider open areas of that unit (HGRZ) not this small section of the unit:

- *Integration of buildings with landform and/or planting.*

The site is located within a discrete, enclosed landform. Care has been taken to replicate surrounding residential patterns, avoiding steep cuts and batters and gently shaping the landform surrounding the dwelling.

- *Potential Landscape Issues and constraints associated with additional development.*

The proposed development will not be visible from Bendemeer, ONL's and the zig-zag lookout as from where the bulk of the LCU15 unit is visible and, given the enclosing landform, will not read as 'sprawl'.

- *Environmental characteristics and visual amenity values to be maintained and enhanced*

The proposed dwellings will be integrated within landform

Commented [JB5]: To discuss - I think should include full table of the LCU15 descriptions, in an appendix, with brief commentary on each, as to whether the values identified in the LCU15 description are "maintained or enhanced". I'll send you the table to discuss

52. **24.2.1.4** *Maintain or enhance the landscape character and visual amenity values of the Rural Amenity zone including the Precinct and surrounding landscape context by:*

- a. *Controlling the colour, scale, form, coverage, location (including setbacks) and height of buildings and associated infrastructure, vegetation and landscape elements.*

The application is for 3 dwellings on shaped platforms, the soft rolling glacial landscape being preserved in character, by appropriate land-shaping, potentially enhanced. The Dwellings on proposed Lots 2 & 3 are setback 170 and 145m from Hogan Gully Road respectively. This is a greater setback to many existing dwellings on Hogan Gully. The dwelling on proposed Lot 1 is closer to the road (35 metres) but not dissimilar to several other dwellings visible from Hogan Gully Road. To that end the setbacks are considered appropriate in the context of the Hogan Gully Road character. The heights, cladding, scale, form and colour of the dwellings will ensure an appropriate, restrained consistency and amenity, not out of place on Hogan Gully Road.

Commented [JB6]: 35 or 25

53. **24.2.1.5** *Require all buildings to be located and designed so that they do not compromise the landscape and amenity values and the natural character of Outstanding Natural Features and Outstanding Natural Landscapes that are either adjacent to the building or where the building is in the foreground of views from a public road or reserve of the Outstanding Natural Landscape or Outstanding Natural Feature.*

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The proposed dwellings will not detract from ONL values, neither will it detract from ONF values due to its location, surrounding topography and separation from ONL's and ONF's.

54. **24.2.1.11** *Provide for activities that maintain a sense of spaciousness in which buildings are subservient to natural landscape elements.*

The proposed dwellings are to be located at the base of a large escarpment and therefore by location will appear subservient to wider landscape elements.

55. **24.2.1.15** *Require buildings, or building platforms identified through subdivision, to maintain views from roads to Outstanding Natural Features and the surrounding mountain Outstanding Natural Landscape context, where such views exist, including by:*

- a. *Implementing road setback standards; and*
- b. *Ensuring that earthworks and mounding, and vegetation planting within any road setback, particularly where these are for building mitigation and/or privacy, do not detract from the views to Outstanding Natural Features or Outstanding Natural Landscapes; while*
- c. *Recognising that for some sites, compliance with a prescribed road setback standard is not practicable due to the size and dimensions, or the application of other setback requirements to the site.*

As discussed in this report, although the mounding and landscaping associated with the subdivision will be visible from Hogans Gully Road, they will not detract from the views of the ONFs, and view of the the surrounding ONL will be maintained.

56. **24.2.4.1** *Avoid adverse cumulative impacts on ecosystem services and nature conservation values.*

The proposed development avoids cumulative impacts on ecosystems through its location, within an area which has been historically grazed. No adverse cumulative impacts on ecosystem services and nature conservation values will arise from this development.

57. **24.2.4.9** *Encourage the planting, retention and enhancement of indigenous vegetation that is appropriate to the area and planted at a scale, density, pattern and composition that enhances indigenous biodiversity values, particularly in locations such as gullies and riparian areas, or to provide*

Described above. There are no gullies or riparian areas in this site

CONCLUSION

58. Taking into account the unique qualities of this site, the existing landscape character and visual amenity values of the Hogan Gully Road landscape character and, importantly, the rural – residential character of the receiving environment, any potential adverse effects arising from

Commented [JB7]: Will any of the development (dwellings or mitigation planting) affect any view of an ONL or ONF when viewed from HG Road?

Commented [JB8]: ? - prob need to put in the key points again or refer to where it has been discussed. I'll send you the relevant rules for the setbacks.

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this proposed development and associated landscape works will be low and will not adversely affect the wider values of the surrounding landscape.

APPENDIX:

Table 1: Scale of Effects Reference

The effects scale used in this assessment is outlined in the table below. This effects scale is based on the **New Zealand Institute of Landscape Architects (NZILA) 'Landscape Assessment and Sustainable Management 10.1' Best Practice Note**¹. The explanations provided are based on the review of a number of scale of effects tables and the **Auckland Council 'Information requirements for the assessment of Landscape and Visual Effects' (2017)**².

NZILA best practice scale ¹ (used in this report)	Dictionary Definition (Collins)	Explanation
Negligible	<ul style="list-style-type: none">• 'An amount or effect that is so small that it is not worth considering or worrying about'• 'Insignificant'	<ul style="list-style-type: none">• The proposed development is barely discernible or there are no changes to the existing character, features or landscape quality².

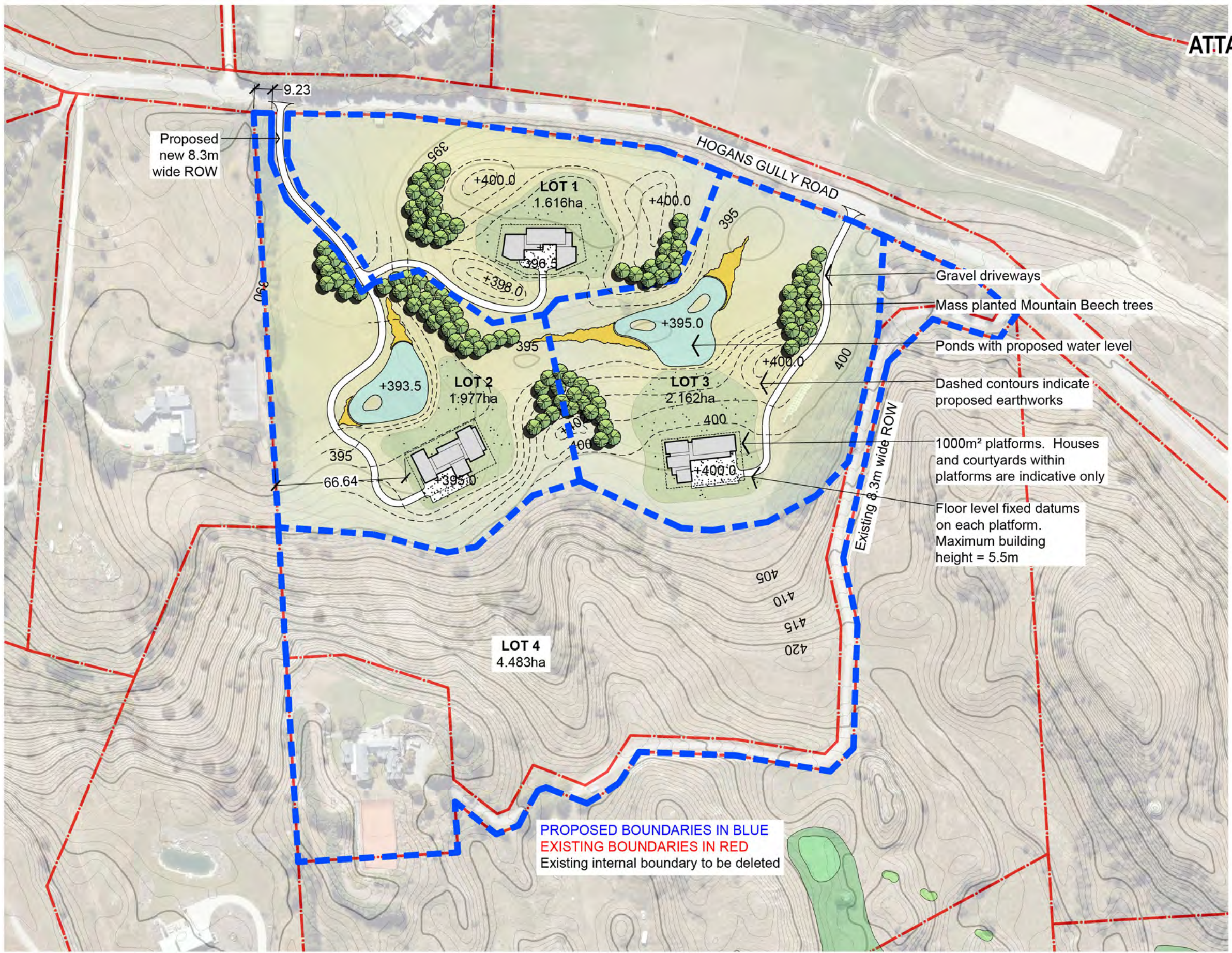
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Very Low effect		<ul style="list-style-type: none"> • The proposed development is barely discernible with little change to the existing character, features or landscape quality². • Any awareness of the proposal will have a very limited effect/change to the existing landscape character and quality.
Low effect	<ul style="list-style-type: none"> • 'Small amount' • 'Not considered to be very important because near the bottom of a particular scale' 	<ul style="list-style-type: none"> • A slight loss to the existing character, features or landscape quality². • Any awareness of the proposal will be a minor component of/change to the wider landscape.
Moderate effect	<ul style="list-style-type: none"> • 'Not extreme' • 'Neither large nor small in amount or degree' 	<ul style="list-style-type: none"> • Partial change to the existing or distinctive features of the landscape and a small reduction in the perceived amenity². • The proposal may form a visible or recognisable change/new element within the wider landscape, but will not detract from the existing landscape character and quality.
High effect	<ul style="list-style-type: none"> • 'Something is great in amount, degree or intensity' • 'Advanced or complex' 	<ul style="list-style-type: none"> • 'Noticeable change to the existing character or distinctive features of the landscape or reduction in the perceived amenity or the addition of new but uncharacteristic features and elements². • The proposal may form a visible or recognisable change/ new element within the wider landscape and maybe readily noticed by the viewer, detracting from the existing landscape character and quality.
Very high effect		<ul style="list-style-type: none"> • Major change to the existing character, distinctive features or quality of the landscape or a significant reduction in the perceived amenity of the outlook². • The proposal will form a significant or immediately apparent change to the landscape, which significantly impacts the existing landscape character and quality.
Extreme effect	<ul style="list-style-type: none"> • 'Something is very great in degree or intensity' 	<ul style="list-style-type: none"> • Total loss of the existing character, distinctive features or quality of the landscape resulting

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	<ul style="list-style-type: none">• 'Severe or unusual'• 'Greatest degree possible'	in a complete change to the landscape or outlook ² .
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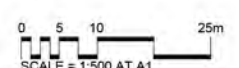






North

PROPOSED CONTOURS





Site



Panoramic image facing west taken approximately 730m away with drone 120m above Hogans Gully Road site.

Image captured 26 April 2022





Panoramic image facing east taken approximately 780m away with drone 120m above Hogans Gully Road site.

