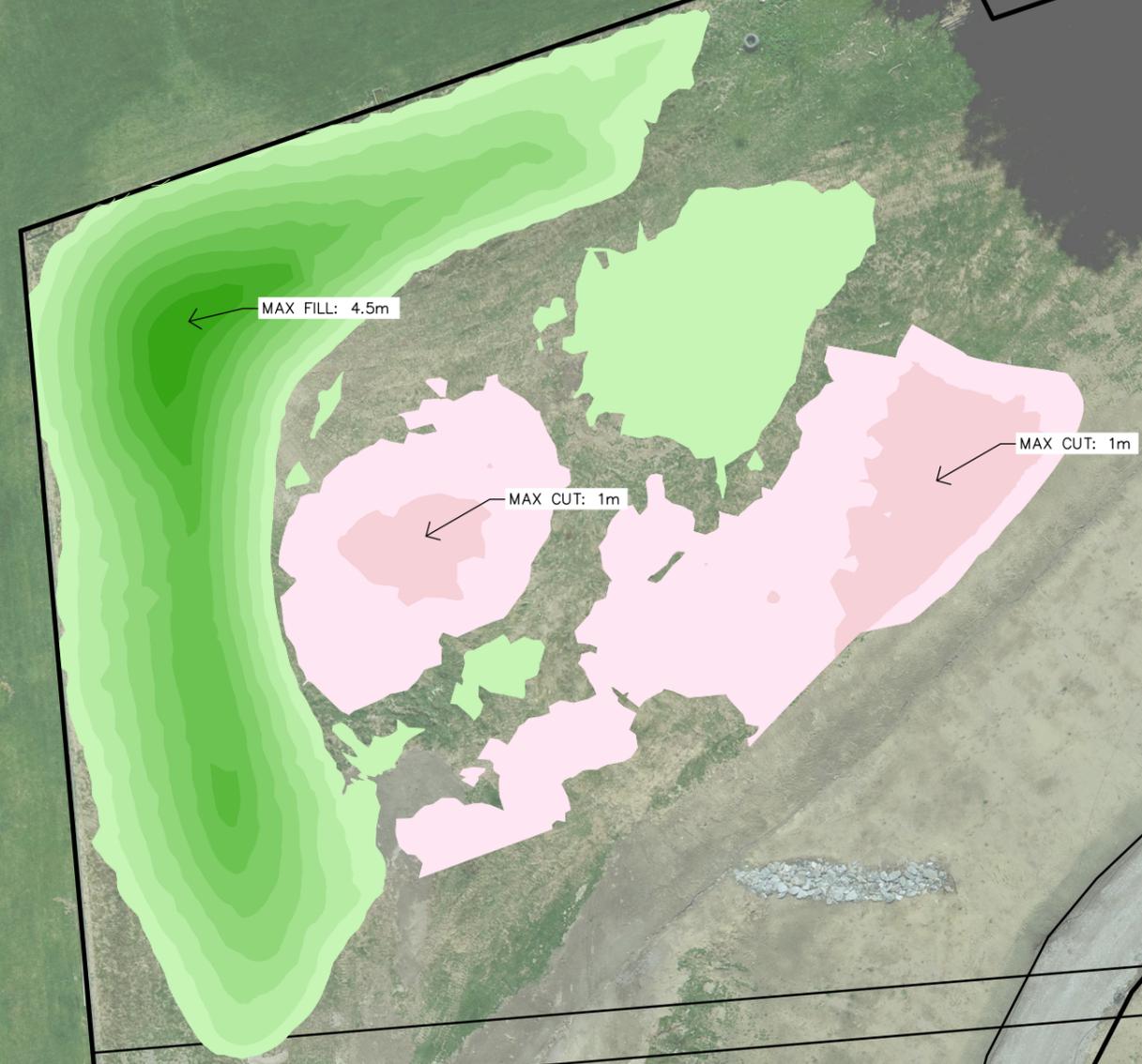




LOT 2  
DP 500028

CUT/FILL LEGEND		
	4.0m	4.5m
	3.5m	4.0m
	3.0m	3.5m
	2.5m	3.0m
	2.0m	2.5m
	1.5m	2.0m
	1.0m	1.5m
	0.5m	1.0m
	0.0m	0.5m
CUT	0.0m	0.5m
	0.5m	1.0m
CUT	225m <sup>3</sup>	
FILL	1525m <sup>3</sup>	
TOTAL	1300m <sup>3</sup>	



PROPOSED  
LOT 3B

PROPOSED  
LOT 3A

FOR CLIENT REVIEW

**CLARK FORTUNE McDONALD**  
LAND SURVEYORS - LAND DEVELOPMENT - PLANNING CONSULTANTS  
QUEENSTOWN | DUNEDIN | CHRISTCHURCH | GORE

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Tel. (03)441-6044, Email admin@cfma.co.nz, www.cfma.co.nz

Rev.	Date	Revision Details	By

### EARTHWORKS PLAN FOR LOT 3B BEING PROPOSED SUBDIVISION OF LOT 3 LT 600882

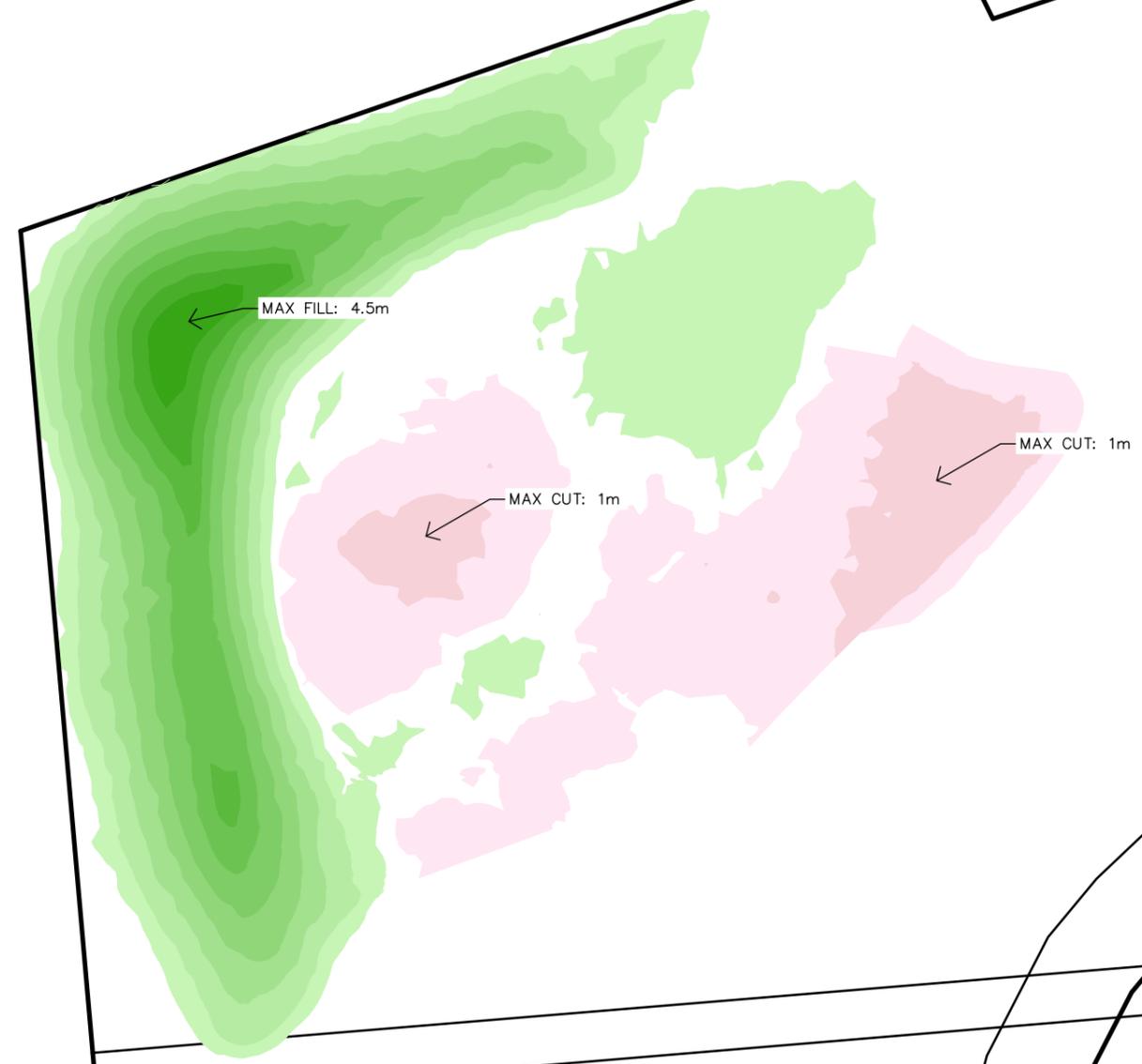
Client	WOODLOT PROPERTIES	Surveyed	-	Date	-	Job No.	12402	Drawing No.	102
		Drawn	AK	Date	8.12.2025	Scale	1:400 @ A3		
		Checked	-	Date	-	Datum & Level	MT NIC 2000	Rev.	-
							NZVD 2016		

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LOT 2  
DP 500028

CUT/FILL LEGEND		
	4.0m	4.5m
	3.5m	4.0m
	3.0m	3.5m
	2.5m	3.0m
	2.0m	2.5m
	1.5m	2.0m
	1.0m	1.5m
	0.5m	1.0m
	0.0m	0.5m
CUT	0.0m	0.5m
	0.5m	1.0m
CUT	225m <sup>3</sup>	
FILL	1525m <sup>3</sup>	
TOTAL	1300m <sup>3</sup>	



PROPOSED  
LOT 3B

PROPOSED  
LOT 3A

FOR CLIENT REVIEW

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SUBDIVISION OF LOT 3 LT 600882**

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		Drawn	AK	Date	8.12.2025	Scale	1:400 @ A3		
		Checked	-	Date	-	Datum & Level	MT NIC 2000	Rev.	-
							NZVD 2016		

Issue 1  
June 12, 2025



# Woodlot Properties Ltd – Little Stream Subdivision & Dwelling

Infrastructure Feasibility Report



Prepared by: **Civilised Ltd**



PO Box 1461  
Queenstown  
Ph 027 223 3036

# Woodlot Properties Ltd – Little Stream Subdivision & Dwelling

## Infrastructure Feasibility Report

**Report prepared For:** Woodlot Properties Ltd

**Report Prepared By:** John McCartney  
[john@civilised.nz](mailto:john@civilised.nz)

**Report Reference:** QV077  
2025-06-12 Infrastructure Report.docx

**Date:** 12<sup>th</sup> June 2025

Issue	Details	Date
1	Draft for comment	12 <sup>th</sup> June 2025

## Executive Summary

Woodlot Properties Ltd proposes to create a two lot subdivision on land at Frogmore Lane, near Queenstown. This will allow the creation of a new rural residential allotment for a future dwelling. Civilised Ltd have assessed the necessary development infrastructure in relation to:

- Water supply
- Wastewater disposal
- Stormwater runoff
- Power Supply
- Telecommunications

We confirm that it is feasible to provide the necessary development infrastructure to service the proposed subdivision.

It is proposed to connect the new allotment to an existing potable water supply bore near the site. This water supply for the existing allotment is from the North West Water Ltd and this water supply will be extended to the new allotment and building platform. This water source will provide a supply of adequate quantity and quality for the proposed subdivision. The water is from a consented water take from a nearby bore (near Littles Road). Firefighting water will be provided by a suitable firefighting reserve maintained in tanks near future dwellings constructed on the new allotments.

Wastewater is able to be treated and soaked to ground on site by way of an individual on site wastewater disposal system. The suitability of the ground for receiving the wastewater flows has been confirmed following test pitting carried out on site. A system has been designed and detailed for the proposed dwelling on Lot 3B.

Stormwater runoff from impervious areas constructed on the site will also be soaked to ground by use of roadside swales and specifically constructed soakage galleries. A suitable soak pit has been designed for the proposed dwelling within proposed Lot 3B.

The service provider for power supply has confirmed that they are able to provide a suitable connection to the proposed subdivision.

There is existing Chorus reticulation on the site and it is expected that this can be extended to the new site. In addition, the site is within the serviced area of several wireless broadband providers. This will ensure that each of the proposed allotments has a suitable telecommunications connection.

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## 1 Introduction

Woodlot Properties Ltd have engaged Civilised Limited to investigate and report on the feasibility of providing utility services and the necessary development infrastructure for their proposed subdivision development on land on Frogmore Lane near Queenstown.

This report considers the nature of the proposed development, the site conditions affecting the implementation of the necessary development infrastructure and describes the proposed implementation of the following elements;

- Water supply and internal reticulation
- Wastewater collection and disposal
- Stormwater control
- Telecommunications
- Power supply

The report is to supplement and support the planning submissions made by Vivian + Espie Ltd on behalf of Woodlot Properties Ltd with regards to the application for consent to subdivide.

## 2 Description of Proposal

Woodlot Properties Ltd proposes to subdivide property at Frogmore Lane, near Queenstown. The land is currently zoned Rural General Zone under the Queenstown Lakes District Council (QLDC) District Plan and Wakatipu Basin Lifestyle Precinct Zone under the Proposed District Plan. A total of 2 rural allotments are proposed. The allotments range in size as follows:

- Lot 3A – 0.7859 m<sup>2</sup> – contains an existing approved building platform with resource consent for a new dwelling that is currently under construction
- Lot 3B – 1.9854 ha – contains a new residential building platform

The new building platform is to be created on gently sloping ground. The proposed new lot is intended for rural lifestyle development and a proposed dwelling has been designed for the allotment. A scheme plan showing the indicative layout of the proposed subdivision is contained in Appendix A.