Image captured 26 April 2022





Site

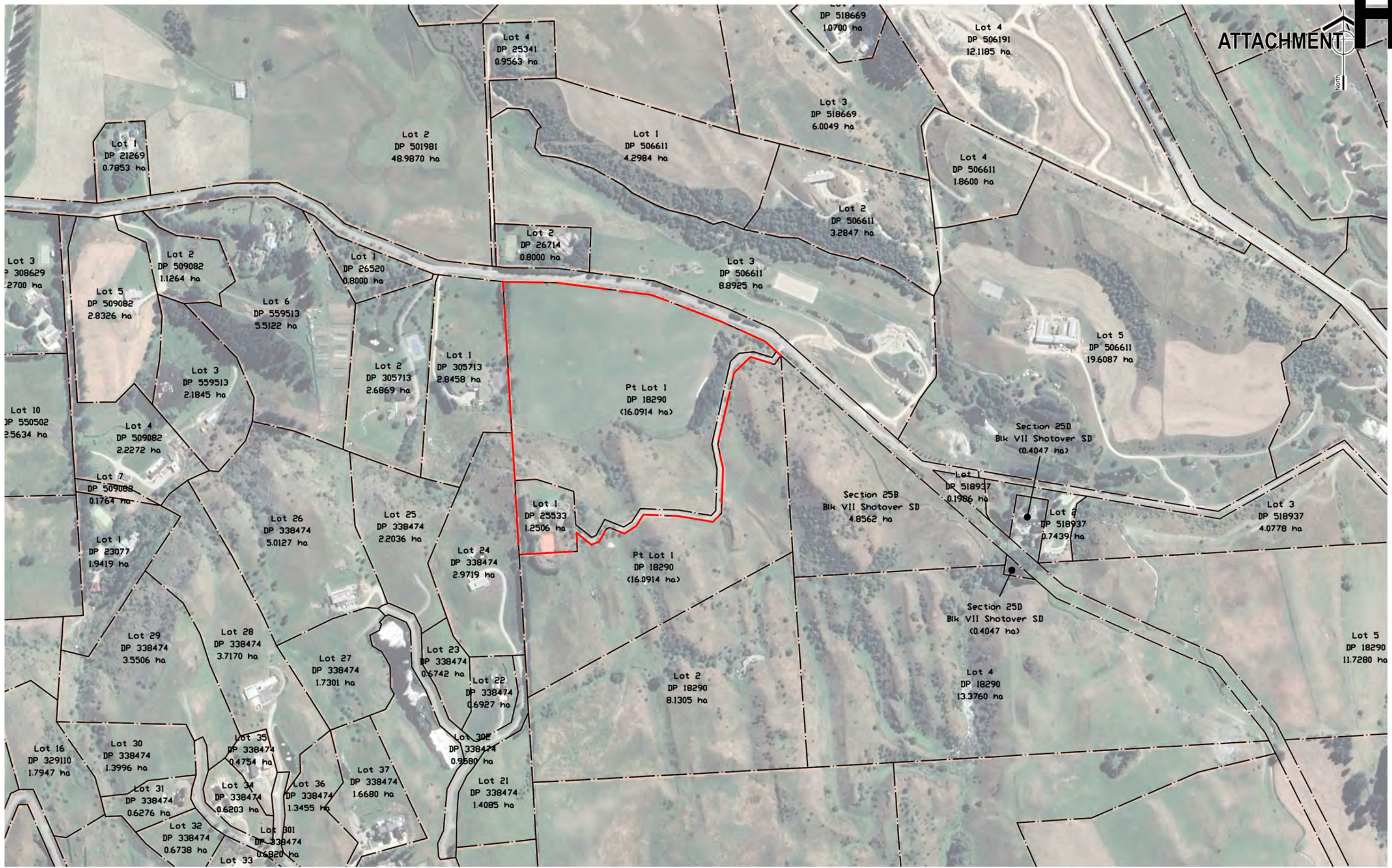


Panoramic image facing south taken approximately 750m away with drone 120m above Hogans Gully Road site.

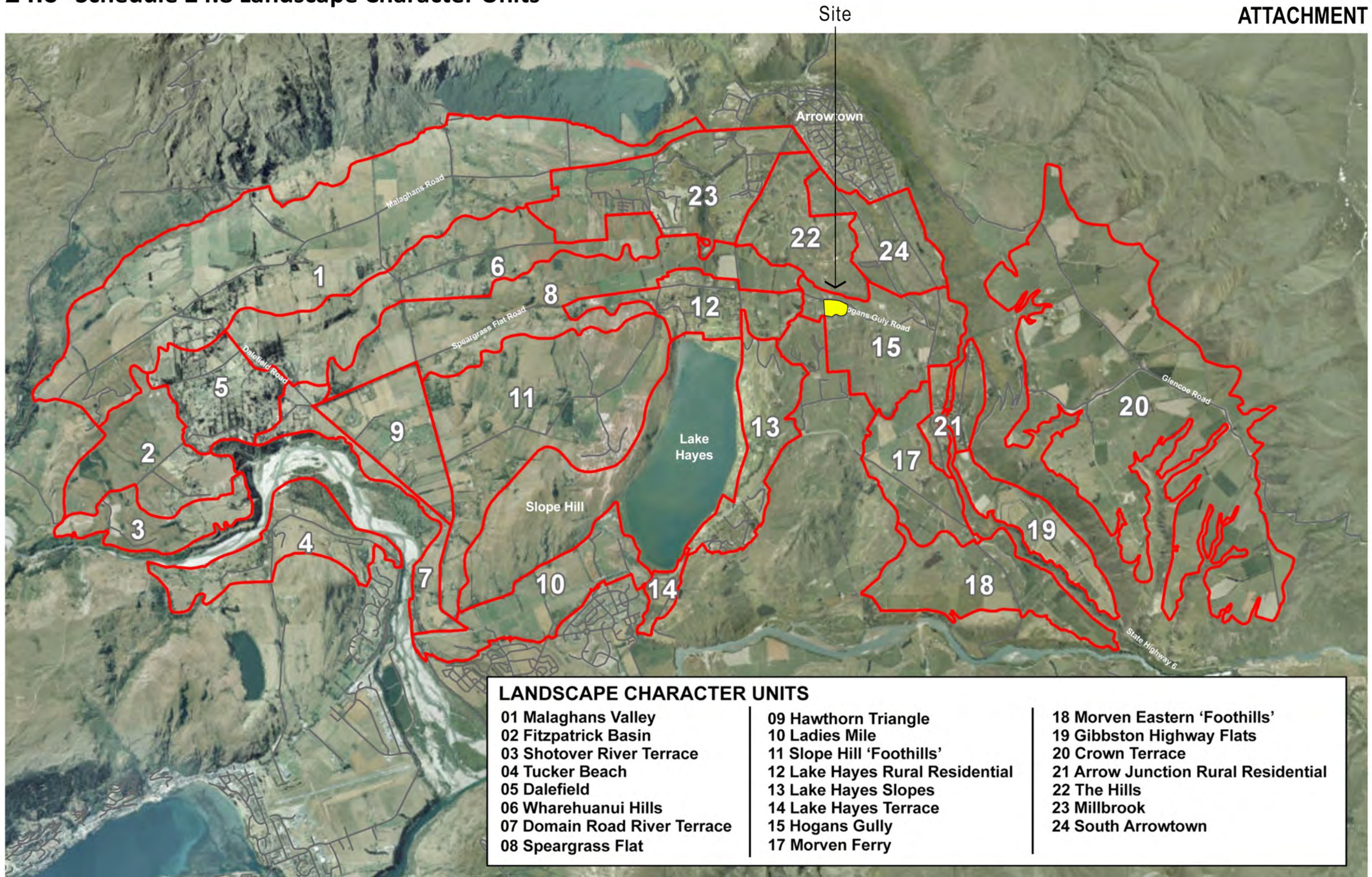
Image captured 26 April 2022







24.8 Schedule 24.8 Landscape Character Units





SEC 25B
BLK VII



LOT 2
DP 18290

LOT 100

LOT 101

LOT 3

LOT 1

LOT 2

LOT 4

SHEET 002

LOT 1
DP 305713

LOT 24
DP 338474

ISSUED FOR CONSENT 15.06.2022

Clark Fortune McDonald & Associates
 Licensed Cadastral Surveyors - Land Development - Planning Consultants

309 LOWER SHOTOVER ROAD
 3 LOWE STREET, ADDINGTON
 60 TENNYSON STREET
 14 MERSEY STREET

QUEENSTOWN
 CHRISTCHURCH
 DUNEDIN
 GORE

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EMAIL: admin@cfma.co.nz

Rev.	Date	Revision Details	By
A	06.07.22	AMEND BOUNDARIES (LOT 101)	JJ

156 HOGANS GULLY ROAD SITE OVERVIEW

Client	DAVIES	SURVEYED	---	Job No.	15672	Drawing No.	001
		DESIGNED	---	Scale	1:1000 @ A1		SHEET 001
		DRAWN	JJ	15.06.22	1:2000 @ A3		
		CHECKED	-		Datum & Level	MT NIC 2000 / NZVD	Rev.
		APPROVED	-				A

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LOT 1
DP 305713

LOT 2

LOT 3

LOT 100

LOT 101

156 HOGANS GULLY ROAD ROAD LAYOUT

ISSUED FOR CONSENT 15.06.2022

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Rev.	Date	Revision Details	By
A	06.07.22	AMEND BOUNDARIES (LOT 101)	JJ

Client	DAVIES	SURVEYED	---	Job No.	15672	Drawing No.	001
		DESIGNED	---	Scale	1:500 @ A1		SHEET 002
		DRAWN	JJ	15.06.22	1:1000 @ A3		
		CHECKED	---	Datum & Level	MT NIC 2000 / NZVD	Rev.	A
		APPROVED	---				

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HORIZ CURVE DATA

VERT GEOMETRY GRADE (%)
 VERT GRADE LENGTH (m)
 VERT CURVE LENGTH (m)

DATUM R.L.384.00

DEPTH	C.L. FINISHED LEVEL	EXISTING G.L.	CHAINAGE
			0.00
			10.00
			20.00
			30.00
			40.00
			41.36
			50.00
			60.00
			67.82
			70.00
			77.82
			80.00
			85.66
			87.82
			90.00
			95.75
			100.00
			105.75
			110.00
			115.75
			120.00
			123.76
			130.00
			140.00
			146.42
			150.00
			160.00
			170.00
			180.00
			185.00
			189.06
			190.00
			197.58
			200.00
			210.00
			210.15
			219.71
			220.00
			222.73
			230.00
			235.30
			240.00
			244.66
			250.00
			260.00

LONGSECTION - ROAD 001

A1 HORIZ SCALE 1 : 500

A1 VERT SCALE 1 : 100

HORIZ CURVE DATA

VERT GEOMETRY GRADE (%)
 VERT GRADE LENGTH (m)
 VERT CURVE LENGTH (m)

DATUM R.L.386.00

DEPTH	C.L. FINISHED LEVEL	EXISTING G.L.	CHAINAGE
			0.00
			3.54
			10.00
			11.04
			18.54
			20.00
			27.22
			27.77
			30.00
			37.22
			40.00
			47.22
			50.00
			60.00
			62.42
			70.00
			80.00
			90.00
			96.70
			100.00
			110.00
			113.88

LONGSECTION - ROAD 002

A1 HORIZ SCALE 1 : 500

A1 VERT SCALE 1 : 100

HORIZ CURVE DATA

VERT GEOMETRY GRADE (%)
 VERT GRADE LENGTH (m)
 VERT CURVE LENGTH (m)