We note that this assessment of the necessary development infrastructure is limited to consideration of the scale of the subdivision as it is currently proposed.

## 3 Site Description

The proposed development is located on terrain to the south of Littles Road. The site has frontage via a Frogmore Lane (a private access) to Littles Road.

The site consists of large paddocks previously used for stock grazing.

Grades in the vicinity of the building platform can be described as gently sloping. Grades on the remainder of the site can be described as moderately sloping.

The subject site of the development is contained within proposed Lot 3 of the subdivision consented under RM240836. This subdivision is near complete and titles are expected to be issued in the near future.

The elevation of the proposed building platform is approximately RL 409m Mean Sea Level (MSL).

Generally, the land within the proposed new allotment area may be described as pasture.

During our site visits no evidence of large scale land instability was identified within the boundaries of the proposed rural development.

The land receives approximately 850mm of rainfall per annum and may be subject to drought conditions during the summer months.

## 4 Water Supply

### 4.1 Existing Systems

The underlying allotment (Lot 3 RM230062) is serviced by a water supply from North West Water Ltd. This takes water from a consented bore near Little's Road which is reticulated to header tanks within the greater Little Stream site.

This same water source will be used for the proposed subdivision.

### 4.2 Water Demand Assessment

As the site already has a water supply for proposed Lot 3A, the demand assessment has been completed on the basis of one additional rural residential platform that requires water.

This water demand assessment is for the new building platform on proposed Lot 3B.

The existing water supply for the approved dwelling and building platform on proposed Lot 3A remains unchanged.

Peak water demand would be expected during the summer holiday period when household irrigation requirements are high and seasonal populations are at their peak.

The Queenstown Lakes District Council Land Development & Subdivision Code of Practice (QLDC LDSCP) applies to the proposed subdivision and requires 700 l/person/day or 2,100 l/day per lot (assuming an average occupancy of 3 people/lot).

While not explicitly stated it is assumed that the 2,100 l/day/lot provides for the minimum 1,000 l/day of potable demand required under section 15.2.11.3 (iii) of the QLDC District Plan and an additional 1,100 l/day for irrigation and general use (car washing etc).

The assumed demand of 1,100 l/day for irrigation and general use is appropriate given the location and the likely landscaping.

Allowing for some irrigation requirements and the potable demand, the following design figures have been adopted:

- |   |                        |
|---|------------------------|
| ➤ Peak water consumption for proposed new lot   | = 2,100 litres/day/lot |
| ➤ Irrigation Allowance for proposed new lots    | = 1,100 litres/day/lot |
| ➤ Potable Water Allowance for proposed new lots | = 1,000 litres/day/lot |

### 4.3 Water Source

The water source for the subdivision will be from the North West Water Ltd scheme.

North West Water Ltd will supply water to Lots 3A and 3B. As outlined above, this water is sourced from a bore near Littles Road and is owned and operated by a developer and surrounding landowners. This bore currently operates under the permitted activity rules of the Otago Regional Council and can take up to 25,000 litres per day.

North West Water Ltd has confirmed that they will supply water to the proposed Lot 3B. A copy of this confirmation is included with this report in Appendix B.

The water supply is managed and maintained by Mr Ken Higgle of Central Water. Central Water have confirmed that the water meets the Drinking Water Standards for New Zealand and have provided recent test results and a copy of the water bore construction log from South Drill.

### 4.4 Reticulation Concept

The existing North West Water Ltd water supplies will be extended to the new allotment and building platform.

This supply will be a restricted supply in that it will be a trickle supply that feeds water storage tanks that will need to be installed when future dwellings are being constructed within the building platforms.

The individual allotment will be required to install their own storage tanks with proprietary pressure boosting as appropriate.

#### 4.5 Fire Fighting Water

The recent decisions associated with the Proposed District Plan require under Rule 21.7.5 that each new building must make the following provisions for firefighting:

- A water supply of 45,000 litres and any necessary couplings.
- A hardstand area adjacent to the firefighting water supply capable of supporting fire service vehicles.
- Firefighting water connection point within 6m of the hardstand, and 90m of the dwelling.
- Access from the property boundary to the firefighting water connection capable of accommodating and supporting fire service vehicles.

At the time that a dwelling is established on the building platform on Lot 3B, it is proposed that new tanks near the proposed dwelling will need to be constructed to serve as a firefighting reserve. These tanks should be a minimum of 2 x 30,000 litres of which 45,000 litres is to be maintained at all times as a static firefighting reserve. In addition, vehicular access to the tank is to be maintained at all times and a hardstand area constructed adjacent to the tank to allow a fire appliance to park and pump from the tank. The ongoing requirements for the firefighting water supply should be addressed as conditions of consent.

Included within Appendix B of this report is a proposed water supply layout plan for the proposed dwelling on Lot 3B.

#### 4.6 Recommendations

The water supply for the development will be provided for by way of connecting to the North West Water Ltd potable water supply.

The following consent notice should be registered on the title of the new residential allotment:

1. *At the time a dwelling is erected on the lot, domestic water and fire fighting storage is to be provided. A minimum of 45,000 litres shall be maintained at all times as a static fire fighting reserve within a minimum of 2 x 30,000 litre tanks. Alternatively, a 7,000 litre fire fighting reserve is to be provided for each dwelling in association with a domestic sprinkler system installed to an approved standard. A fire fighting connection in accordance with Appendix B - SNZ PAS 4509:2008 (or superseding standard) is to be located no further than 90 metres, but no closer than 6 metres, from any proposed building on the site. Where pressure at the connection point/coupling is less than 100kPa (a suction source - see Appendix B, SNZ PAS 4509:2008 section B2), a 100mm Suction Coupling (Female) complying with NZS 4505, is to be provided. Where pressure at the connection point/coupling is greater than 100kPa (a flooded source - see Appendix B, SNZ PAS 4509:2008 section B3), a 70mm Instantaneous*

*Coupling (Female) complying with NZS 4505, is to be provided. Flooded and suction sources must be capable of providing a flow rate of 25 litres/sec at the connection point/coupling. The reserve capacities and flow rates stipulated above are relevant only for single family dwellings. In the event that the proposed dwellings provide for more than single family occupation then the consent holder should consult with the NZFS as larger capacities and flow rates may be required.*

*The Fire Service connection point/coupling must be located so that it is not compromised in the event of a fire.*

*The connection point/coupling shall have a hardstand area adjacent to it (within 5m) that is suitable for parking a fire service appliance. The hardstand area shall be located in the centre of a clear working space with a minimum width of 4.5 metres. Pavements or roadways providing access to the hardstand area must have a minimum formed width as required by QLDC's standards for rural roads (as per QLDC's Land Development and Subdivision Code of Practice). The roadway shall be trafficable in all weathers and be capable of withstanding an axle load of 8.2 tonnes or have a load bearing capacity of no less than the public roadway serving the property, whichever is the lower. Access shall be maintained at all times to the hardstand area.*

*Underground tanks or tanks that are partially buried (provided the top of the tank is no more than 1 metre above ground) may be accessed by an opening in the top of the tank whereby couplings are not required. A hardstand area adjacent to the tank is required in order to allow a fire service appliance to park on it and access to the hardstand area must be provided as above.*

*The Fire Service connection point/coupling/fire hydrant/tank must be located so that it is clearly visible and/or provided with appropriate signage to enable connection of a fire appliance.*

*Firefighting water supply may be provided by means other than the above if the written approval of the New Zealand Fire Service Central North Otago Area Manager is obtained for the proposed method.*

## 5 Wastewater Disposal

### 5.1 General

No community or Council scheme is available for connection in close proximity to the subject site. It is not sustainable to remove waste from site therefore an individual on site wastewater disposal (OSWWD) system is to be constructed.

## 5.2 Site and Soil Assessment

A site and soil assessment was undertaken for the underlying subdivision approved by resource consent RM230062 and this is included in Appendix D of this report. This assessment has been based on the guidelines of AS/NZS 1547:2012. The site and soil assessment was carried out by undertaking a site visit with a detailed walkover inspection along with a review of the logs for the excavation of test pits within site by ourselves. A copy of the test pit logs, and location drawings are included with this report in Appendix C.

The site and soil assessment for the previous subdivision proposal concluded that the underlying soils were likely to be the primary receiver of the treated effluent from wastewater treatment systems and this was categorised as a Category 4 soils in accordance with Table 5.1 of AS/NZS 1547:2012.

Recently, Geosolve have excavated and logged test pits on the site. Their reporting is included elsewhere with the application to subdivide. The test pits showed the site was underlain by silts and gravels. It is expected that the wastewater disposal will be into the silt layer identified by Geosolve and this confirms a Category 4 soil for design purposes.

## 5.3 On Site Wastewater Disposal

### 5.3.1 General

Disposal of wastewater within the property will be facilitated by the installation of a treatment system producing a quality of effluent that complies with modern standards, which is also suitable for disposal on site.

All work shall comply with:

- Requirements of the Building Act, including NZBC Approved Document G13, New Zealand Standards AS/NZS 1547:2012, AS/NZS 1546.1:1998 Part 1: Septic Tanks and AS/NZS 3500.2.2:1996 National plumbing and drainage code – Sanitary plumbing and drainage.
- Requirements of Queenstown Lakes District Council.
- Conditions of any applicable consents.
- Manufacturers' requirements.

Operation of the constructed wastewater treatment and disposal system shall be as per the Contractors or Suppliers Operations and Maintenance Manual (Clause 4.5) and the documentation in Appendix F.

### 5.3.2 Receiving Environment

As detailed above the subsurface soils have been assessed and consider the loess unit to be the primary receiver of treated effluent. Based on our knowledge of the soakage characteristics of similar soils and considering the proposed use of a secondary treatment system we have assessed

the underlying alluvial material which will be the primary receiver of effluent discharged on site as being classified as a Category 4 soil.

We recommend a conservative maximum DLR of 20mm is used for the design of disposal beds located in the alluvial material. This is consistent with the recommended DLR figures given in Table L1 of AS/NZS 1547:2012. Given the topography of the site and surrounds and the distance to waterbodies nearby significant horizontal and vertical separation exists between the disposal bed and potentially sensitive receiving environments.

### **5.3.3 Recommended Disposal Method**

Based on our knowledge of the subsurface soils it is recommended that Low Pressure Effluent Distribution (LPED) disposal fields be used to facilitate even low-rate intermittent dosing of treated effluent in order to promote further renovation within the soil. The recommended location of the disposal area is indicated on the plan included in Appendix E.

In accordance with the site and soils assessment, we recommend that a secondary level of wastewater treatment is provided to produce a high quality of effluent prior to land application. We envisage the secondary level of treatment will be implemented by the installation of a proprietary wastewater treatment plant utilising a biological packed bed reactor. The following parameters indicate the quality of effluent required:

- |                                     |                      |
|-------------------------------------|----------------------|
| ➤ Biochemical Oxygen Demand (5 day) | <30 mg/litre         |
| ➤ Suspended Solids                  | <30 mg/litre         |
| ➤ Total Nitrogen                    | <30 mg/litre         |
| ➤ Faecal Coliforms                  | 10-10,000 cfu/100 ml |

The system for the treatment and disposal of sewage effluent has been based on the findings of site investigations and assessment of conditions.

### **5.3.4 Design Parameters**

The following parameters have been used in this design:

- The design loading is based on the current New Zealand Standard AS/NZS 1547:2012.
- The OSWWD system allows for the proposed dwelling having a maximum of 5 bedrooms and a maximum occupancy of 8 people
- A daily per person wastewater generation allowance of 200 litres/day allowing for standard water using fittings and fixtures.
- Peak Day design flow (PDF) loading = 1,600 litres/day.
- The disposal area for the sub-surface distribution laterals is based on a conservative design loading rate of 20mm/day (Soil Category 4 Table L1 AS/NZS 1547:2012). This equates to a minimum field area of 80m<sup>2</sup>.
- We confirm that a 100% reserve area of a minimum 80m<sup>2</sup> is also available if required.

### **5.3.5 System Outline**

The proposed on-site wastewater treatment and disposal system will comprise of the following:

- An Oasis Series 2000 Wastewater Treatment System (or equivalent as approved by the Engineer) with a total capacity of 9,400 litres. A submersible electric pump is to be installed in the final pump chamber to enable “dose” loading of the disposal area.
- 80m<sup>2</sup> (min) of disposal area utilising 25mm ID HDPE distribution laterals with 3mm diameter squirt holes at 0.6m intervals within a 65mm or 100mm diameter perforated draincoil. This will be made up of two disposal beds that are 2m x 20m in size (40m<sup>2</sup> each bed).
- Pipework connecting the building to the treatment plant.
- Pipework connecting the treatment plant to the distribution laterals.

Schematic drawings of the proposed on-site wastewater disposal system are included in Appendix E. A copy of the QLDC Onsite Wastewater Disposal Application Form is included with this report in Appendix H.

The Oasis Series 2000 Wastewater Treatment System has been through the On-site Effluent Treatment National Testing Programme overseen by Water NZ. A copy of the Performance Certificate for this system are included with this report in Appendix I.