DATUM R.L.389.00

DEPTH	C.L. FINISHED LEVEL	EXISTING G.L.	CHAINAGE
			0.00
			10.00
			16.22
			20.00
			21.22
			26.22
			30.00
			33.62
			37.87
			40.00
			45.01
			50.00
			56.40
			60.00
			66.63
			67.78
			70.00
			79.17
			80.00
			90.00
			93.09
			100.00
			110.00
			119.53
			120.00
			130.00
			140.00
			147.59
			150.00
			159.17

LONGSECTION - ROAD 003

A1 HORIZ SCALE 1 : 500

A1 VERT SCALE 1 : 100

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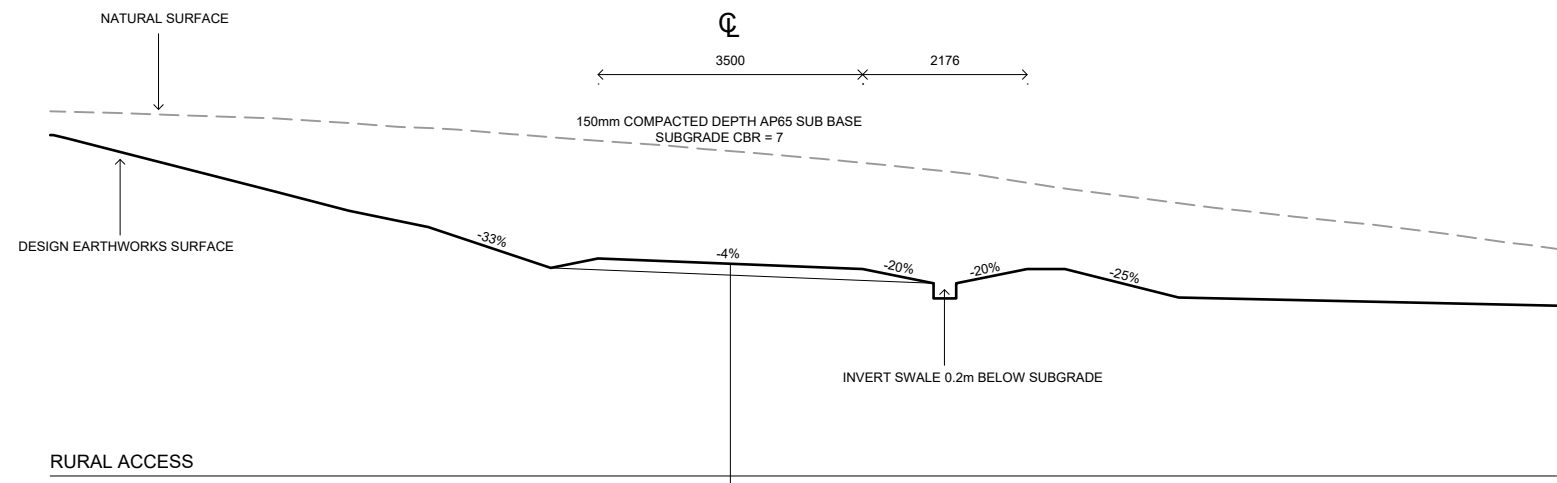
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156 HOGANS GULLY ROAD
 ROAD LONGSECTIONS

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**156 HOGANS GULLY ROAD
 TYPICAL CROSS SECTION**

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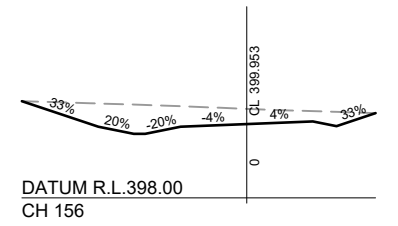
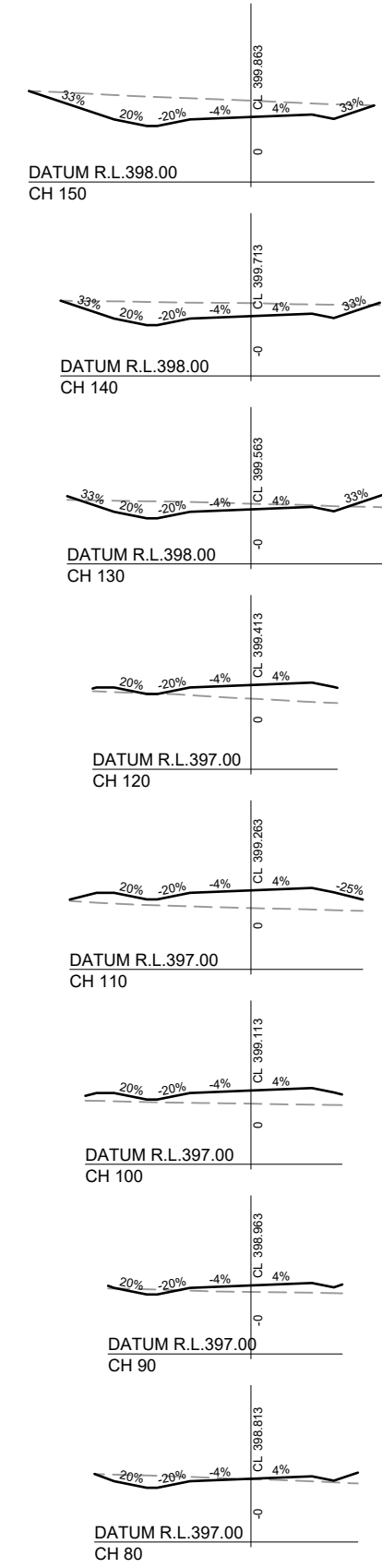
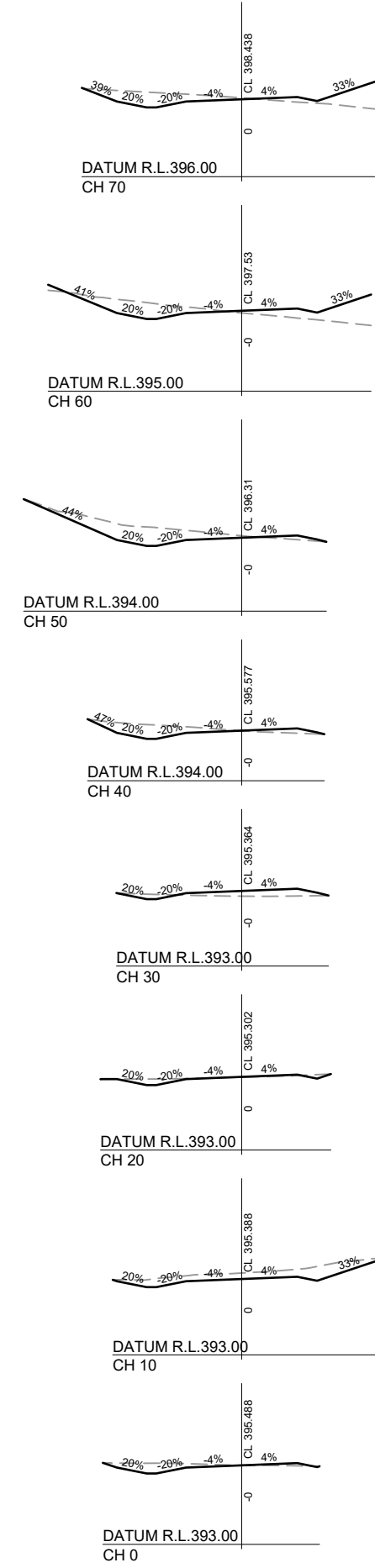
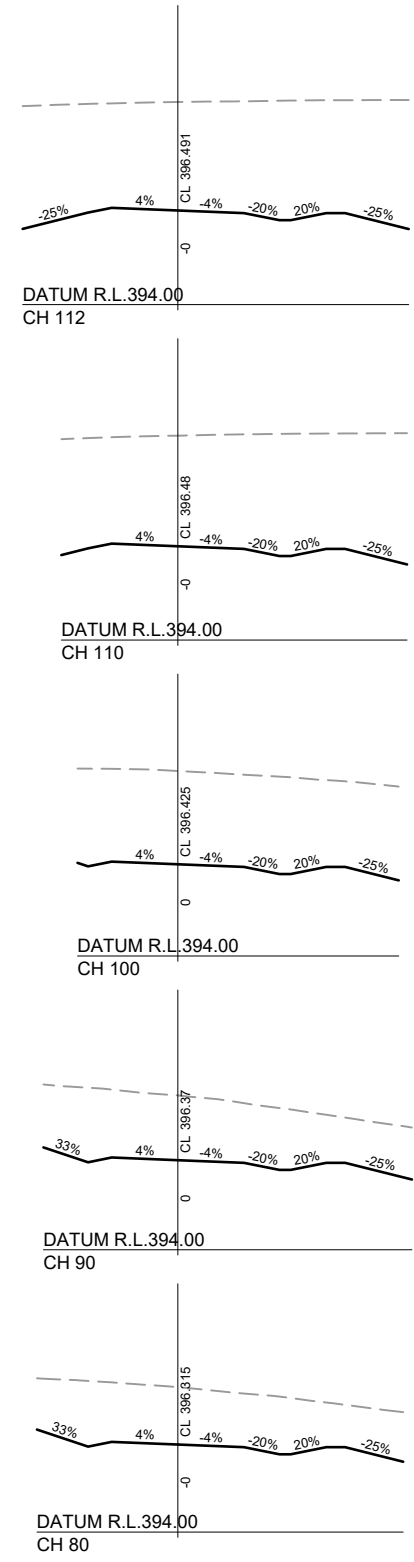
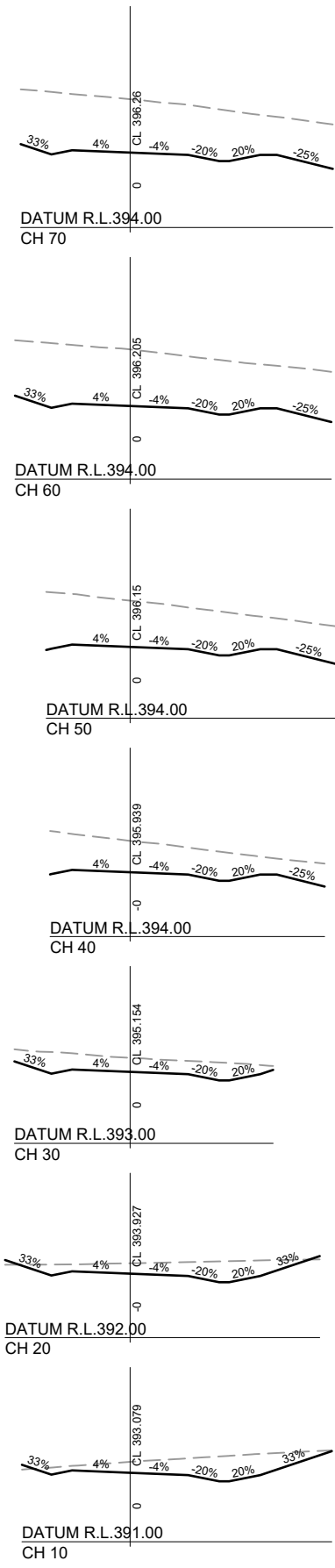
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156 HOGANS GULLY ROAD ROAD CROSS SECTIONS ROAD 001