### **5.3.6 Construction Specification**

#### **5.3.6.1 Connecting Pipework**

All pipework connecting the building foul drainage to the wastewater treatment plant shall be 110mm  $\varnothing$  uPVC sewer class pipe, laid in accordance with the provisions of NZS 2032:2006 and have a uniform grade not less than 1:100. Mainline pipework from the septic tank to the effluent disposal area shall be minimum 25mm ID diameter polyethylene complying with NZS 4130:2009 and be rated to withstand a minimum of 150% of the start-up/shut-off head of the dosing pump.

#### **5.3.6.2 Ancillary Works**

Vehicular access across the disposal area shall be prevented by appropriate means.

If any groundwater flows or seepage is encountered with potential to saturate disposal areas this shall be addressed with sub-surface cut-off drains placed at suitable upstream locations. Further details for ancillary works should be referred to the Engineer.

#### **5.3.6.3 Wastewater Treatment Plant**

The treatment plant shall be located in the general location as indicated on the site plan included on the drawing included as Appendix E. The exact location is to be agreed with the owners on-site prior to installation in conjunction with a site drainage plan detailing the upstream gravity foul sewer reticulation that is to be prepared by others. The tank shall be located a minimum of 3 metres from the driveway, boundary and house or any other structures in an area accessible for servicing and desludging but protected from vehicular traffic.

The wastewater plant shall be an Oasis Series 2000 Wastewater Treatment System (or equivalent as approved by the Engineer) of minimum 9,400L capacity complying with AS/NZS 1546.1. The plant shall provide secondary effluent treatment via textile media packed bed reactor prior to wastewater being discharged to land application.

The treatment plant shall be installed in accordance with the manufacturer's instructions and AS/NZS 1546.1. Inflow into the tank shall be via an inlet tee. Ready access to all openings for desludging and maintenance shall be maintained.

The treatment plant shall be protected from vehicular loads and surface water run-off, but shall be easily accessible to a desludging tanker.

With a pumped system, a high-level alarm is required, together with 12 hours of emergency storage above the alarm level.

Details of the Oasis Series 2000 Wastewater Treatment System are included with this report as Appendix G.

#### *5.3.6.4 Discharge/Dosing Pump*

A high flow dosing pump shall be included with the treatment plant. The pump level controls shall be configured to provide a dose of approximately 200L. This will provide a effluent dose of approximately 5mm and the disposal bed being dosed approximately 8 times per day when operating at peak capacity. The pump operation will be controlled by a float switch calibrated to operate at the correct on/off levels.

#### *5.3.6.5 Distribution Laterals*

Sub-surface distribution laterals shall be 25mm ID uPVC lateral squirt line with 3mm diameter squirt holes drilled at 0.6m staggered centres. The laterals are to be installed inside 65mm or 100mm diameter perforated draincoil, at a minimum depth of 375mm below the final ground surface level. See Appendix E for details.

Care should be taken to ensure that the laterals are laid level and that an even distribution of effluent is achieved. Flushing/inspection ports are to be provided at the end of each lateral to enable regular flushing of the lines.

#### *5.3.6.6 Disposal Area*

The disposal beds shall be excavated to a minimum depth of 600mm below final ground level and be founded within the alluvial gravel horizon. The base of the disposal beds shall be horizontal to within +/- 20mm. The disposal beds shall be a 300mm minimum layer of clean, no-fines drainage gravel topped with a layer of filter cloth with a minimum of 300mm of backfill/topsoil overtop. The top of the 65mm diameter draincoil will be positioned approximately 75mm from the top of the sand and the filter cloth.

The disposal bed areas and typical construction detail is indicated on the drawing included as Appendix D. Surface water run-off shall be directed away from the disposal area by shaping of the surrounding ground or construction of an upslope cut-off drain.

### **5.3.7 Inspection and Pre-Commissioning Tests**

#### *5.3.7.1 Inspection during Construction*

The Contractor shall arrange for the Engineer to inspect the construction of the lateral distribution system, following placement of lateral pipework and prior to backfill. At this stage, the pre-commissioning test will be carried out.

#### *5.3.7.2 Pre-Commissioning Tests*

The Engineer shall be present for the pre-commissioning test.

The treatment plant shall be filled with clean water and the system pump operated to allow the distribution lateral drip lines to be charged.

Flow from the distribution laterals shall be observed to ensure that it is even.

The Contractor shall give the Engineer at least 48 hours' notice of the date and time of testing.

### **5.3.8 Operation and Maintenance Manual**

The Contractor shall provide two copies of the following information to be included in an operation and maintenance manual. The manual which will be prepared by the Contractor shall include:

- Copy of as built drawings.
- Copies of all manufacturers' literature, instructions, and recommendations, including those of the septic tank supplier and outlet screen supplier.

## **6 Stormwater Disposal**

The intended access arrangements and the development of a dwelling and associated buildings on the proposed building platform on the site will alter the existing stormwater run-off patterns from the site catchment.

The proposed stormwater infrastructure on the site will comprise two primary elements as follows:

- 1) Roadside drainage swales to receive and dispose of the runoff from the proposed driveways to the building platforms.
- 2) Future soak pits to be constructed to drain runoff from buildings developed on the site.

Driveway swales will be used to convey stormwater flows either to the lower parts of the site and to provide soakage to allow runoff to drain to ground. Subject to detailed design, roadside drainage swales may include specifically constructed soak pits.

The future dwelling and any associated buildings will primarily reticulate roof runoff to water supply tanks. However, there will be various impermeable parts of the site that will need to direct runoff to specifically constructed soakage galleries to dispose of runoff. These areas will include paved areas and overflow provisions from water tanks to allow for rainwater runoff from rooves when the water storage tanks are full.

Subject to specific design in conjunction with the dwelling or associated building designs, the drainage of impermeable paved areas will be able to be drained to ground by the use of an appropriately design stormwater soak pit.

The runoff from the impervious areas associated with the proposed dwelling will need to be adequately drained and disposed of. A soak pit has been designed to manage flows from the new dwelling and is included in Appendix J.

## 7 Power Supply & Telecommunications

### 7.1 Power Reticulation

Aurora Energy Limited has been contacted regarding the proposed subdivision development. They have provided a letter confirming their ability to make an electricity supply available for this development. A copy of correspondence to and from Aurora is included in Appendix K.

### 7.2 Telecommunications Reticulation

There is existing Chorus reticulation on the site, and it is expected that this can be extended to the new site. In addition, the site is within the serviced area of several wireless broadband providers. This will ensure that each of the proposed allotments has a suitable telecommunications connection.

## 8 Limitations

This report has been written for the particular brief to Civilised Ltd from their client and no responsibility is accepted for the use of the report for any other purpose, or in any other context or by any third party without prior review and agreement.

In addition, this report contains information and recommendations based on information obtained from a variety of methods and sources including inspection, sampling or testing at specific times and locations with limited site coverage and by third parties as outlined in this report. This report does not purport to completely describe all site characteristics and properties and it must be appreciated that the actual conditions encountered throughout the site may vary, particularly where ground

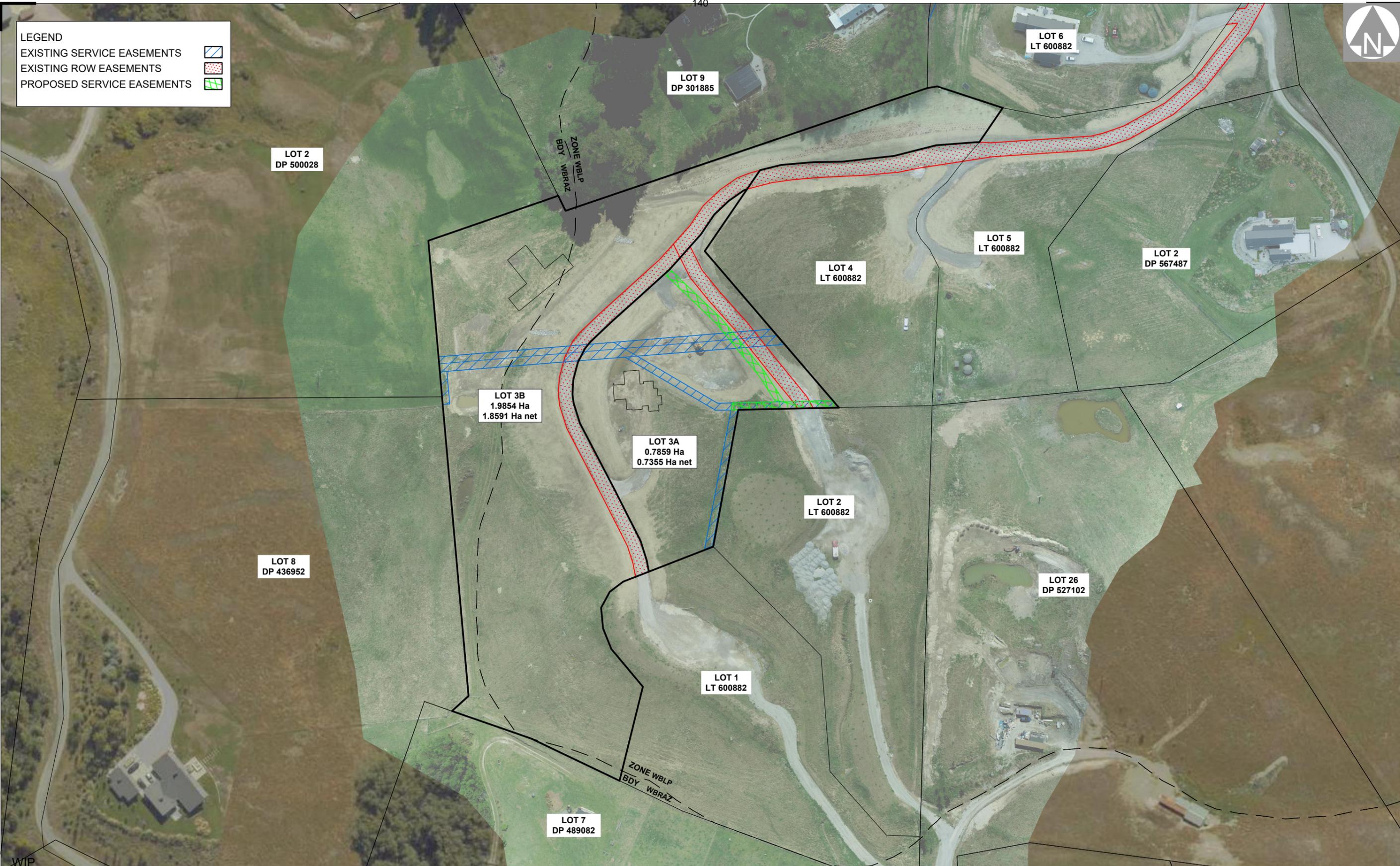
conditions and continuity have been inferred between test locations. If conditions at the site are subsequently found to differ significantly from those described and/or anticipated in this report, Civilised Ltd must be notified to advise and provide further interpretation.

# Appendix A

## Proposed Subdivision and Dwelling Drawings

**LEGEND**

EXISTING SERVICE EASEMENTS	
EXISTING ROW EASEMENTS	
PROPOSED SERVICE EASEMENTS	



Rev.	Date	Revision Details	By

**CLARK FORTUNE McDONALD**  
 LAND SURVEYORS - LAND DEVELOPMENT - PLANNING CONSULTANTS  
 QUEENSTOWN | DUNEDIN | CHRISTCHURCH | GORE  
 309 Lower Shotover Road, P.O.Box 553 Queenstown  
 Tel. (03)441-6044, Email admin@cfma.co.nz, www.cfma.co.nz

**PROPOSED SUBDIVISION OF LOT 3 LT 600882**

Client	WOODLOT PROPERTIES	Surveyed	-	Date	-	Job No.	12402	Drawing No.	101
		Drawn	AK	Date	20.02.25	Scale	1:1500 @ A3		
		Checked	-	Date	-	Datum & Level	MT NIC 2000	Rev.	-

Notes:  
 - All dimensions shown are in meters unless shown otherwise.  
 - Any person using Clark Fortune McDonald drawings and other data accepts the risk of:  
 - Using the drawings and other data in electronic form without requesting and checking them for accuracy against the original hard copy versions.  
 - Ensuring the information is the most recent issue.  
 - Copyright on this drawing is reserved.