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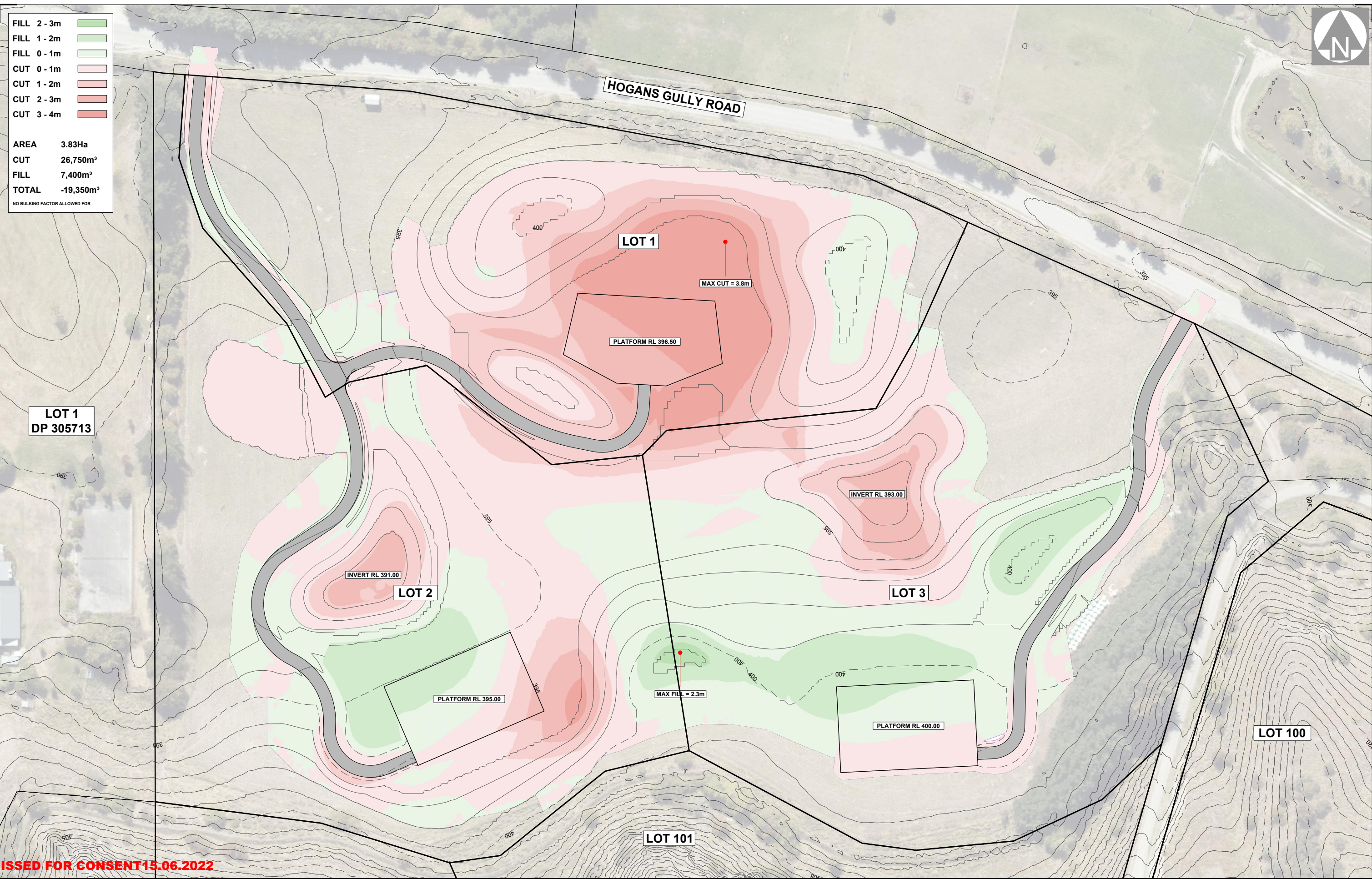
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ROAD CROSS SECTIONS ROAD 002 / 003**

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FILL 2 - 3m	
FILL 1 - 2m	
FILL 0 - 1m	
CUT 0 - 1m	
CUT 1 - 2m	
CUT 2 - 3m	
CUT 3 - 4m	
AREA	3.83Ha
CUT	26,750m³
FILL	7,400m³
TOTAL	-19,350m³
NO BULKING FACTOR ALLOWED FOR	



LOT 1
DP 305713

LOT 1

MAX CUT = 3.8m

PLATFORM RL 396.50

INVERT RL 393.00

INVERT RL 391.00

LOT 2

PLATFORM RL 395.00

MAX FILL = 2.3m

LOT 3

PLATFORM RL 400.00

LOT 100

LOT 101

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**156 HOGANS GULLY ROAD
 CUT / FILL HEATMAP**

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156 HOGANS GULLY ROAD ORIGINAL GROUND CONTOURS

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Geotechnical Report for Resource Consent

Report prepared for:
Trojan Holdings

Report prepared by:
GeoSolve Limited

Distribution:
Trojan Holdings
GeoSolve Limited (File)

Part Lot 1 DP 18290, Hogans Gully Rd
Queenstown

June 2022
GeoSolve Ref: 220368

Revision	Issue Date	Purpose	Author	Reviewed
0	20/06/2022	Client issue	MBS	PGF



GEOTECHNICAL



**WATER
RESOURCES**



PAVEMENTS



Table of Contents

1	Introduction.....	1
1.1	General.....	1
1.2	Development.....	1
2	Site Description.....	3
2.1	General.....	3
2.2	Topography and Surface Drainage.....	3
3	Geotechnical Investigations.....	5
4	Subsurface Conditions.....	6
4.1	Geological Setting.....	6
4.1.1	Regional Geology.....	6
4.2	Stratigraphy.....	6
4.3	Groundwater.....	7
5	Natural Hazards.....	8
5.1	Seismic.....	8
5.2	Liquefaction.....	8
5.3	Rockfall.....	8
6	Engineering Considerations.....	10
6.1	General.....	10
6.2	Geotechnical Parameters.....	10
6.3	Site Preparation.....	11
6.4	Excavations and Recommended Batters.....	11
6.4.1	General.....	11
6.4.2	Cuts in Soil Materials.....	11
6.4.3	Cuts in Schist Rock.....	12
6.5	Engineered Fill Slopes.....	12
6.6	Groundwater and Surface Water Issues.....	13
6.7	Settlement and Foundations.....	14
6.8	Site Subsoil Category.....	14
6.9	Pavements.....	15
7	Stormwater and Wastewater Soakage Assessment.....	16



ii

7.1	General.....	16
7.2	Permeability Analysis.....	16
7.3	Preliminary Soakage Design Recommendations and Considerations.....	17
7.4	Pond Liner	17
8	Construction Hazards.....	19
9	QLDC Land Development and Subdivision Code of Practice.....	20
10	Conclusions and Recommendations	22
11	Applicability.....	23



1 Introduction

1.1 General

This report presents the results of a geotechnical assessment undertaken by GeoSolve Ltd for a proposed residential subdivision at Part Lot 1 DP 18920, Hogans Gully Rd, Queenstown. This report has been prepared to support a resource consent application.



Photo 1.1 – Site photo looking south.

The investigations were undertaken for Trojan Holdings in accordance with GeoSolve proposal 220368 dated 13 May 2022, which outlines the scope of work and conditions of engagement.

1.2 Development

We understand it is proposed to subdivide the property. 3 new residential lots are to be created in the northern area. The new building platforms will be located on proposed Lots 1-3. Lot 4 will comprise the area immediately south of lots 1-3, no development is proposed for Lot 4 however it will incorporate 156 Hogans Gully Road and an existing dwelling in this location.

Lots 1 to 3 will have a designated building platform and cut and fill earthworks will be required to form level building areas in each location. Detailed earthworks plans have been provided to GeoSolve at this stage, however both existing and proposed contours have been provided, indicating fill depths of approximately 1-2 m and cut depths of up to approximately 4 m are proposed.

2 accessways will be constructed, one from the north-east and one north-west of the site. Landscaping ponds are proposed in the low-lying areas on Lots 2 and 3. We understand on-site disposal to ground is required for wastewater.



The proposed subdivision layout plan (provided by Baxter Design), is provided in Figure 1, Appendix A.



2 Site Description

2.1 General

The subject property, legally described as Lot 1 DP 18290, is located approximately 2 km southwest of Arrowtown, as shown in Figure 2.1 below.



Figure 2.1 – Site location plan

The site comprises farmland and is covered in grass and scattered trees.

A functioning water race is present on the site, immediately south of the proposed Lots 1-3 and on the northern boundary of proposed Lot 4.

The property is bounded by Hogans Gully Rd to the north and farmland and rural-residential properties in all other directions. The nearest building (residential) outside the development area is located approximately 45 m beyond the western boundary.

2.2 Topography and Surface Drainage

The site topography is shown in Figure 1, Appendix A.

The site topography is undulating. The site generally falls gently from the south-southeast to the north-northwest. A small hillock is located in the northern part of the site, adjacent to Hogans Gully Rd, and within proposed lot 1.

Beyond the southern boundary of the development area (the proposed Lots 1-3), there is a clear change in topography and the ground steepens and rises approximately 45 m up through proposed Lot 4. With the exception of the relatively level ground around the existing house location Lot 4 generally comprises this slope.



The water race is present just above the toe of the slope and on the northern boundary of Lot 4. The water race was dry at the time of the site inspection however we understand it does flow at certain times of the year. A review of aerial photography identified seepage from the race into Lot 2, where it ponds and eventually soaks to ground. The locations of the seepage and ponding are shown in Figure 1, Appendix A.

One gully is present on the slope and is immediately upslope of proposed Lot 2. There was no evidence for overland flow in the gully which provides a very small catchment area. The base of the gully is truncated by the water race. In general the slopes above lots 2 and 3 present a relatively small catchment potential and overland flow will be intercepted by the water face should it develop.



3 Geotechnical Investigations

An engineering geological site inspection has been undertaken with confirmatory subsurface investigations. The following site investigations were carried out on the 30-31 May and 1 June 2022:

- 14 test pits (TP1-14) which were advanced to a maximum depth of 4.5 m;
- Scala penetrometer tests at the test pit locations;
- 4 soakage tests (SP1-4) to assess the relative permeability and soakage potential of the subsoils. The permeability tests were undertaken at between 0.8 and 1.8 m depth.

Test pit locations and logs are contained in Appendices A and B respectively.

Soakage pit locations and logs are presented in Appendix A and B.



4 Subsurface Conditions

4.1 Geological Setting

4.1.1 Regional Geology

The site is located in the Wakatipu basin, a feature formed predominantly by glacial advances. Published references indicate the last glacial event occurred in the region between 10,000 and 20,000 years ago. Glaciations have left deposits of glacial till, glacial outwash and lake sediment over ice-scoured bedrock. Post glacial times have been dominated by the erosion of the bedrock and glacial sediment, with deposition of alluvial gravel by local watercourses and lacustrine sediment during periods of high lake levels.

Active fault traces were not observed at the site or in the immediate vicinity, and the closest major active fault is the Nevis-Cardrona Fault system located approximately 15 km southeast of the proposed development. However, significant seismic risk exists in this region from potentially strong ground shaking, associated with the rupture of the Alpine Fault, located 80 km northwest from Queenstown along the West Coast of the South Island. There is a high probability that an earthquake with an expected magnitude of over M_w 8 will occur along the Alpine Fault in the next 50 years.

4.2 Stratigraphy

The subsurface soil and rock materials observed during the site investigation typically comprise:

- 0.2 to 0.4 m of topsoil, overlying;

- 0.0 to 1.05 m of loess, overlying;

- 0.4 to 4.1+ m of outwash deposits comprising silt, sand and gravel, overlying;

- Schist bedrock.

Topsoil was observed at the surface of all test and soak pits to depths of between 0.2 and 0.4 m, and comprises firm, organic SILT with a trace of rootlets.

Loess was observed beneath the topsoil in TP 1-2, 8, 10, 12-13 and SP 1-2, to depths of between 0.4 and 1.3 m. The loess comprises loose to medium dense, silty SAND and stiff, sandy SILT.

Outwash silt was observed beneath the topsoil in TP 13 and SP 4 only, to depths of 0.8+ and 1.1 m. The outwash silt comprises firm, sandy SILT.

Outwash sand and gravel was observed beneath the topsoil and loess in all test pits and soak pits, to depths of between 2.5 and 4.4+ m. The outwash sand comprises loose to medium dense, SAND with minor silt and occasional gravel to gravelly SAND with a trace of silt. The outwash gravel comprises loose to medium dense, sandy GRAVEL and sandy GRAVEL with a trace of silt and/or cobbles. The base of the outwash sand and gravel was in TP 7 only, at 2.5 to 3.8 m depth.



Schist bedrock was observed at the base of TP 7 only, from 2.5 to 3.8 m depth. Outcrops of schist bedrock are also present around the the development area, in the locations shown in Figure 1, Appendix A. The slopes above Lots 2 and 3 have prominent exposures of schist rock, see photograph 2.1 above.

The schist bedrock comprises moderately strong, slightly weathered semi-pelitic SCHIST. The schist bedrock is foliated and the foliation was observed to dip to the southwest.

Full details of the subsurface stratigraphy can be found within the test pit logs contained in Appendix B.

4.3 Groundwater

Perched groundwater seepage was observed in TP 1 and 10 at 3.7 m depth. No seepages were observed in the other test pits or soak pits, which extended to maximum 4.5 m depth. An ORC well within the eastern part of the site (F41/0170) identified groundwater at 4.85 m depth.

Other ORC wells in the Hogans Gully show significant variation from less than 2 m to 15 m. We expect these levels to reflect local perched water zones.

The static regional groundwater table is expected to lie at depth beneath the site and be reflected by the deeper well data.



5 Natural Hazards

5.1 Seismic

A significant seismic risk is present across the region, as discussed in Section 4.1 above.

5.2 Liquefaction

The majority of the site is classified as 'possibly susceptible' to liquefaction (Opus, 2005) on the QLDC hazard maps. A subsequent assessment (GNS, 2019) classifies the entire site as 'Domain A: ground predominantly underlain by rock or firm sediments'.

A liquefaction review has been undertaken based on the results of the site investigation and nearby ORC well data.

The following comments are provided with respect to liquefaction:

- Perched groundwater was observed within TP 1 and 10 at 3.7 m depth. The static regional groundwater table underlies the site at depth (approximately 15 m);
- Loose to medium dense, outwash sand and gravel was observed to 2.5 and 4.4+ m depth. These materials typically have a low liquefaction risk due to their composition;
- Schist bedrock was observed from 2.5 to 3.8 m depth in TP 2. Schist bedrock outcrops on the hillsides immediately south of the development area, and within the site;
- Data from the Canterbury earthquake sequence plus other historic earthquakes¹ has been collated and observed surface damage compared with crust thickness. This assessment indicates that crust damage is likely for crusts of less than approximately 3.5 m thickness;
- For liquefaction affect the site it is necessary for the soils to be saturated at relatively shallow depths.
- Based on the above observations the risk of liquefaction is considered very low at the site due to a combination of the depth to groundwater table, the composition of the outwash sand and gravel and the relatively shallow depth to schist bedrock.

Based on the above no liquefaction mitigating foundation design is required.

5.3 Rockfall

Schist outcrops and low bluffs are present on the slopes immediately to the south of Lots 2 and 3. With respect to rock fall/rock roll the following observations are provided:

- Mapping indicates rockfall has occurred from the bluffs. Figure 1, Appendix A, shows the distribution of rock fall debris.
- Debris does not travel far from the source and is confined to the area between the bluffs and the upslope side of the water race.

¹ Bowen, H.J. and Jacka, M.E. (2013). Liquefaction induced ground damage in the Canterbury Earthquake: Predictions versus reality. Proceedings of the 19th NZGS Geotechnical Symposium. Editor CY Chin. Queenstown, New Zealand.



- The number of rocks that has fallen from the bluffs is relatively few (<20 for rocks larger than background fretting levels).
- Debris does not extend beyond the slope toe and into proposed lots 2 and 3. The nearest debris is 30-40 m from the proposed building locations.
- The observed fallen boulders are up to approximately 2 m in length, are elongated and 'slab' like in form, a shape not conducive to long run-out distances.

Based on the above observations, and utilising the natural hazard risk assessment methodology outlined in APP6, we consider the rock fall is unlikely to reach the proposed building areas and severity of impact to be insignificant to minor. The risk is therefore considered Acceptable. As a practical and viable measure to maintain to control the risk, removal/scaling of any loose areas from the bluffs should be undertaken during construction. Geosolve can advise on specific locations for removal.



6 Engineering Considerations

6.1 General

The recommendations and opinions contained in this report are based upon ground investigation data obtained at discrete locations and historical information held on the GeoSolve database. The nature and continuity of subsoil conditions away from the investigation locations is inferred and cannot be guaranteed.

The actual sub-surface may show some variation from those described and all design recommendations contained in this report are subject to confirmation by inspection during construction.

6.2 Geotechnical Parameters

Table 6.1 provides a summary of the recommended geotechnical design parameters for the soil materials expected to be encountered during construction of the proposed development.

Table 6.1 – Recommended geotechnical design parameters

Unit	Thickness (m)	Bulk density γ (kN/m ³)	Effective cohesion c' (kPa)	Effective friction ϕ' (deg)	Elastic modulus E (kPa)	Poissons ratio ν
Topsoil	0.2-0.4	16	N/A	N/A	N/A	N/A
Loess	0.0-1.05	18	0	30	5,000	0.3
Outwash Silt	0.0-0.8	18	0	30	5,000	0.3
Outwash Sand and Gravel	2.3-4.1+	18	0	SAND 30-32 Gravelly SAND and Sandy GRAVEL 34	SAND 5,000 Gravelly SAND and sandy GRAVEL 10,000-20,000	0.3
Schist Bedrock	Unproven (> 100 m)	26	100+	30	100,000	0.3
Schist Bedrock Defects (strength primarily controlled by defects)	N/A	n/A	0 (along defect)	25 (along defect)	N/A	0.2



6.3 Site Preparation

During the earthworks operations all topsoil, uncontrolled fill, organic matter and other unsuitable materials should be removed from the building platform area in accordance with the recommendations of NZ3604.

Robust, shallow graded sediment control measures should be instigated during construction where rainwater and drainage run-off over exposed soils is anticipated.

Exposure to the elements should be limited for all soils and re-establishment of vegetation cover over prepared platforms as soon as practical is recommended.

Water should not be allowed to pond or collect near the building platform areas. Positive grading of the subgrade should be undertaken to prevent water ingress or ponding.

All engineered fill that is utilised as bearing for foundations should be placed and compacted in accordance with the recommendations of NZS 4431:1989 and certification provided to that effect.

We recommend topsoil stripping and subsequent earthworks be undertaken only when a suitable interval of fair weather is expected, or during the earthworks construction season.

6.4 Excavations and Recommended Batters

6.4.1 General

No earthworks plans have been provided to GeoSolve at this stage, however both existing and proposed contours have been provided, indicating cut depths of up to approximately 4 m are proposed.

Maximum cut depths are at the south side of the Lot 2 building platform and at the north side of the Lot 1 building platform. Only minor cuts (approximately 1 m) are proposed for the Lot 3 building platform.

It is expected the cuts will primarily be formed in loess and outwash and gravel. Minor cuts (< 1.5 m) in schist bedrock are possible on Lot 1.

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.

6.4.2 Cuts in Soil Materials

Recommendations for permanent and temporary batters in dry soil are described in Table 5.2 below. Slopes required to be steeper than those described below should be structurally retained or subject to specific engineering design.

If wet soils are encountered we recommend they be inspected by Geosolve who will provide additional recommendations as required. Shallower batters, retaining and/or the installation of drainage, may be required to achieve stability if wet soils are encountered.



Table 6.2 – Recommended batters for cuts up to 4 m in height in dry soil

Material Type	Recommended Maximum Batter for <u>Temporary Cuts</u> ≤ 3 m High (horizontal to vertical)	Recommended Maximum Batter for <u>Permanent Cuts</u> ≤ 3 m High (horizontal to vertical)
Topsoil, Loess, Outwash Silt	1.5H : 1.0V	3.0H : 1.0V
Outwash Sand & Gravel	1.5H : 1.0V	2.0 H : 1.0 V

6.4.3 Cuts in Schist Rock

The proposed cuts for Lot 1 may be partially formed in schist bedrock with an expected cut height in rock of < 1.5 m. 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).

The primary defect present within the schist rock is the foliation which is a persistent plane of weakness with the potential to cause slope instability.

The schist bedrock is foliated and the foliation was observed to be dipping to the southwest. Secondary defect sets are also expected present in the rock mass which can interact with the foliation to form unstable blocks and effect the stability of the proposed cut slopes. The presence, location, condition and impact of the secondary defects is difficult to assess prior to construction.

As the cuts are relatively low, Geosolve recommend that the cuts can be formed at 0.5H:1.0V in the first instance. The cut should then be mapped by Geosolve to confirm any local instability that may arise from the foliation and secondary defects. Given the relatively low height of the cuts, excavation of any identified unstable areas will provide the most practical solution. Structural support, e.g. rock anchors or bolts, can also be used to achieve stability, however re likely to be unnecessary.

6.5 Engineered Fill Slopes

It is inferred from the landscaping plans that fill depths of up to approximately 1-2 m are proposed at the north side of the Lot 2 and 3 building platforms.

The loess and outwash sand are not recommended for re-use as engineered fill but can be used in landscaping areas. Outwash gravel can be re-used as engineered fill.

If site-won fill is to be used, then laboratory compaction tests will need to be undertaken on representative samples prior to the placement of any fill (note: tests take between 2-3 working weeks to complete).

Alternatively, granular fill can be imported from a local source or quarry for consistency. An earth fill specification can be provided by GeoSolve on request.



All engineered fill should be placed, compacted and certified in accordance with the recommendations of NZS4431: 1989 and Queenstown Lakes District Council Standards.

For landscaping purposes (where building loads are not applied), certification is generally not required but we recommend that a compaction methodology should be specified to control risks of instability.

All un-retained fill slopes which are less than 2.0 m in height should be constructed with a maximum batter of 2:1 (horizontal to vertical) or flatter, if well drained. Note, building directly at the crest of a 2 m high, 2:1 fill slope will not be feasible and set-backs of at least 1.5 m are recommended as a preliminary guideline. If building close to the slope crest is required we recommend geotechnical review be completed at the detailed design stage. Slopes can be formed at 3:1 (horizontal to vertical) if building construction close to the crest is envisaged.

To minimise erosion, effective vegetation cover should be established on fill batters and no water flows should be directed to towards fill slope crest.