S:\JOBS\12400\12402\acad\12402\_101\_PROPOSED SUBDIVISION OF LOT 3 LT 600882.dwg Plotted: 20.02.2025



**PROJECT INFO:**

Address: Lot 3B, Frogmore Lane  
Littles Road  
Queenstown

Legal Description: (within) Lot 24 DP 493649

Title: -

Site Area: 2.545ha (more or less)

Building Area: (over framing) 293.81m<sup>2</sup>  
(over cladding) 300.23m<sup>2</sup>

Site Coverage: 0.11%

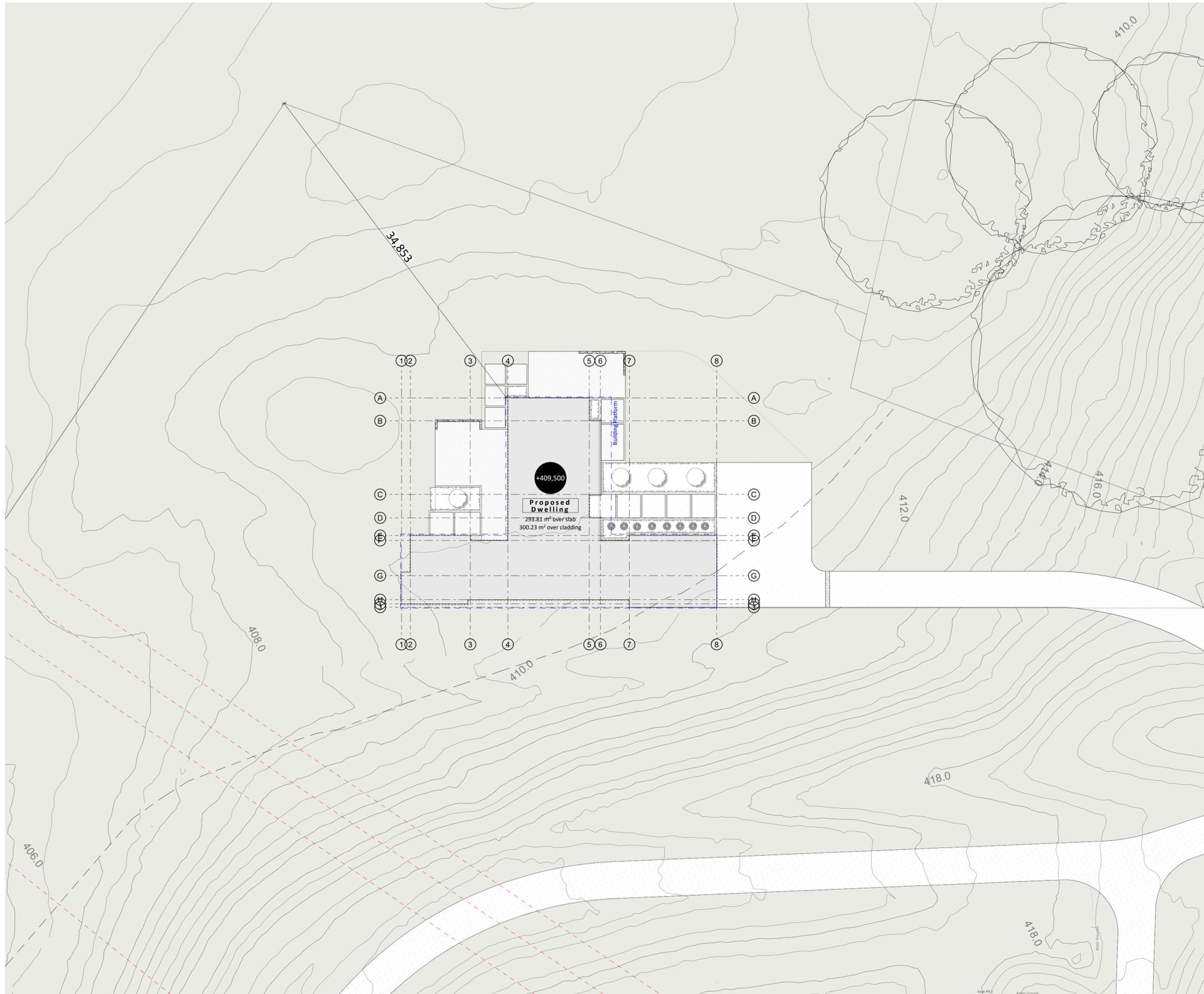
Planning Zone: Wakatipu Basin Lifestyle  
Wind Zone: Extra High  
Earthquake Zone: 3  
Exposure Zone: B  
Sea Spray Zone: No  
Climate Zone: 6  
Altitude: 435m

**SITE PLAN LEGEND**

- Boundary Line
- Boundary setback as per District Plan
- BUILDINGS / PROPOSED BUILDINGS
- Driveway - TBC

**SITE PLAN GENERAL NOTES**

- Contractor to confirm all dimensions on site.
- All drawings to be read in conjunction with engineering/consultants documentation.
- Confirm all existing services on site.
- Contractor to confirm with designer if there is a conflict between consultant documentation and accepts liability for decisions made without consultation.
- All unpaved areas are to be a minimum of 225mm below Finished Floor Level. Paved areas to be a minimum of 150mm.
- SEDIMENT CONTROLS**
- Sediment controls to be taken during the construction process. To be read in conjunction with QLDC Guidance Document Earthworks.
- Provide stabilized entry pad & wash down area for contractor vehicles in accordance with Territorial Authority sediment control for small sites.
- A runoff diversion bund will be included in the site access way if required.
- All sediment on footpaths and roads to be removed as soon as practicable.
- All sediment control measures & structures are to be installed prior to major earthworks and are to be checked and maintained daily as required.
- All ground cover vegetation and trees outside the immediate building area to be preserved during the building phase.
- Stockpiles (if any) to be covered with an impervious sheet.
- Roof water downpipes to be connected to the permanent underground stormwater drainage system as soon as practical after the roof is laid.





**PROJECT INFO:**

Address: Lot 3B, Frogmore Lane  
Littles Road  
Queenstown

Legal Description: (within) Lot 24 DP 493649

Title: -

Site Area: 2.545ha (more or less)

Building Area: (over framing) 293.81m<sup>2</sup>  
(over cladding) 300.23m<sup>2</sup>

2,170  
6,980  
2,210  
1,680  
460  
3,330  
2,280  
400  
310

840 5,680 3,570 7,710 1,070 2,740 8,280

E-04  
A106

E-02  
A104

E-03  
A107



**LOT 3B RESIDENCE**  
 Lot 3B, Frogmore Lane, Littles Road,  
 RD1 Queenstown, Queenstown

**General Notes**  
 Drawings to be printed in colour.  
 Do not scale drawings.  
 Contractors must verify all dimensions on site before starting work or ordering materials.  
 Architectural drawings are to be read in conjunction with the full set of drawings and specifications. Architectural drawings are to be read in conjunction with consultants' documents and vice versa. All work shall comply with the terms and conditions of the building consent and any resource consents issued for this project. Any discrepancies or ambiguity shall be clarified with Design Workshop before any further work commences.  
 All rights reserved. This drawing & all graphic & written material contained herein constitutes the original & unpublished work of Design Workshop Ltd. & may not be copied, distributed, or used in whole or part without expressed written permission. © Design Workshop Ltd

RevID	Change Name	Date
A	Resource Consent Issue	18/03/2025

SCALE 1:50, 1:100  
 SCALE DOUBLED AT A3

DRAWN DBS & KM  
 CHECKED DWA  
 JOB NO. DW1654  
 REVISION NO. A

## Appendix B

# Water Supply Information





North West Water

North West Water Ltd  
PO Box 2162  
Wakatipu  
Queenstown

27/05/2025

Queenstown Lakes District Council  
Private Bag 50072  
Queenstown 9348

To whom it may concern;

**Re: Potable Water for proposed Lot 3B, Frogmore Lane**

North West Water Ltd confirms it can provide a potable water allocation of 2100-2500 litres per day for a proposed intended new (second) dwelling on lot 3 (77 Frogmore Lane) being part of current subdivision of Lot 1 DP567487, Lot 24 DP493649, Lot 27 DP527102 and Lot 2 DP 475338 (RM230062).

North West Water engaged Ken Higgin (Central Water Ltd) to install and now maintain its water system – commissioned May 2022. The bore is situated on Lot 21 DP489082. A copy of the Operating & Maintenance Manual is available on request.

Water is currently able to be taken under Otago Regional Council permit RM23.469.01.

Please advise if you require any further information.

Yours sincerely

A handwritten signature in blue ink that reads "David Broomfield". The signature is written in a cursive, flowing style.

David Broomfield  
Director

## Certificate of Analysis

Page 1 of 4

<b>Client:</b>	Ken Higgle Limited	<b>Lab No:</b>	3801197	DWAPV1
<b>Contact:</b>	Ken Higgle C/- Ken Higgle Limited PO Box 52 Alexandra 9340	<b>Date Received:</b>	07-Mar-2025	
		<b>Date Reported:</b>	13-Mar-2025	
		<b>Quote No:</b>		
		<b>Order No:</b>	304913	
		<b>Client Reference:</b>	North West Water	
		<b>Submitted By:</b>	Brent Fraser	

### Sample Type: Drinking Water for DWSNZ Compliance

Sample Name:		North West 06-Mar-2025 3:45 pm		Aesthetic Values	Maximum Acceptable Values (MAV)
Lab Number:		3801197.1			
Routine Water + E.coli profile Kit					
Escherichia coli	MPN / 100mL	< 1		-	< 1
Routine Water Profile					
Turbidity	NTU	0.19		≤ 5	-
pH	pH Units	7.8		7.0 - 8.5	-
Total Alkalinity	g/m <sup>3</sup> as CaCO <sub>3</sub>	82		-	-
Free Carbon Dioxide	g/m <sup>3</sup> at 25°C	2.4		-	-
Total Hardness	g/m <sup>3</sup> as CaCO <sub>3</sub>	84		≤ 200	-
Electrical Conductivity (EC)	mS/m	18.4		-	-
Electrical Conductivity (EC)	µS/cm	184		-	-
Approx Total Dissolved Salts	g/m <sup>3</sup>	123		≤ 1000	-
Total Arsenic	g/m <sup>3</sup>	0.0015		-	0.01
Total Boron	g/m <sup>3</sup>	0.0058		-	2.4
Total Calcium	g/m <sup>3</sup>	30		-	-
Total Copper	g/m <sup>3</sup>	< 0.00053		≤ 1	2
Total Iron	g/m <sup>3</sup>	< 0.021		≤ 0.3	-
Total Lead	g/m <sup>3</sup>	< 0.00011		-	0.01
Total Magnesium	g/m <sup>3</sup>	2.0		-	-
Total Manganese	g/m <sup>3</sup>	< 0.00053		≤ 0.04 (Staining) ≤ 0.10 (Taste)	0.4
Total Potassium	g/m <sup>3</sup>	0.91		-	-
Total Sodium	g/m <sup>3</sup>	4.2		≤ 200	-
Total Zinc	g/m <sup>3</sup>	0.0038		≤ 1.5	-
Chloride	g/m <sup>3</sup>	2.3		≤ 250	-
Nitrate-N	g/m <sup>3</sup>	0.81		-	11.3
Sulphate	g/m <sup>3</sup>	6.1		≤ 250	-

**Note:** The Maximum Acceptable Values (MAV) are taken from the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022', published under the authority of the New Zealand Government-2022. Copies of this publication are available from: <https://www.legislation.govt.nz/regulation/public/2022/0168/latest/whole.html>

The standards set limits for the concentration of determinands in drinking water. The Maximum Acceptable Values (MAVs) for any determinand must not be exceeded at any time.

The Aesthetic Values are taken the publication, 'Aesthetic Values for Drinking Water Notice 2022' issued by the Water Services Regulator ("Taumata Arowai"). Aesthetic values specify or provide minimum or maximum values for substances and other characteristics that relate to the acceptability of drinking water to consumers (such as appearance, taste or odour).

Note that the units: g/m<sup>3</sup> are the same as mg/L and ppm.



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked \* or any comments and interpretations, which are not accredited.

**pH/Alkalinity and Corrosiveness Assessment**

The pH of a water sample is a measure of its acidity or basicity. Waters with a low pH can be corrosive and those with a high pH can promote scale formation in pipes and hot water cylinders.

The guideline level for pH in drinking water is 7.0-8.5. Below this range the water will be corrosive and may cause problems with disinfection if such treatment is used.

The alkalinity of a water is a measure of its acid neutralising capacity and is usually related to the concentration of carbonate, bicarbonate and hydroxide. Low alkalinities ( $25 \text{ g/m}^3$ ) promote corrosion and high alkalinities can cause problems with scale formation in metal pipes and tanks.

The pH of this water is within the NZ Drinking Water Guidelines, the ideal range being 7.0 to 8.0. With the pH and alkalinity levels found, it is unlikely this water will be corrosive towards metal piping and fixtures.

**Hardness/Total Dissolved Salts Assessment**

The water contains a low amount of dissolved solids and would be regarded as being slightly hard.

**Nitrate Assessment**

Nitrate-nitrogen at elevated levels is considered undesirable in natural waters as this element can cause a health disorder called methaemaglobinaemia. Very young infants (less than six months old) are especially vulnerable. The 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022' sets a maximum permissible level of  $11.3 \text{ g/m}^3$  as Nitrate-nitrogen ( $50 \text{ g/m}^3$  as Nitrate).

Nitrate-nitrogen was detected in this water but at such a low level to not be of concern.

**Boron Assessment**

Boron may be present in natural waters and if present at high concentrations can be toxic to plants.

Boron was found at a low level in this water but would not give any cause for concern.

**Metals Assessment**

Iron and manganese are two problem elements that commonly occur in natural waters. These elements may cause unsightly stains and produce a brown/black precipitate. Iron is not toxic but manganese, at concentrations above  $0.5 \text{ g/m}^3$ , may adversely affect health. At concentrations below this it may cause stains on clothing and sanitary ware.

Neither element was detected in this water, which is a pleasing feature.

Treatment to remove iron and/or manganese should not be necessary.

**Bacteriological Tests**

The Drinking Water Standards for NZ state that there should be no Escherichia coli (E coli) in water used for human consumption. The presence of these organisms would indicate that other pathogens of faecal origin may be present. Results obtained for Total Coliforms are only significant if the sample has not also been tested for E coli.

Escherichia coli was not detected in this sample.

**Final Assessment**

All parameters tested for meet the guidelines laid down in the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022' and the 'Aesthetic Values for Drinking Water Notice 2022' issued by the Water Services Regulator ("Taumata Arowai") for water which is suitable for drinking purposes.

## Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

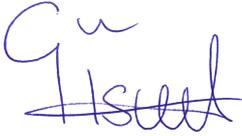
Sample Type: Drinking Water for DWSNZ Compliance			
Test	Method Description	Default Detection Limit	Sample No
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45 µm membrane filter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1
Turbidity	Analysis by Turbidity meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2130 B (modified) : Online Edition.	0.05 NTU	1
pH	pH meter. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 4500-H <sup>+</sup> B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2320 B (modified for Alkalinity <20) : Online Edition.	1.0 g/m <sup>3</sup> as CaCO <sub>3</sub>	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO <sub>2</sub> D : Online Edition.	1.0 g/m <sup>3</sup> at 25°C	1
Total Hardness	Calculation from Calcium and Magnesium. APHA 2340 B : Online Edition.	1.0 g/m <sup>3</sup> as CaCO <sub>3</sub>	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 2510 B : Online Edition.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m <sup>3</sup>	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m <sup>3</sup>	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0053 g/m <sup>3</sup>	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m <sup>3</sup>	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m <sup>3</sup>	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m <sup>3</sup>	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00011 g/m <sup>3</sup>	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m <sup>3</sup>	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.00053 g/m <sup>3</sup>	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m <sup>3</sup>	1
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m <sup>3</sup>	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.0011 g/m <sup>3</sup>	1
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m <sup>3</sup>	1
Nitrate-N	Filtered (if required) sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.05 g/m <sup>3</sup>	1
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) : Online Edition.	0.5 g/m <sup>3</sup>	1
Escherichia coli	MPN count using Colilert 18 (Incubated at 35°C for 18 hours) and 97 wells. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 9223 B : Online Edition.	1 MPN / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 08-Mar-2025 and 13-Mar-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Yu-Hsuan (Coco) Hsueh BSc (Tech)  
Client Services Manager - Environmental

## Certificate of Analysis

Page 1 of 1

<b>Client:</b>	Ken Higgle Limited	<b>Lab No:</b>	3887587	DWPV1
<b>Contact:</b>	Ken Higgle C/- Ken Higgle Limited PO Box 52 Alexandra 9340	<b>Date Received:</b>	14-May-2025	
		<b>Date Reported:</b>	15-May-2025	
		<b>Quote No:</b>		
		<b>Order No:</b>	305071	
		<b>Client Reference:</b>	North West Water	
		<b>Submitted By:</b>	Brent Fraser	

### Sample Type: Drinking Water for DWSNZ Compliance

Sample Name:	North West Water 13-May-2025 1:00 pm	Aesthetic Values	Maximum Acceptable Values (MAV)
Lab Number:	3887587.1		
Escherichia coli	MPN / 100mL	-	< 1

**Note:** The Maximum Acceptable Values (MAV) are taken from the 'Water Services (Drinking Water Standards for New Zealand) Regulations 2022', published under the authority of the New Zealand Government-2022. Copies of this publication are available from: <https://www.legislation.govt.nz/regulation/public/2022/0168/latest/whole.html>

The standards set limits for the concentration of determinands in drinking water. The Maximum Acceptable Values (MAVs) for any determinand must not be exceeded at any time.

**Under Section 73 (2) of the Water Services Act 2021, the laboratory is required to report the results of any analysis or test carried out (for the purposes of testing for compliance with the Drinking Water Standards for New Zealand 2022) that indicates any non-compliance (transgression) with the Maximum Acceptable Values (MAVs) to Taumata Arowai, the water services regulator for Aotearoa.**

The Aesthetic Values are taken the publication, 'Aesthetic Values for Drinking Water Notice 2022' issued by the Water Services Regulator ("Taumata Arowai"). Aesthetic values specify or provide minimum or maximum values for substances and other characteristics that relate to the acceptability of drinking water to consumers (such as appearance, taste or odour).

Note that the units: g/m<sup>3</sup> are the same as mg/L and ppm.

## Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Test	Method Description	Default Detection Limit	Sample No
E.coli Only		1 MPN / 100mL	1
Escherichia coli	MPN count using Colilert 18 (Incubated at 35°C for 18 hours) and 97 wells. Analysed at Hill Laboratories - Microbiology; Unit 1, 17 Print Place, Middleton, Christchurch. APHA 9223 B : Online Edition.	1 MPN / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 15-May-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Jill Martin BSc Grad Dip LT  
Senior Laboratory Technician - Microbiology



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## Appendix C

# Test Pit Information

# Test Pit Log



Project:		Little Stream Subdivision		Project Number:		QV044	
Site Location:		Moorhill Road, Queenstown		Client:		Woodlot Properties Ltd	
Tets Pit Number: TP#1 13/07/2021 Fine and sunny, some high cloud							Sheet 1 of 7
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description	Geological Unit	Depth	
0.5	Seep		Moist	Turf and topsoil, dark brown, moist, grass cover.	Topsoil	0.5	
			Moist	Silty SAND, light brown, moist, Loess	Loess		
1.0			Moist	Silty sandy GRAVEL, brown, more silt content on contact, some cobbles, sub-rounded, alluvial, schist origin.	Gravel	1.0	
1.5			Moist	Grey silty, sandy, GRAVEL, dense compact matrix, water seep on contact, Glacial Till.	Till	1.5	
2.0		End of pit, water ingress at 1.2m deep				2.0	
2.5				2.5			
3.0				3.0			
3.5				3.5			
Date Excavated:		13th July 2021		Equipment:		5 tonne excavator	
Logged By:		JFM		Contractor:		Alpine Earthworks	

# Test Pit Log



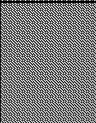
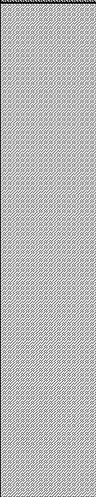
Project:		Little Stream Subdivision		Project Number:		QV044		
Site Location:		Moorhill Road, Queenstown		Client:		Woodlot Properties Ltd		
Tets Pit Number:		TP#2 13/07/2021 Fine and sunny, some high cloud					Sheet 2 of 7	
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description	Geological Unit	Depth		
			Moist	Turf and topsoil, dark brown, moist, grass cover.	Topsoil			
0.5			Moist	Silty SAND, light brown, moist, Loess	Loess	0.5		
1.0			Moist	Silty sandy GRAVEL, brown, more silt content on contact, sub-rounded, alluvial, schist origin.	Gravel	1.0		
1.5				End of pit, no water encountered		1.5		
2.0							2.0	
2.5							2.5	
3.0							3.0	
3.5							3.5	
Date Excavated:		13th July 2021		Equipment:		5 tonne excavator		
Logged By:		JFM		Contractor:		Alpine Earthworks		

# Test Pit Log



Project:		Little Stream Subdivision		Project Number:		QV044		
Site Location:		Moorhill Road, Queenstown		Client:		Woodlot Properties Ltd		
Tets Pit Number:						TP#3 13/07/2021 Fine and sunny, some high cloud		Sheet 3 of 7
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description	Geological Unit	Depth		
			Moist	Turf and topsoil, dark brown, moist, grass cover.	Topsoil			
0.5			Moist	Silty SAND, light brown, moist, Loess	Loess	0.5		
1.0			Moist	Silty sandy GRAVEL, brown, more silt content on contact, sub-rounded, alluvial, schist origin.	Gravel	1.0		
1.5						1.5		
2.0				End of pit, no water encountered		2.0		
2.5						2.5		
3.0						3.0		
3.5							3.5	
Date Excavated:		13th July 2021		Equipment:		5 tonne excavator		
Logged By:		JFM		Contractor:		Alpine Earthworks		

## Test Pit Log

Project:	Little Stream Subdivision	Project Number:	QV044			
Site Location:	Moorhill Road, Queenstown	Client:	Woodlot Properties Ltd			
Tets Pit Number:	TP#4 13/07/2021 Fine and sunny, some high cloud		Sheet 4 of 7			
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description	Geological Unit	Depth
0.5			Moist	Turf and topsoil, dark brown, moist, grass cover.	Topsoil	0.5
			Moist	Silty SAND, light brown, moist, Loess	Loess	
1.0			Moist	Grey silty, sandy, GRAVEL, dense compact matrix, Glacial Till.	Till	1.0
1.5						1.5
2.0				End of pit, no water encountered		2.0
2.5						2.5
3.0						3.0
3.5						3.5
Date Excavated:	13th July 2021	Equipment:	5 tonne excavator			
Logged By:	JFM	Contractor:	Alpine Earthworks			

# Test Pit Log



Project:		Little Stream Subdivision		Project Number:		QV044		
Site Location:		Moorhill Road, Queenstown		Client:		Woodlot Properties Ltd		
Tets Pit Number:						TP#5 13/07/2021 Fine and sunny, some high cloud		Sheet 5 of 7
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description	Geological Unit	Depth		
			Moist	Turf and topsoil, dark brown, moist, grass cover.	Topsoil			
0.5			Moist	Silty sandy GRAVEL, brown, more silt content on contact, sub-rounded, alluvial, schist origin.	Gravel	0.5		
1.0						1.0		
1.5			Moist	Grey silty, sandy, GRAVEL, dense compact matrix, Glacial Till.	Till	1.5		
2.0				End of pit, no water encountered		2.0		
2.5						2.5		
3.0						3.0		
3.5							3.5	
Date Excavated:		13th July 2021		Equipment:		5 tonne excavator		
Logged By:		JFM		Contractor:		Alpine Earthworks		

# Test Pit Log

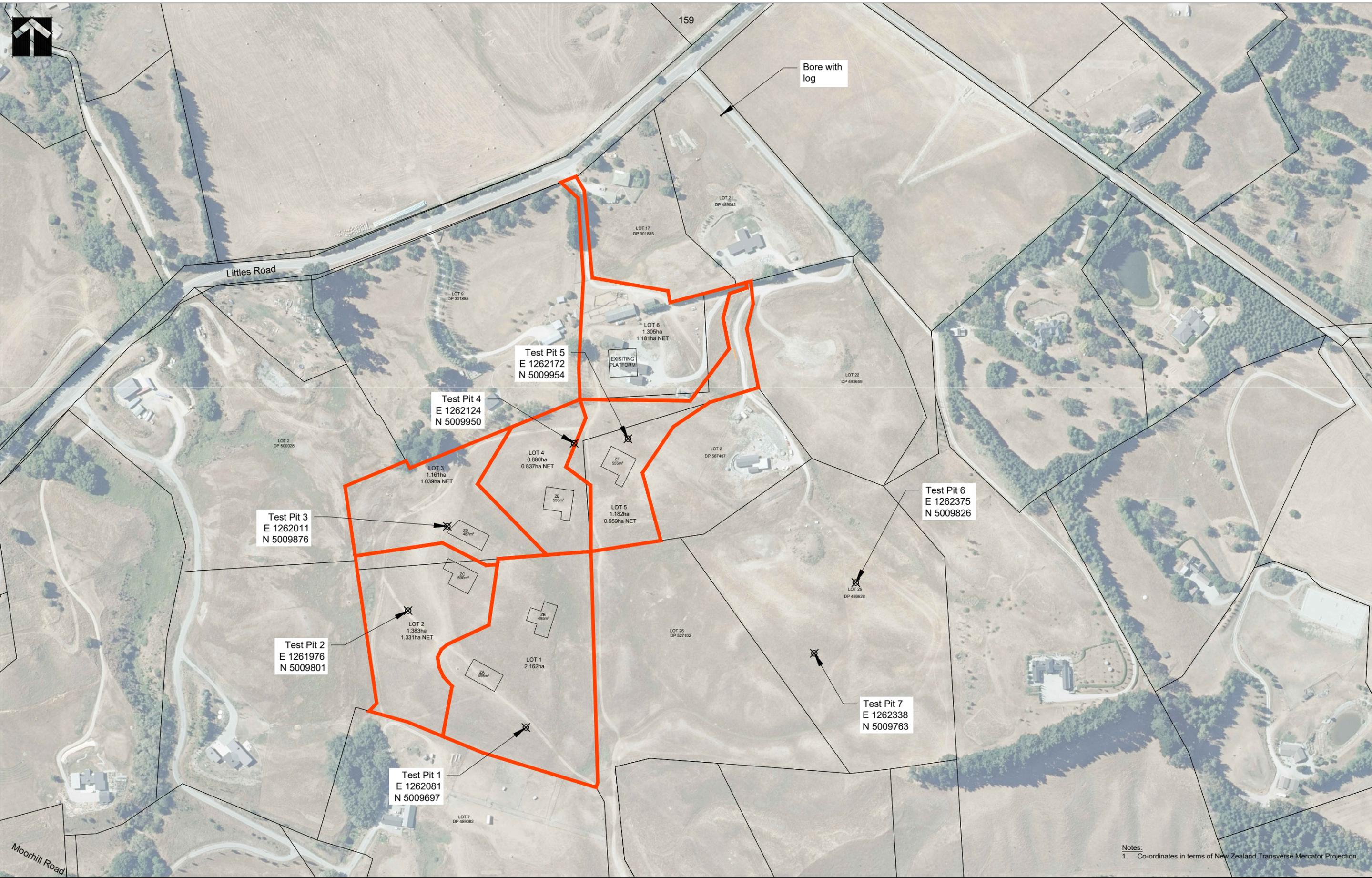


Project:		Little Stream Subdivision		Project Number:		QV044		
Site Location:		Moorhill Road, Queenstown		Client:		Woodlot Properties Ltd		
Tets Pit Number:						TP#6 13/07/2021 Fine and sunny, some high cloud		Sheet 6 of 7
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description		Geological Unit	Depth	
0.5			Moist	Turf and topsoil, dark brown, moist, grass cover.		Topsoil	0.5	
			Moist	Silty SAND, light brown, moist, Loess		Loess		
			Moist	Silty sandy GRAVEL, brown, more silt content on contact, sub-rounded, alluvial, schist origin.		Gravel		
1.0	Seepage			Schist ROCK, bedrock, soft on contact, harder with depth, seepage on contact			1.0	
1.5				End of pit, water ingress at 1.0m deep			1.5	
2.0							2.0	
2.5							2.5	
3.0							3.0	
3.5							3.5	
Date Excavated:		13th July 2021		Equipment:		5 tonne excavator		
Logged By:		JFM		Contractor:		Alpine Earthworks		