6.6 Groundwater and Surface Water Issues

The regional static water table is expected to lie well below the indicated finished earthwork levels.

No seepage was observed within the gully south of lot 2 during our site investigation.

A review of aerial photography identified seepage occurring from the existing water race downslope to the Lot 2 building platform, see Figure 6.1 below.



Figure 6.1. Seepage and ponding, in the area of proposed Lot 2.



Test pits TP11 and TP14 were completed in the seepage area and no obvious ground water, or impermeable horizon was observed. The water source is expected to be the water race with possible contribution from the gully above. We recommend upslope contour/subsoil drains are installed along the upslope side of the Lot 2 building platform to manage water flow in this location. Drains should be diverted away from the platform and into the proposed pond below. This should be readily achievable.

All drainage should be constructed as per the recommendations of a geotechnical engineer/engineering geologist. The outlet of all sub-soil or horizontal drains should be connected to the permanent piped stormwater system.

Reduced foundation bearing capacities can result when soils become saturated and care will be needed to keep foundation subgrade materials dry.

GeoSolve should be contacted if any seepage is encountered during construction.

6.7 Settlement and Foundations

Topsoil and loess will not be suitable for foundation bearing, and should be removed from building and engineered fill footprints.

Following completion of earthworks, it is expected that engineered fill, outwash sand and gravel will be exposed across the building platforms. Some areas of schist bedrock are possible on the north side of the Lot 1 building platform.

The results of preliminary testing show the geology in the building platform locations does not consistently meet good ground as per NZS3604.

It is expected geotechnical completion reporting following subdivision construction will address bearing capacity on a lot-to-lot basis and provide recommendations accordingly.

6.8 Site Subsoil Category

The following geotechnical information has been used to characterise the site subsoil class in respect of NZS 1170.5:2004 Structural Design Actions:

- Schist bedrock was observed from 2.5 to 3.8 m depth in TP 2. Schist bedrock was not observed within any other test pits and soak pits, which extended to a maximum depth of 4.5;
- Surficial schist bedrock is present around the site in the locations shown in Figure 1, Appendix A;
- ORC well F41/0170, drilled within the eastern part of the site, identified schist bedrock at 11 m depth.

Based on the best available information, we consider the site subsoil class in terms of NZS 1170.5:2004 Clause 3.1.3 to be Class C (Shallow Soil) for lots 2 and 3. Lot 1 is likely to transition from Class B on the northern side to Class C in the south. Confirmation can be provided in geotechnical completion reporting.



6.9 Pavements

The proposed access roads are expected to traverse several geological units and the CBR values will therefore vary. Removal of Loess and Silt materials from beneath the access road footprints is recommended. CBR values on the underlying granular outwash sand and gravel are assessed from the scala penetrometer test results to be 7+. Compaction, inspection and testing of the subgrade prior to pavement construction is recommended. Any unsuitable materials can be undercut and replaced with engineered fill. Pavement design, testing and construction will need to meet QLDC requirements.



7 Stormwater and Wastewater Soakage Assessment

7.1 General

Soakage testing was undertaken at four locations at depths of at between 0.8 and 1.8 m (refer to Appendix A, B and C for test locations, logs and results respectively).

SPs 1-3 were undertaken within the outwash gravel to assess the suitability of onsite stormwater and wastewater disposal. SP4 was undertaken within the outwash silt to assess the suitability of the material as a liner for the proposed landscaping ponds.

Prior to undertaking soakage testing, deep test pits were excavated adjacent to the soakage pits to log the subsoil conditions and determine a suitable consistent layer for soakage testing. A smaller test pit/soak pit was then excavated adjacent to the deep pits. The dimensions of the soakage pits were recorded to calculate volumes and areas of soakage during testing.

Before soakage testing was undertaken, all soakage pits were pre-soaked by introducing a minimum of 5,000 L from a water cart.

Soakage testing was performed by introducing water from the water cart until the water level of the pit reached the designated testing level. The inflow was then ceased and the time it took for the water level to drop was recorded. Multiple tests were completed in each soakage pit until a representative amount of testing had been achieved for each test location.

Results from the field soakage testing have been analysed to determine indicative infiltration rates which are provided below in Table 1.

7.2 Permeability Analysis

The results from field soakage testing are presented below in Table 1 and Appendix C.

Table 7.1 - Calculated Infiltration Rates.

Test	Test Depth (m)	Soil type at testing level and test subsoil	Unfactored infiltration rate*
Soak Pit 1	1.7	Sandy GRAVEL with a trace of silt (outwash gravel)	320 mm/hr
Soak Pit 2	1.6	Sandy GRAVEL with a trace of silt (outwash gravel)	70 mm/hr
Soak Pit 3	1.8	Sandy GRAVEL with a trace of silt (outwash gravel)	500 mm/hr
Soak Pit 4	0.8	Sandy SILT (outwash silt)	0.5 mm/hr

*Does not include a reduction factor to account for loss of soakage performance over time.



7.3 Preliminary Soakage Design Recommendations and Considerations

Stormwater and wastewater soakage to ground within the topsoil, loess and outwash silt and silt which overlies the outwash gravel is not recommended. Stormwater and wastewater disposal to ground should target the outwash gravel in all cases.

Unfactored infiltration rates are provided above within Table 7.1.

To allow for any loss of soakage performance over time we recommend a reduction factor of at least 0.5 be applied to any adopted value for detailed design purposes.

Schist was observed in TP6 at between 2.5 and 3.8 m bgl. and outcrops in and around the site. Additionally perched groundwater was observed in TP1 at 3.7 m bgl. The depth to schist and groundwater flows has the potential to reduce long-term infiltration rates therefore it is recommended that GeoSolve review the proposed stormwater and wastewater disposal locations and depths during detailed design to confirm the recommendations within our report are still applicable.

With respect to wastewater soakage to ground, in accordance with Table 5.1 AS/NZS 1547:2012, the outwash gravel and outwash sand is classified as Class 1 and Class 2 respectively. Where less than 1 m of outwash gravel underlies the base of wastewater disposal system a Class 2 soil category should be adopted. A QLDC Site and Soils assessment has been completed for the proposed development and is attached within Appendix D.

A geotechnical practitioner who is familiar with the findings of this report should inspect the base of any soakage gallery area during earthworks construction.

Provision should be included for long-term inspection and routine maintenance of any soakage system.

An emergency overflow/overland flow path should be identified for extreme storm events where surcharging is possible.

7.4 Pond Liner

The results of soakage testing show that the outwash silt has an estimated unfactored infiltration rate of 0.5 mm/hr.

Additionally, when used as a lining for ponds these types of materials tend to exhibit a degree of 'self-healing' i.e. a decrease in permeability over time, usually due to the deposition of fines. Quantifying this decrease is not possible until after the fact, however is worth noting. Self-healing should not be relied upon to achieve water retention if the soakage rates provided above are not adequate.

The underlying outwash sand & gravel is considered to be relatively 'free draining' and therefor not suitable for wetland and water retention. Exposures of these materials on the base of the excavation will result in relatively quick drainage from the pond. Final pond



levels will be influenced by evaporation, soakage to ground and re-charge rates. To reduce seepage to ground from the infiltration rates outlined above lining should be considered.



8 Construction Hazards

Vibrations and distances to adjoining structures: The proposed subdivision is located in a rural setting with the nearest buildings more than 30 m away from the proposed building platform locations. Vibrations may cause annoyance to neighbouring occupants, but vibrations are unlikely to result in structural damage. No adverse geotechnical implications apply for neighbouring properties during construction of the proposed development. The soil types are not subject to vibration induced settlement.

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 into the tributary to the north. Only the least amount of subsoil should be exposed at any stage and surfacing established as soon as practical. Silt runoff should not be permitted to enter any watercourse.

Noise: The proposed subdivision is located in a rural location. Standard excavation and compaction plant will be required. QLDC requirements should be met in regard to this issue.

Dust: Regular dampening of soil materials with sprinklers should be effective if required.



9 QLDC Land Development and Subdivision Code of Practice

Section 2.4.4 of the QLDC Land Development and Subdivision Code of Practice (QLDC CoP) requires the developer of any subdivision to appoint a geo-professional to carry out the following functions from the planning to construction phases of the subdivision:

- a) Check regional and district plans, records, and requirements prior to commencement of geotechnical assessment;
- b) Prior to the detailed planning of any development, to undertake a site inspection and such investigations of subsurface conditions as may be required, and to identify geotechnical hazards affecting the land, including any special conditions that may affect the design of any pipelines, underground structures, or other utility services;
- c) Before construction commences, to review the drawings and specifications defining any earthworks or other construction and to submit a written report to the TA on the foundation and stability aspects of the project (if required);
- d) Before and during construction, to determine the extent of further geo-professional services required (including geological investigation);
- e) Any work necessary to manage the risk of geotechnical instability during the construction process;
- f) Before and during construction, to determine the methods, location, and frequency of construction control tests to be carried out, determine the reliability of the testing, and to evaluate the significance of test results and field inspection reports in assessing the quality of the finished work;
- g) During construction, to undertake regular inspection consistent with the extent and geotechnical issues associated with the project;
- h) On completion, to submit a written report (i.e. Geotechnical Completion Report) to the Territorial Authority (TA) attesting to the compliance of the earthworks with the specifications and to the suitability of the development for its proposed use including natural ground within the development area. Where NZS 4431 is applicable, the reporting requirements of that Standard shall be used as a minimum requirement.

This resource consent level report can be considered to have completed items a) and b) from the above list. Once resource consent for the subdivision has been granted a geo-professional will need to be appointed by the developer to review the earthworks drawings and specifications prior to finalising the documentation for tendering and/or construction, and to oversee the construction phase of the project including certification of fill and provide a Geotechnical Completion Report (GCR) and Schedule 2A in accordance with the QLDC CoP.



The GCR and Schedule 2A should detail the results of site observations, testing and monitoring during earthworks construction, confirm the stability of the finished earthworks, and identify any specific geotechnical design requirements that must be addressed in order to construct a building on site. Any identified specific design requirements will then be registered on the subject lots' 'certificate of title' and will need to be addressed during the building consent process.

The geo-professional completing the GCR and Schedule 2A which includes the certification of fill should in all cases be engaged by the developer not the contractor. It is also advisable that the geo-professional review the earthworks contract to assist in managing the developers risk and ensuring that the contract is clear with respect to geotechnical risks and responsibilities during construction.

The use of this report and any of its findings or recommendations as part of the GCR and Schedule 2A may only be used with our prior review and written agreement.



10 Conclusions and Recommendations

- The site is considered suitable for the proposed subdivision from a geotechnical perspective.
- Beneath the surface layer of topsoil, the site is underlain by outwash soils comprising primarily sand and gravel. Bedrock underlies these materials at outcrops are visible around the site.
- Perched groundwater seepages were recorded in 2 test pits in the low-lying area in Lot 3 only. The regional water table is assessed to be at depths of at least 15 m below the site.
- A review of the liquefaction potential at the site indicates the risk from this hazard is low. No Further study, or specific engineering design, is required with respect to liquefaction.
- Low bluffs are present on the south side of proposed lots 2 and 3. Rock fall has occurred from these bluffs however is assessed as an acceptable risk. As a practical measure we recommend removal of loose areas from the bluffs is undertaken during construction.
- The geological materials at the proposed RLs of the building platforms will vary and may not be "Good Ground" in accordance with NZS3604. Lot specific review of foundation bearings, and other development recommendations, should be provided in the post construction Geotechnical Completion Report.
- Pavement CBR values are discussed in Section 6.9. Removal of Loess and silt materials from beneath the pavement footprint and construction on the underlying sand and gravel materials is recommended.
- An intermittent seepage is present above proposed Lot 2. Construction of Lot 2 will need to consider this seepage and ensure suitable drainage is installed to maintain a stable and dry platform.
- Soakage to testing indicates effluent and stormwater disposal to ground is achievable at the site and area will be well suited to this purpose. Final disposal locations should consider targeting areas where sands and gravels are prevalent, and rock is not at shallow depths.
- Due to the relatively high permeability of the sand and gravel creation of a pond in these materials will not be practical. The use of silt materials can be considered, and seepage rates are provided above, however, if the rates are not considered practical once recharge and evaporation rates are considered, lining of the ponds will be needed. Proprietary products are available for this purpose.
- We recommend that once detailed earthworks plans are available, they are subject to geotechnical review.