# Test Pit Log



Project:		Little Stream Subdivision		Project Number:		QV044		
Site Location:		Moorhill Road, Queenstown		Client:		Woodlot Properties Ltd		
Tets Pit Number:						TP#7 13/07/2021 Fine and sunny, some high cloud		Sheet 7 of 7
Depth (m)	Water Level	Graphic Log	Moisture	Soil Rock Description	Geological Unit	Depth		
0.5			Moist	Turf and topsoil, dark brown, moist, grass cover.	Topsoil	0.5		
			Moist	Silty SAND, light brown, moist, Loess	Loess			
			Moist	Silty sandy GRAVEL, brown, more silt content on contact, sub-rounded, alluvial, schist origin.	Gravel			
1.0	Seepage			Schist ROCK, bedrock, soft on contact, harder with depth, seepage on contact		1.0		
1.5				End of pit, no water encountered		1.5		
2.0							2.0	
2.5							2.5	
3.0							3.0	
3.5							3.5	
Date Excavated:		13th July 2021		Equipment:		5 tonne excavator		
Logged By:		JFM		Contractor:		Alpine Earthworks		



Notes:  
1. Co-ordinates in terms of New Zealand Transverse Mercator Projection.

REV	DATE	DESCRIPTION	APPROVED
C	19/12/2022	Updated for the latest subdivision layout	JFM
B	08/06/2022	Updated for the latest subdivision layout	JFM
A	06/08/2021	Initial Issue	JFM

CONSULTANT



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E: john@mccartneys.nz

JFM	06/08/2021
DESIGN	DATE
JFM	06/08/2021
DRAWN	DATE
JFM	06/08/2021
CHECKED	DATE

CLIENT

**WOODLOT PROPERTIES LIMITED**

PROJECT/LOCATION

**LITTLE STREAM SUBDIVISION  
MOORHILL ROAD, QUEENSTOWN**

TITLE

**WASTEWATER DRAINAGE  
TEST PIT LOCATION PLAN**

CONTRACT NUMBER		-
SCALE (AT A3)		1:3000
DRAWING NUMBER	REVISION	
QV044-D-550	C	

# Appendix D

## Site and Soil Assessment

# Onsite Wastewater Disposal Site & Soils Assessment



Use for Subdivision or Land Use Resource Consent

The design standard for waste water treatment and effluent disposal systems is AS/NZS 1547:2012. All references in this form relate to this standard.

Applications should provide sufficient information to demonstrate that all lots will be capable of accommodating an on-site system.

## Site Description

Property Owner: Woodlot Properties Ltd

Location Address: Littles Road

Wakatipu Basin

Queenstown

Legal Description (eg Lot3 DP1234) : Lot 1 DP 567487, Lot 24 DP 493649, Lot 27 DP 527102 & Lot 2 DP 475338

List any existing consents related to waste disposal on the site: Nil

General description of development / source of waste water: Six lot subdivision with six building platforms.

The number and size of the lots being created: Six lots, minimum size 0.880 ha

## Site Assessment (refer to Tables R1 & R2 for setback distances to site features)

Land use Farmland  
Varies from flat to moderately sloping in the area of the proposed building platforms.

Topography

Slope angle

Varies, Max: 0 to 1:8 approximately at a BP

Aspect

Generally northwest at the building platforms

Vegetation cover

Grass

Areas of potential ponding

None expected

Ephemeral streams

None in vicinity

Drainage patterns and overland paths Sheet flow leading to gullies off site eventually draining to the Shotover River.

Flood potential (show with return period on site plan) Nil

Distance to nearest water body > 100 m from disposal field

Water bores with 50m (reference ORC Maps) Nil

Other Site Features Nil

Slope stability assessment details – summarise any areas unsuitable for waste water irrigation. (Attach report if applicable): No significant slope stability issues noted on site.

(Highest potential) Depth to ground water:

Summer > 2m

Winter ~ 1m

Information Source Assessed given the test pit and topography

What is the potential for waste water to short circuit through permeable soils to surface and / or ground water?

With appropriate design and disposal field siting, potential for short circuiting will be minimal.

**Soil Investigation (Appendix C)**

Field investigation date: July 2021

Number of test pit bores (C3.5.4): 7 test pits + 1 bore log (refer Appendix B for bore log)

Soil investigation addendum to be attached that includes a plan showing test pit or bore location, log results and photos of the site profile.

If fill material was encountered during the soil investigation state how this will impact on the waste water system: No fill encountered on site.

Average depth of topsoil: 200mm

Indicative permeability (Appendix G) : > 1000 mm/day

Percolation test method (refer to B6 for applicability) : Assessed  
(attach report if applicable)

Soil Category (Table 5.1)	Soil Texture (Appendix E)	Drainage	Tick One
1	Gravel and sands	Rapid	
2	Sandy loams	Free	
3	Loams	Good	
4	Clay loams	Moderate	✓
5	Light clays	Moderate to slow	
6	Medium to heavy clays	Slow	

Reasons for placing in stated category:

Site is underlain by loess which in turn is underlain by

Alluvial gravels and Glacial Till. Schist bedrock underlies the site. It is anticipated that disposal will

be into either the loess, till, or sandy gravel layers.

Loading rate, DLR (Table L1): 20 mm/day

Explanation for proposed loading rate: This is a conservative design loading rate for secondary treated effluent draining into category 4 soils.

**Recommendations from site and soils assessment**

Specify any design constraints  
Specify any areas unsuitable for location of the disposal field  
Specify any unsuitable treatment and/or disposal systems  
Propose suitable mitigation to enable successful effluent treatment

1) The estimated wastewater generation from the future dwellings is 1,000 litres per day (based on five people at 200 litres per person per day).

2) The loading rate in the disposal trenches will be 20mm/day.

3) The area of the disposal field will be 50m<sup>2</sup>.

4) Due to the presence of water supply bores, all treatment is to include secondary treatment elements to treat effluent to a high standard.

**Attachments Checklist**

- Copy of existing consents
- Soil investigation addendum
- To scale site plan, the following must be included on the plan:
  - Buildings
  - Boundaries
  - Retaining Walls
  - Embankments
  - Water bodies
  - Flood potential
  - Other septic tanks / treatment systems
  - Water bores
  - Existing and proposed trees and shrubs
  - Direction of ground water flow
  - North arrow

Note that an Otago Regional Council (ORC) consent may also be required to discharge domestic waste water to land if any of the following apply:

- Daily discharge volume exceeds 2,000 litres per day
- Discharge will occur in a groundwater protection zone
- Discharge will occur within 50 metres of a surface water body (natural or manmade)
- Discharge will occur within 50 metres of an existing bore/well
- Discharge will result in a direct discharge into a drain/water ace/ground water
- Discharge may runoff onto another persons' property

If any of these apply then we recommend that you correspond with the ORC;

Otago Regional Council  
 "The Station" (upstairs)  
 Cnr. Camp and Shotover Streets  
 P O Box 958  
 Queenstown 9300  
 Tel: 03 442 5681

I believe to the best of my knowledge that the information provided in this assessment is true and complete. I have the necessary experience and qualifications as defined in Section 3.3 AS/NZS 1547:2012 to undertake this assessment in accordance with the requirements of AS/NZS 1547:2012:

Company: Civilised Limited

Email: john@civilised.nz

Phone number: 027 2233036

Name: John McCartney

Signature: 

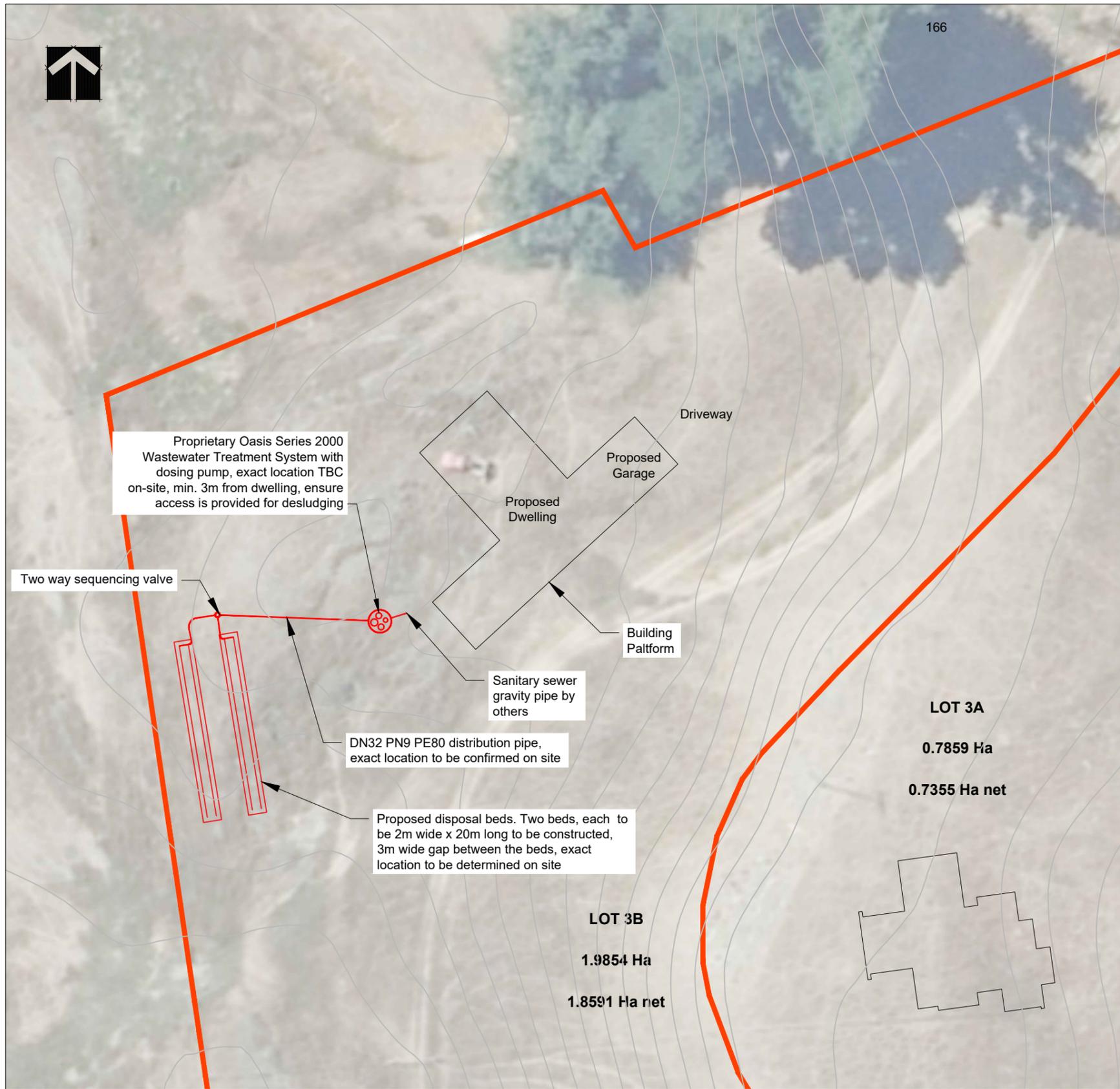
Date: 19<sup>th</sup> December 2022

Queenstown Lakes District Council  
 Private Bag 50072  
 10 Gorge Road  
 QUEENSTOWN 9348