11 Applicability

This report has been prepared for the sole use of our client, Trojan Holdings, with respect to the particular brief and on the terms and conditions agreed with our client. It may not be used or relied on (in whole or part) by anyone else, or for any other purpose or in any other contexts, without our prior review and written agreement.

Investigations have been undertaken at discrete locations in accordance with the brief provided. It must be appreciated that the nature and continuity of subsoil conditions away from the investigation locations cannot be guaranteed.

During construction, foundation excavations should be examined by an inspector or engineer competent to confirm that subsurface conditions encountered throughout are compatible with the findings of this report. It is important that we be contacted if there is any variation in subsoil conditions from those described in this report.

Report prepared by:

Reviewed for GeoSolve Ltd by:

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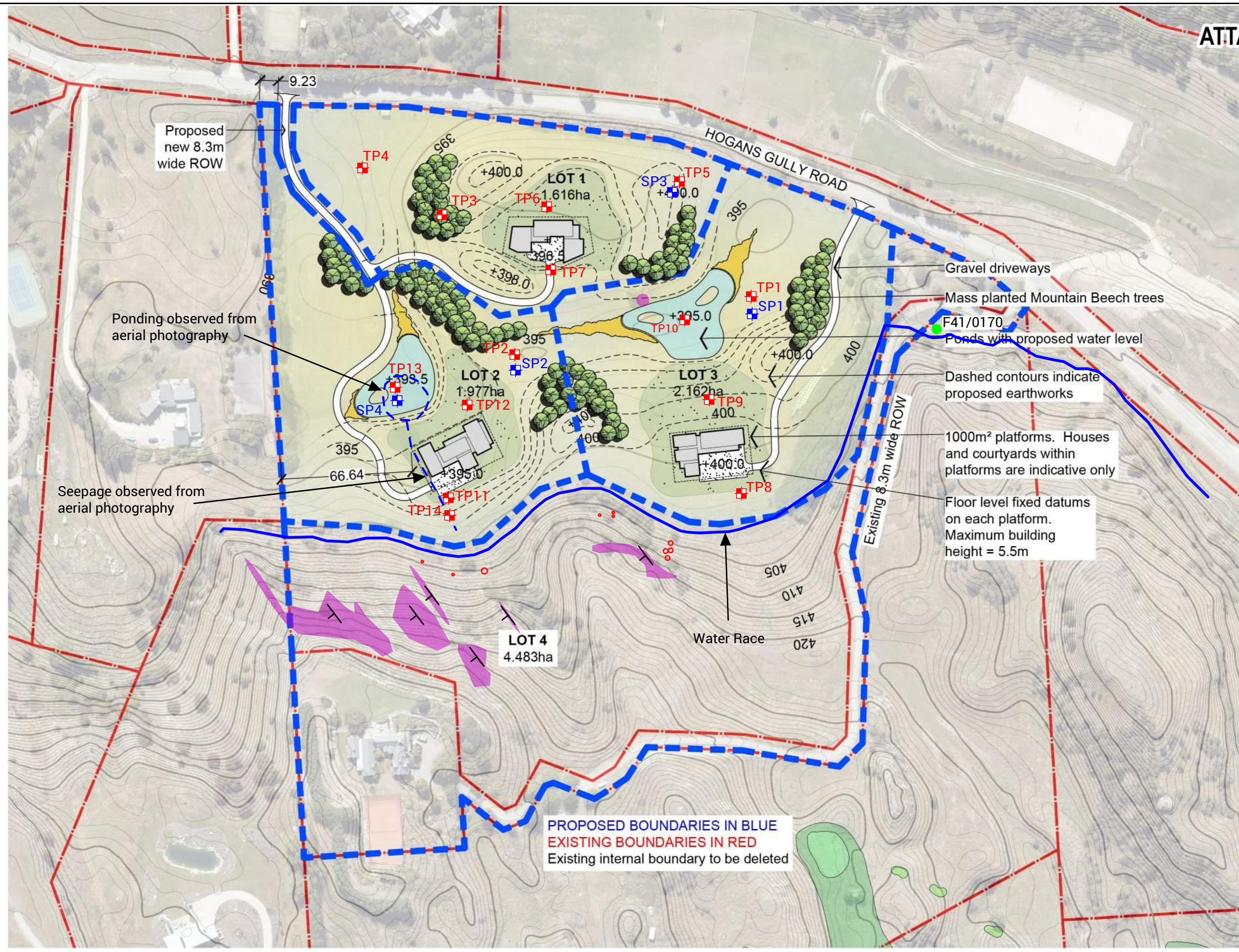
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Marte Stemland
Engineering Geologist

Paul Faulkner
Senior Engineering Geologist

Appendices: Appendix A – Site Plan
 Appendix B – Investigation Data
 Appendix C – Permeability Test Results.
 Appendix D – Site Soils Assessment

Appendix A: Site Plan



Proposed new 8.3m wide ROW

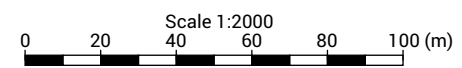
Ponding observed from aerial photography

Seepage observed from aerial photography

- Gravel driveways
- Mass planted Mountain Beech trees
- F41/0170
- Ponds with proposed water level
- Dashed contours indicate proposed earthworks
- 1000m² platforms. Houses and courtyards within platforms are indicative only
- Floor level fixed datums on each platform. Maximum building height = 5.5m

PROPOSED BOUNDARIES IN BLUE
 EXISTING BOUNDARIES IN RED
 Existing internal boundary to be deleted

- Key**
- TP1 = Test Pit
 - SP1 = Soak Pit
 - Schist Bedrock
 - Foliation
 - Boulder
 - ORC Well



CADFILE:	Sketch 1.xar	DRAWN:	MBS	06/2022
SCALE (AT A3 SIZE):	AS SHOWN	DRAFTING CHECKED:	PGF	06/2022
PROJECT No:	210xxx	APPROVED:	PGF	06/2022

GEOSOLVE
ENGINEERING CONSULTANTS

GEOTECHNICAL
 WATER RESOURCES
 PAVEMENTS

Trojan Holdings
 Geotechnical Assessment
 Lot 1 DP 18290, Hogans Gully Rd, Queenstown
 Site Investigation Plan

FIG No: FIGURE 1

REV. 1

Appendix B: Investigation Data

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	
				Scala Penetrometer (Blows per 100mm)	
				0	5 10 15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.1 0.2m		
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.		0.3 0.4 0.5 0.6 0.7m		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0		
OUTWASH SAND	Fine SAND; light brown, massive. Loose; dry.		0.7m		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, bedding dips approx 15° to the west. Loose to medium dense; moist, saturated from 3.7 m; gravel, subrounded to subangular; sand, fine to coarse.		1.1m		
			4m		

Total Excavation Depth = 4.0 m

COMMENT:	Perched groundwater @3.7 m (heavy inflow).	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)			
					0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m					
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.		0.25m					
			0.3m					
			0.4m					
			0.5m					
			0.6m					
			0.7m					
			0.8m					
			0.9m					
			1.0m					
			1.1m					
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		1.3m					
			1.4m					
			1.5m					
			1.6m					
			1.7m					
			1.8m					
			1.9m					
			2.0m					
			2.1m					
			2.2m					
OUTWASH SAND	Fine SAND with minor silt; grey, massive. Loose; dry.		2.3m					
			2.4m					
			2.5m					
			2.6m					
			2.7m					
OUTWASH SAND	Gravelly fine to coarse SAND with a trace of silt; grey, massive. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		2.8m					
			2.9m					
			3.0m					
			3.1m					
			3.2m					
			3.3m					
			3.4m					
OUTWASH SAND	Fine to coarse SAND with minor gravel and a trace of silt; grey, massive. Loose to medium dense; moist; gravel, fine to coarse, subrounded to subangular.		3.4m					
			3.5m					
			3.6m					
			3.7m					
			3.8m					
			3.9m					
			4.0m					
			4.1m					
4.2m								

Total Excavation Depth = 4.2 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0	NO SEEPAGE	0 5 10 15
OUTWASH SAND	Gravelly fine to coarse SAND with a trace of silt; light brown. Loose to medium dense; moist; gravel, fine to coarse, subrounded to subangular.	0.3m	0.1		
			0.2		
OUTWASH SAND	Fine to coarse SAND with some gravel; grey. Loose to medium dense; moist; gravel, fine to medium, subrounded to subangular.	0.6m	0.3		
			0.4		
			0.5		
			0.6		
			0.7		
			0.8		
			0.9		
			1.0		
			1.1		
			1.2		
	1.3				
	1.4				
	1.5				
	1.6				
	1.7				
	1.8				
	1.9				
	2.0				
	2.1				
	2.2				
	2.3				
	2.4				
	2.5				
OUTWASH SAND	Fine to medium SAND with minor silt and gravel; grey, massive. Loose; dry; gravel, fine to medium, subrounded to subangular.	2.5m	2.6		
			2.7		
			2.8		
			2.9		
			3.0		
			3.1		
			3.2		

Total Excavation Depth = 3.2 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage			
				Scala Penetrometer (Blows per 100mm)			
				0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0				
OUTWASH SAND	Gravelly fine to coarse SAND with a trace of silt; light brown, massive. Loose to medium dense; dry; gravel, fine to coarse, subrounded to subangular.	0.3m	0.1				
OUTWASH SAND	Fine to coarse SAND with a trace of silt; light grey, massive. Loose to medium dense; dry.	0.5m	0.2				
			0.3				
			0.4				
			0.5				
			0.6				
			0.7				
			0.8				
			0.9				
			1.0				
			1.1				
			1.2				
			1.3				
			1.4				
			1.5				
			1.6				
			1.7				
			1.8				
			1.9				
			2.0				
			2.1				
			2.2				
			2.3				
			2.4				
			2.5				

Total Excavation Depth = 2.5 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

TEST PIT LOG

EXCAVATION NUMBER:

TP 5

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage			
				Scala Penetrometer (Blows per 100mm)			
				0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0				
		0.3m	0.1				
			0.2				
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL; grey, subhorizontal bedding dips approx 5° downslope (southeast). Loose; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.3				
			0.4				
			0.5				
			0.6				
			0.7				
			0.8				
			0.9				
			1.0				
			1.1				
OUTWASH SAND	Fine SAND with minor silt; grey, massive. Loose; dry.	1.2m	1.2				
			1.3				
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, bedded. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.	1.3m	1.4				
			1.5				
			1.6				
			1.7				
			1.8				
			1.9				
			2.0				
			2.1				
			2.2				
			2.3				
			2.4				
			2.5				
			2.6				
			2.7				
			2.8				
			2.9				
			3.0				
			3.1				
			3.2				
			3.3				
			3.4				
			3.5				
			3.6				
			3.7				
			3.8				
			3.9				
			4.0				
			4.1				
			4.2				
4.2m				NO SEEPAGE			