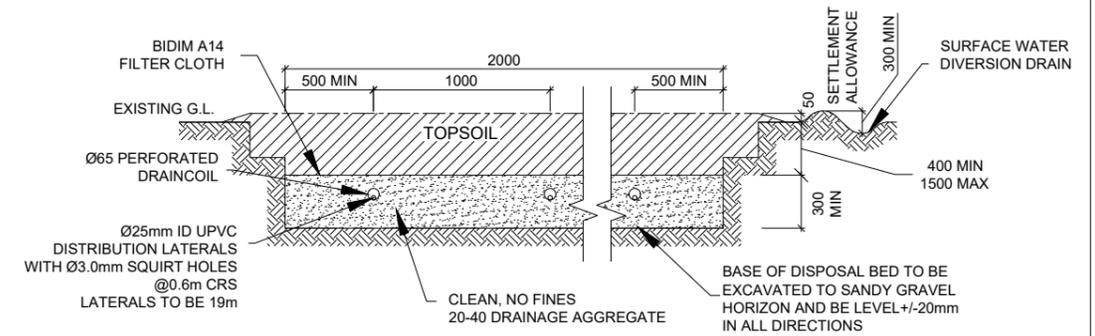
**Phone:** 03 441 0499  
**Fax:** 03 442 4778  
**Email:** services@qldc.govt.nz  
**Website:** www.qldc.govt.nz

## Appendix E

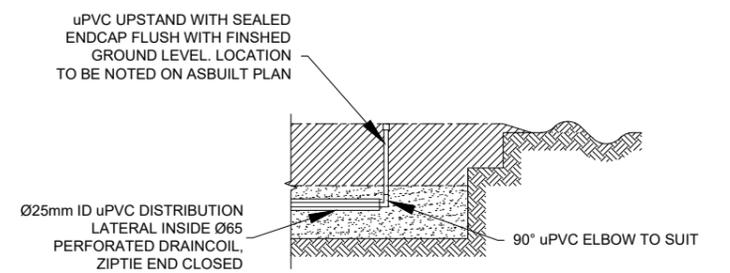
# Wastewater Drawings



**ON-SITE WASTEWATER PLAN**  
SCALE 1:500



**TYPICAL DISPOSAL BED CROSS SECTION**  
SCALE 1:40



**TYPICAL DISTRIBUTION LATERAL FLUSHING POINT DETAIL**  
SCALE 1:40

- NOTES:**
- ENGINEER TO INSPECT GROUND CONDITIONS PRIOR TO DISPOSAL FIELD INSTALLATION. NOTIFY ENGINEER ONCE EXCAVATED.
  - LOCATIONS OF TREATMENT PLANT AND DISPOSAL FIELD INDICATIVE ONLY. EXACT LOCATION TO BE DETERMINED ON-SITE. MAINTAIN MINIMUM 3.0m CLEARANCE FROM FOUNDATIONS.
  - GRAVITY DRAINAGE INDICATIVE ONLY. REFER TO DRAINAGE PLAN BY OTHERS.
  - ENSURE THAT A SUITABLE WASTEWATER DOSING PUMP IS CONFIRMED WITH SUPPLIER AT TIME OF ORDER.

REV	DATE	DESCRIPTION	APPROVED
A	12/06/2025	Initial Issue	JFM

CONSULTANT



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JFM	12/06/2025	CLIENT
DESIGN	DATE	
JFM	12/06/2025	
DRAWN	DATE	
JFM	12/06/2025	
CHECKED	DATE	

WOODLOT PROPERTIES LTD

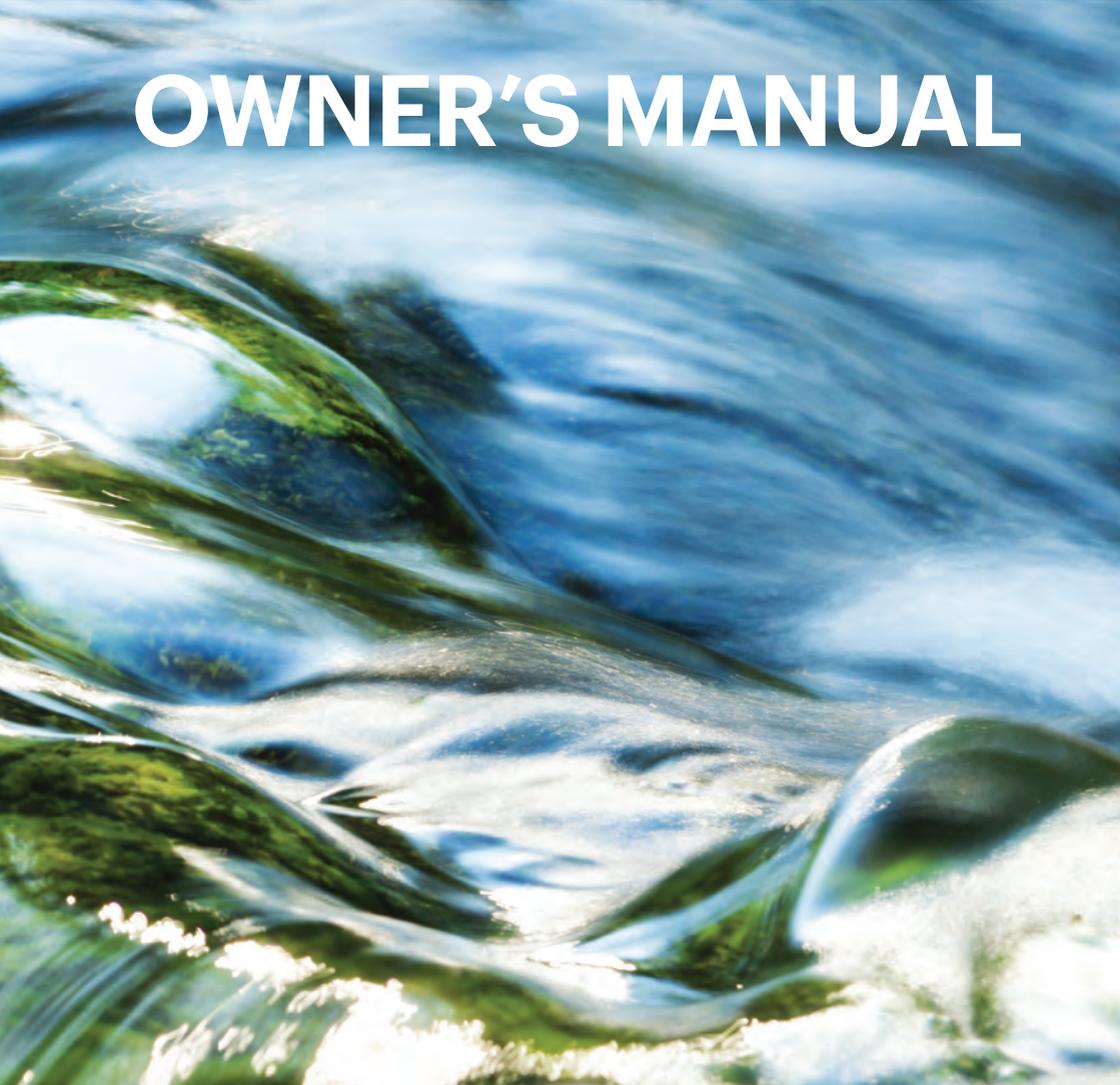
PROJECT/LOCATION  
**PROPOSED DWELLING - LOT 3B RM230062  
FROGMORE LANE - QUEENSTOWN**

TITLE  
**ON SITE WASTEWATER DISPOSAL SYSTEM  
RETICULATION, TREATMENT PLANT & DISPOSAL**

CONTRACT NUMBER	-
SCALE (AT A3)	As Shown
DRAWING NUMBER	QV077-D-510
REVISION	A

## Appendix F

# Wastewater System Homeowners Manual



# OWNER'S MANUAL

## **OASIS SERIES 2000** WASTEWATER TREATMENT SYSTEM

# PLEASE READ

**Congratulations on your purchase of the Oasis Series 2000 Wastewater Treatment System.**

**We urge you to fully read this Manual. The contents are important to your safety and the operation of the Oasis Series 2000 Wastewater Treatment System.**

**Keep this Manual with other important household manuals for future reference.**

If you have questions regarding the safety and operation of your Series 2000 Sewerage Treatment System, contact your local authorised Service Technician.

- Do not attempt to service components of the system yourself, call your accredited Service Technician.
- Only authorised Service personnel are to remove covers on the Treatment System.

**Important: All work must conform to local building, electrical and plumbing codes.**

**INSTALLER:** .....

**CONTACT:** .....

**SERVICE PROVIDER:** .....

**CONTACT:** .....

**INSTALLATION ADDRESS:** .....

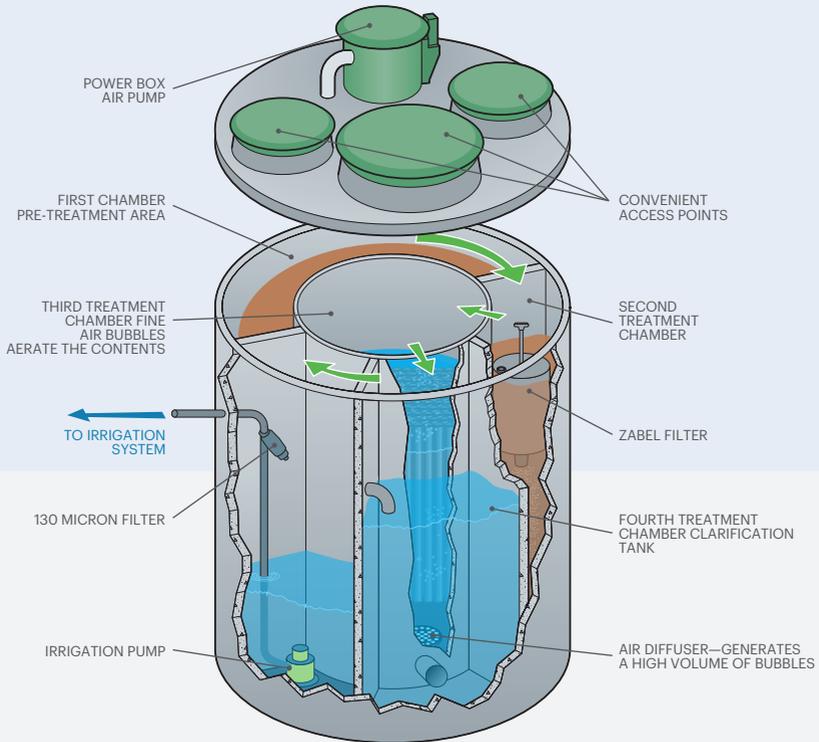
**INSTALLATION DATE:** .....

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How the system works	3
Putting stuff into the system	4
System maintenance and monitoring	8
Troubleshooting	10
Service procedure	14
Instructions for controller	15
Alarm codes	17
Who to contact	18
Limited warranty	19

# AN OVERVIEW



**Note:** Diagram for illustration purposes only and not to scale, to show how the Oasis Series 2000 Wastewater Treatment System works. Process flow may differ from one location to another.

# HOW THE SYSTEM WORKS

**The Oasis Clearwater Aerated Wastewater Treatment System incorporates five chambers and processes to efficiently and effectively process and treat your home wastewater into a clear and odourless liquid suitable for the irrigation of landscaped areas. The Oasis Clearwater Aerated Wastewater Treatment Systems range in size so as to provide the most optimal solution for your home and property.**

- The system comprises of a pre-treatment chamber feeding to a secondary treatment chamber. Liquid flows into the aeration chamber, where with the use of our exclusive fine air diffuser assembly, thousands of tiny air bubbles provide oxygen for aerobic digestion and mix the contents of the aeration chamber.
- Waste water is introduced to the clarification chamber by hydraulic dispersement where settled sludge material is transferred back to the pre-treatment chamber to further enhance treatment. Further biological and mechanical filtration occurs by the use of the revolutionary ZABEL A300 high performance filter, prior to final pump or discharge chamber.

The system is complete with a high quality audio-visual alarm in case of system malfunction.

# PUTTING STUFF INTO THE SYSTEM

**Introducing harmful matter into the system may make the system less efficient or stop the treatment process by destroying the biomass.**

Substances that reduce the efficiency or stop the treatment process can be grouped into two groups, prohibited matter and limited-use substances. While the Wastewater Treatment System will process most domestic waste, the following information will maximise the system's efficiency and reduce the time period between primary chamber pump-outs.





## Prohibited Substances

These substances are detrimental to the system's ability to process wastewater, even when present in small amounts.

Prohibited substances include but are not limited to the following:

### Do not introduce the following prohibited substances into your Oasis 2000 System:

- ✘ Plastic or rubber products, petroleum products such as motor oil, paint, paint thinner, petrol and solvents.
- ✘ Non-biodegradable products, such as sanitary napkins, condoms, baby wipes and disposable napkins.
- ✘ Toxic substances such as pesticides, herbicides, strong disinfectants and strong caustic drain cleaners.
- ✘ Large amounts of paper products, such as paper towels and synthetic fibre-reinforced products advertised as having 'wet strength'.
- ✘ Animal fats, such as bacon grease or lard (normal cleaning of pots and pans is acceptable).

**Please note:** If the building contains a commercial kitchen or is used for catering etc. then an approved grease trap will need to be installed between the kitchen and the Treatment Plant.



Motor oil



Baby wipes



Sanitary products

**Have you read the 'Essential Guide Care for Your Wastewater Treatment System'?**  
(enclosed with your system information)



## Limited-use substances

Limited-use substances in large concentrations will reduce or stop the treatment process. The same substances in smaller concentrations will have no harmful effect on the treatment process.

You may use the following substances without harming your Oasis Series 2000 Wastewater Treatment System if you use the substance according to the manufacturer's directions, don't use these substances very often, and do not introduce concentrated doses into the system.

- ❗ Laundry bleach.
- ❗ Detergents with bleach.
- ❗ Household cleaners containing sodium bactericides.