Total Excavation Depth = 4.2 m

COMMENT:	Test pit dry. Minor collapse from side walls.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.2m		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, grey from 0.7 m, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.2m 2.4m		
OUTWASH SAND	Fine SAND with minor silt and a trace of gravel; grey, massive. Loose; moist; gravel, fine, subrounded to subangular.		2.4m 3.8m		
SCHIST BEDROCK	Semi-pelitic SCHIST; grey, foliation dipping steeply to southwest. Moderately strong; slightly weathered.		3.8m 4m	NO SEEPAGE	

Total Excavation Depth = 4.0 m

COMMENT:	Test pit dry. 3.8 m to schist bedrock in west side of test pit. 2.5 m to schist bedrock in east side of test pit.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.1 0.2 0.3m		0 5 10 15
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, bedding dips approx 10° to the northwest. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.3m 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2m		
OUTWASH SAND	Fine SAND with minor silt and gravel; grey, massive. Loose to medium dense; moist; gravel, fine to medium, subrounded to subangular.		1.2m 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0 4.1 4.2 4.3 4.4m	NO SEEPAGE	

Total Excavation Depth = 4.4 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0		
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.	0.3m	0.1		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, subhorizontal bedding. Medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.	0.5m	0.2		
OUTWASH SAND	Fine to medium SAND; light brown, massive. Medium dense; moist.	0.7m	0.3		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, subhorizontal bedding. Loose to medium dense; moist; gravel, subrounded to subangular; sand, fine to coarse.	0.75m	0.4		
			0.5		
			0.6		
			0.7		
			0.8		
			0.9		
			1.0		
			1.1		
			1.2		
			1.3		
			1.4		
			1.5		
			1.6		
			1.7		
			1.8		
			1.9		
			2.0		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of cobbles; grey, subhorizontal bedding. Medium dense; moist; gravel, subrounded to subangular; sand, fine to coarse; cobbles, subrounded to subangular.	2.1m	2.1		
			2.2		
			2.3		
			2.4		
			2.5		
			2.6		
			2.7		
			2.8		
			2.9		
			3.0		
			3.1		
OUTWASH SAND	Fine to medium SAND with a trace of silt and gravel; grey, weak subhorizontal bedding. Loose to medium dense; moist; gravel, fine, subrounded to subangular.	3.2m	3.2		
			3.3		
			3.4		
			3.5		
			3.6		
			3.7		
			3.8		
			3.9		
			4.0		
			4.1		
			4.2		
			4.3		
			4.4		

Total Excavation Depth = 4.4 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.1 0.2 0.3		0 5 10 15
OUTWASH GRAVEL	Sandy fine to medium GRAVEL; grey, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.3m 0.4 0.5 0.6		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of cobbles; grey, bedding dips approx 15° to the northwest. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse; cobbles, subrounded to subangular.		0.6m 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0		
OUTWASH SAND	Fine to coarse SAND with a trace of silt and gravel; grey, massive. Loose to medium dense; moist; gravel, fine to medium, subrounded to subangular.		2m 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0 4.1 4.2 4.3 4.4	NO SEEPAGE	

Total Excavation Depth = 4.4 m

COMMENT:	Test pit dry. Walls remained stable during excavation. Sand/gravel contact dips away to the south: 2.2 m deep on south side of test pit, 0.8 m deep on north side of test pit.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.1 0.2 0.3m		0 5 10 15
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.		0.4 0.5 0.6 0.7m		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9m		
OUTWASH SAND	Fine to coarse SAND with minor silt and a trace of gravel; grey, massive. Loose; moist; gravel, fine, subrounded to subangular.		2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5m		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, subhorizontal bedding. Loose to medium dense; moist; gravel, subrounded to subangular; sand, fine to coarse.		3.6 3.7 3.8m	Groundwater @ 3.7 m	

Total Excavation Depth = 3.8 m

COMMENT:	Perched groundwater @ 3.7 m. Walls remained stable during excavation. Outwash sand observed from from 0.7 m depth in west side of test pit (outwash gravel layer otherwise observed from 0.7-1.9 m was not present).	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.1 0.2 0.3m		0 5 10 15
OUTWASH SAND	Fine to medium SAND with some gravel and minor silt; brown grey, massive. Medium dense; dry; gravel, fine to medium, subrounded to subangular.		0.4 0.5 0.6 0.7m		
OUTWASH SAND	Fine to medium SAND with minor gravel and silt; grey, massive. Medium dense; dry; gravel, fine to medium, subrounded to subangular.		0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5m		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, subhorizontal bedding. Medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		1.6 1.7 1.8 1.9 2.0 2.1m		
OUTWASH SAND	Fine to medium SAND with minor silt; grey, weak subhorizontal bedding. Loose to medium dense; moist.		2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0 4.1 4.2 4.3 4.4m	NO SEEPAGE	

Total Excavation Depth = 4.4 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0		
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.	0.3m	0.1		
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; brown grey, bedding dips approximately 5° to the northwest. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.	0.4m	0.2		
			0.3		
			0.4		
			0.5		
			0.6		
			0.7		
			0.8		
			0.9		
			1.0		
OUTWASH SAND	Fine to medium SAND with a trace of silt and gravel; grey, massive. Loose to medium dense; dry; gravel, fine to medium, subrounded to subangular.	1.1m	1.1		
			1.2		
			1.3		
			1.4		
			1.5		
			1.6		
			1.7		
			1.8		
			1.9		
			2.0		
			2.1		
			2.2		
			2.3		
			2.4		
			2.5		
			2.6		
			2.7		
			2.8		
			2.9		
			3.0		
			3.1		
			3.2		
			3.3		
			3.4		
			3.5		
			3.6		
			3.7		
			3.8		
			3.9		
			4.0		
			4.1		
			4.2		
			4.3		
			4.4		

Total Excavation Depth = 4.4 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0		
		0.3m	0.1		
OUTWASH SILT	Sandy SILT; grey, massive. Stiff; dry; sand, fine.		0.2		
			0.3		
			0.4		
			0.5		
			0.6		
			0.7		
			0.8		
			0.9		
			1.0		
OUTWASH SAND	Fine to medium SAND with a trace of silt; grey, massive. Loose to medium dense; dry.	1.1m	1.1		
			1.2		
			1.3		
			1.4		
			1.5		
			1.6		
			1.7		
			1.8		
			1.9		
			2.0		
			2.1		
			2.2		
			2.3		
			2.4		
			2.5		
			2.6		
			2.7		
			2.8		
			2.9		
			3.0		
			3.1		
			3.2		
			3.3		
			3.4		
			3.5		
			3.6		
			3.7		
			3.8		
			3.9		
			4.0		
			4.1		
			4.2		
			4.3		
			4.4		
			4.5		

Total Excavation Depth = 4.5 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

TEST PIT LOG

EXCAVATION NUMBER:

TP 14

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)			
					0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0	NO SEEPAGE				
			0.1					
			0.2					
			0.3					
			0.4					
OUTWASH SAND	Silty fine SAND with minor gravel; grey brown, massive. Medium dense; moist; gravel, fine to medium, subrounded to subangular.	0.4m	0.5					
			0.6					
			0.7					
			0.8					
			0.9					
			1.0					
OUTWASH SAND	Fine SAND with minor silt; grey, massive. Medium dense; moist; micaceous.	1.1m	1.1					
			1.2					
			1.3					

Total Excavation Depth = 1.3 m

COMMENT:	Test pit dry. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	17/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)			
					0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0	NO SEEPAGE				
		0.1						
		0.2						
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.	0.3m	0.3					
		0.4						
		0.5						
		0.6						
		0.7						
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.	0.7m	0.7					
		0.8						
		0.9						
		1.0						
		1.1						
OUTWASH SAND	Fine SAND; light brown, massive. Loose; dry.	1.1m	1.1					
		1.2						
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, bedding dips approx 15° to the west. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.	1.2m	1.2					
		1.3						
		1.4						
		1.5						
		1.6						
		1.7						

Total Excavation Depth = 1.7 m

COMMENT:	Soakage testing @ 1.7 m. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	15/06/2022
		SHEET:	1 of 1

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)			
					0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0	NO SEEPAGE				
		0.1						
		0.2						
		0.3						
LOESS	Silty fine SAND; light brown, massive. Loose to medium dense; dry.	0.3m	0.3					
			0.4					
			0.5					
			0.6					
			0.7					
			0.8					
			0.9					
			1.0					
			1.1					
			1.2					
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; light brown, subhorizontal bedding. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.	1.3m	1.3					
			1.4					
			1.5					
			1.6					

Total Excavation Depth = 1.6 m

COMMENT:	Soakage testing @ 1.6 m. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	15/06/2022
		SHEET:	1 of 1

SOAKAGE PIT LOG

EXCAVATION NUMBER:

SP 3

PROJECT:	Lot 1 Hogans Gully Rd		JOB NUMBER:	220368	
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	30/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	30/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)				
					0	5	10	15	
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.		0m 0.1 0.2 0.3m						
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL; grey, subhorizontal bedding dips approx 5° downslope (southeast). Loose; dry; gravel, subrounded to subangular; sand, fine to coarse.		0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1m						
OUTWASH SAND	Fine SAND with minor silt; grey, massive. Loose; dry.		1.2 1.3m						
OUTWASH GRAVEL	Sandy fine to coarse GRAVEL with a trace of silt; grey, bedded. Loose to medium dense; dry; gravel, subrounded to subangular; sand, fine to coarse.		1.4 1.5 1.6 1.7 1.8m	NO SEEPAGE					

Total Excavation Depth = 1.8 m

COMMENT:	Soakage testing @ 1.8 m. Minor collapse from side walls	LOGGED BY:	MBS
		CHECKED DATE:	15/06/2022
		SHEET:	1 of 1

SOAKAGE PIT LOG

EXCAVATION NUMBER:

SP 4

PROJECT:	Lot 1 Hogans Gully Rd			JOB NUMBER:	220368
LOCATION:	See site plan	INCLINATION:			
EASTING:		EQUIPMENT:	14 t excavator	OPERATOR:	Zane
NORTHING:		COORD. SYSTEM:		COMPANY:	Base
ELEVATION:		EXCAV. DATUM:	Ground Level	HOLE STARTED:	31/05/2022
METHOD:	Aerial Photography	ACCURACY:	3 m	HOLE FINISHED:	31/05/2022

Soil / Rock Type	Description	Graphic Log	Depth (m)	Groundwater / Seepage	Scala Penetrometer (Blows per 100mm)			
					0	5	10	15
TOPSOIL	Organic SILT with a trace of rootlets; dark brown. Firm; moist.	0m	0.0	NO SEEPAGE				
			0.1					
			0.2					
			0.3					
OUTWASH SILT	Sandy SILT; grey, massive. Stiff; dry; sand, fine.	0.3m	0.4					
			0.5					
			0.6					
			0.7					
			0.8					
			0.8m					

Total Excavation Depth = 0.8 m

COMMENT:	Soakage testing @ 0.8 m depth. Walls remained stable during excavation.	LOGGED BY:	MBS
		CHECKED DATE:	15/06/2022
		SHEET:	1 of 1