### Examples of household cleaners containing sodium bactericides include:

- ❗ Pine oil (disinfectant used in general purpose liquid cleaners).
- ❗ N-alkyl dichlorobenzyl ammonium chloride (disinfectant used in detergents and spray cleaners).
- ❗ Sodium hydroxide (chemical used in drain openers and cleaners).
- ❗ Sodium dichlor-s-triazinetrione (powdered bleach used in scouring powders and automatic dishwasher detergents).
- ❗ Ortho-phenylphenol (bactericide used in tub and toilet bowl cleaners).

**NOTICE: Introducing harmful or damaging chemicals into your Oasis Series 2000 Wastewater Treatment System may void the Warranty.**

## Acceptable substances

Substances that are considered to be typical domestic wastewater are human waste, bath and dish water and edible food waste. **The following substances may be used regularly without harming your Oasis Series 2000 Wastewater Treatment System:**



Laundry detergents  
without bleach



Dishwashing detergents  
without bleach



Toilet paper



Household cleaners containing  
sodium bicarbonate, sodium  
carbonate and sodium borate.

## Waste food

Some food waste, whether or not it is run through a waste grinder will not be treated by the system, but will remain in solid form and fall to the bottom of the septic tank. Therefore, you should consider not using a waste grinder system.

**Do not dispose of these food items through the Oasis Series 2000 Wastewater**



Animal bones



Melon rinds



Corn cobs



Eggshells



Pips and seeds

## Treatment System:

✘ Any other non-edible food waste.

**Disposing of these items through the system will increase the frequency of required clean outs.**

# SYSTEM MAINTENANCE AND MONITORING

The Oasis Series 2000 Wastewater Treatment System operates automatically and continuously. The maintenance procedures for the user of the system include keeping the vents and the blower housing clear of debris. The homeowner should monitor the status of the system, substances introduced into the system, and the frequency of required pump-out as determined by the service provider. If the instructions in this manual are carefully followed, the Oasis Series 2000 Wastewater Treatment System will provide years of service.

For the owner, operational procedures for the Oasis Series 2000 Wastewater Treatment System are minimal. Normal operation of the unit requires continuous operation of the blower and regular discharge of wastewater to the unit. Rubbish must not be allowed to block the blower intake. If the blower should fail, follow the procedure given under **alarm warning**.

Your Oasis Series 2000 Wastewater Treatment System can be furnished with a service policy, which includes two inspection / service calls per annum to ensure proper operation of the system. During these service calls, the authorised service person will check the blower for proper operation and perform preventative maintenance including lubrication, cleaning of the blower intake, and inspection of the control panel light. The service provider will also measure the solids level in the septic tank and recommend pump-out when necessary.

## Primary chamber

Periodically, waste will need to be removed from the primary chamber using normal pump-out procedures. Only persons experienced in wastewater treatment or service are authorised to remove the chamber cover.

## Alarm warning

The System is equipped with a red system status light on the control panel and an audio alarm. Should the red light flash and the alarm activate, check the breaker to ensure it has not tripped. If the breaker has tripped, attempt to reset it. If the breaker fails to remain reset, call your service provider. The alarm may be shut off by pushing the MUTE button. **Pushing the MUTE button will not reactivate the unit, only silence the alarm.**

## Blower stoppage or electrical power outage

The Oasis Series 2000 Wastewater Treatment System requires a constant supply of oxygen and food for the biomass. Should the blower stop, air flow through the aeration pipe will stop, cutting off the supply of oxygen to the biomass. A prolonged absence of oxygen will seriously affect the condition of the biomass.

When the blower is operating, it will emit a humming sound. If the blower is not operating, first determine whether an electrical power outage has occurred in your community.

If your house is without electricity, call the electric company. If the electricity is off more than 48 hours, call your service provider as well for treatment system advice. If your house has electricity but the blower is not operating, follow the procedures given under **alarm wiring**.

## Flooding

Flood water may cover the septic unit, the blower housing, or both, affecting the electrics, if the system is installed in a low-lying area.

## Danger

Electrical equipment located in flooded areas presents an electrical hazard. Should the unit become flooded, call your service provider. Stay out of the flooded area.

## Evaluation of system performance

The Oasis Series 2000 Wastewater Treatment System operates automatically and continuously. There are no operating procedures for the user of the System to perform. However, as with any home appliance or equipment, simple periodic checks should and can be made to aid in the prevention of costly repair problems. Generally, the Wastewater Treatment System unit can be checked by sight and smell. The Oasis Series 2000 Wastewater Treatment System is generally odour-free. If smells are evident please check system usage, chemicals, etc. If smells persist, please call your service technician.

# CONT... SYSTEM MAINTENANCE AND MONITORING

## Visual evaluation

Wastewater backup is characterised by wastewater flowing back into the house or slow movement of wastewater in the drains. This may indicate a problem with your wastewater treatment system unit. Identify where the backup is occurring within your plumbing system. If you cannot locate material blocking the drain contact your service provider.

## No use for an extended period

The Oasis Series 2000 Wastewater Treatment System will function normally even if wastewater does not enter the system for 5 days.

The power to the system should be left on during short periods when there is no wastewater flow to the system. If the system will not be used for several months or longer, you should contact your service provider so the system can be checked for proper operation and serviced if necessary. A slight odour may be detected for a few days while the system returns to normal operation.

# TROUBLESHOOTING

## Process failure

### Process failure from oxygen starvation of the biomass:

If the biomass is starved of oxygen, the typical odours associated with anaerobic bacterial treatment will be noticed. This is caused by insufficient air flow into the biological zone. A blockage in the air line or blower is the most probable cause.

- a) The inlet screens have been located on each end of the blower housing. If one screen becomes blocked by debris, the opposite screen should still be sufficient. The suggested routine preventative maintenance calls for brushing off the screen as needed. The configuration of the inlet screens and the required maintenance will protect the unit from oxygen starvation due to insufficient air flow.
- b) The blower is equipped with an inlet air filter. If this filter becomes blocked with debris, it could cause oxygen starvation of the biomass. The blower inlet filter should be checked every 6 months and replaced as needed.

PROBLEM	POSSIBLE CAUSES	SOLUTIONS
<b>The air indicator light on the control panel is flashing.</b>	The air intake is blocked.	Clean intake screens on blower housing. Check air filter on blower for blockage.
	The air discharge line or vent line is blocked.	Check discharge line and vent line visually or with drain cleaning equipment for obstructions.
	The discharge line is open.	Check discharge line for breaks or leaks.
	The system is flooded.	Determine cause of flooding (eg line obstruction, lateral field pump failure, high flows, etc) and correct.
	The blower has failed.	Determine if blower failure was caused by an obstructed intake or discharge line.
		Investigate overheating (i.e. internal thermal overload protection), short-circuiting, or other electrical failure (i.e. bearing failure) and correct.
		Check to see whether circuit protection device for blower has tripped.
The power cable to the blower has been damaged or is not connected properly.	Have a certified electrician check the wiring to the blower.	
The original cause for alarm has been corrected, but the flashing circuit for the indicator light has not been reset by technician.	Reset flash circuit.	

# CONT... TROUBLESHOOTING

<b>The water alarm is on.</b>	An alarm condition has occurred. See troubleshooting items under flashing alarm indicator.	Push mute button to silence alarm.
	Pump failure.	Check levels in all chambers. Check pump is functioning. Check that the pump float is not jammed and is free of walls and any other obstructions which may affect functioning.
	Filter blocked.	Dismantle pump filter and clean.
	There is an obstruction in the discharge line from the system.	Check the effluent piping and lateral field piping visually or with drain cleaning equipment for an obstruction and correct.
	The flow rate to the system is too high.	Check the maximum flow rate to the system to see that it is within normal limits.
<b>Wastewater is backing up into the home sewer piping.</b>	There is an obstruction in the home sewer piping.	Check the piping lead to the system visually or with drain cleaning equipment for an obstruction and correct.
	The tank requires cleaning and / or a pumpout is required.	Check the sludge depth in both chambers of the tank to see if it is below required levels. If the depth is too great, have the tank pumped out and, if necessary, cleaned.

<b>There is an unpleasant odour emanating from the unit.</b>	The blower and air piping are not operating correctly.	Check the blower, vents and air piping for proper operation.
	The system is overloaded.	Check the maximum flow rate to the unit to see that it is within normal limits.
		Check the quality and contents of the flow into the unit for any abnormal or prohibited substances.

# SERVICE PROCEDURE

## Commissioning and servicing procedure

Prior to arriving on site to service or commission a newly installed System, check that the electrician has completed the wiring in accordance with wiring diagram supplied, and power is connected to the house.

Confirm with owner that sufficient water is available in the Tank to allow a proper setting for aeration and sludge return.

1. Remove all lids to allow access to all chambers as well as lid to Blower Housing box.
2. Check that the 3 pin plugs for both Irrigation pump and diaphragm blower (air pump) are in and switched ON.
3. Turn the PVC ball valve supplying air to the sludge return to OFF, then slowly adjust the sludge return pipe to an acceptable flow.
4. Test the high water alarm float by manually lifting the float, and check that the audio-visual alarm installed in the house is working.
5. Test the air alarm by switching the blower off, or disconnecting the clear tubing at join, and check the audio-visual alarm in the house.
6. If insufficient water in the irrigation chamber, lift pump float to confirm working.
7. Double check the audio-visual alarm and make sure the Mute button is in the ON position.
8. Irrigation field inspection and dripline line flushing.

## Servicing procedure

1. Ensure correct NAME & ADDRESS is on Service Report.
2. Identify yourself to home owner.
3. Visually inspect the treatment plant including landscaping lines and drippers.
4. Remove all Fibreglass/concrete/poly lids.
5. Turn field isolator to 'OFF' position.
6. Remove gauze filter from air pump and clean. Reposition gauze and re-attach Blower lid.
7. If any floating contents on top of clarifier and biomass, skim off surface.
8. Remove and clean filters as necessary (effluent and irrigation).
9. Collect a sample from inside the pump well and carry out tests for:
  - a) Clarity (average 70–100% reading)
  - b) pH 7.0–7.6 reading
10. Replace all covers accurately and make sure the field isolator is switched ON (**IMPORTANT**).
11. Fill in Service Report Sheet accurately.  
Leave ONE copy with home owner.  
One Copy to be sent to relevant Council.  
One copy to OASIS CLEARWATER  
Retain one copy.

If the pH is not stable, ADD acid or alkaline. If the dissolved oxygen level is far too HIGH, provide artificial food by way of ACTIZME or dog biscuits to the aeration chamber (if D.O. Meter used) and, if there are major problems contact your Distributor.

# INSTRUCTIONS FOR CONTROLLER

## Introduction

The Oasis Clearwater Control Panel has a number of features that are explained in this section. The basic purpose of the Control Panel is to activate and control the functioning of the Treatment Plant's air pump and to register an alarm when it detects a fault in the system.



## General

Your Oasis Clearwater system is designed to operate automatically and its operation will usually be event free. The Control Panel provides visual and audible indicators of both normal operating conditions and fault conditions. The illustration above provides description markers that correspond with the following description of their operation.

- A. POWER OFF/ON.** Located on separate housing. Once your Oasis Clearwater system has been commissioned, this switch must remain ON at all times.\* If it is turned OFF no treatment will take place and no alarms will function.
- B. DISPLAY.** This display describes normal and abnormal conditions by using labeled fault lights. See later in this document to understand their meaning.
- C. MUTE ALARM.** This is a 'soft touch' key that when pressed, silences the

audible alarm for a period of 24 hours.

- D. STROBE LIGHT.** This is a high intensity red light, mounted on the top of the Control Panel, that flashes in unison with the audible alarm to make you aware of a fault condition.

## Holiday Mode

This function should NOT be accessed by the Home Owner. The controller has an automatic holiday mode. If the irrigation pump has not discharged for 48hours, the controller will automatically enter a holiday mode.

In Holiday mode power is supplied to the blower for an adjustable On Time every 30 minutes. This On Time is adjustable via a pot on the PCB (refer to right). This pot will allow the On Time to be between 5 minutes on (turned fully anti-clockwise) to 30 minutes on (turned fully clockwise).

The holiday mode is automatically disengaged once the irrigation pump starts again. The dip switches on the PCB allow the holiday mode to be engaged automatically (the default position), or permanently i.e. the blower always runs in holiday mode no matter what the flow, or never i.e. the holiday mode is never engaged.

## Audible Alarm and how to Silence It

To silence the audible alarm, press the Soft Touch Mute Alarm key (C) briefly once. This will silence the alarm for 24 hours. Should another fault occur while the alarm is muted, a new alarm will sound. If the faults are not rectified, the alarm will sound again at the expiration of 24 hours as a reminder that the plant is not operating correctly.

The visual alarms cannot be turned off until all faults are rectified.

# ALARM CODES

ALARM LED - TANK	ALARM TEXT - REMOTE PANEL	CAUSE	SOLUTION
<b>Air Fault</b>	Air Fault Call 0800 484 849	The blower's diaphragms have failed	The blower's diaphragms need to be replaced
		The air hose has come off the pressure switch at base of controller	Remove the top of the turret attachment and secure hose onto pressure switch
		The air hose has come off the air piping in side the turret	Remove top of turret and secure hose onto air pipe
<b>High Water Fault</b>	High Level Fault Call 0800 484 849	The fluid level in the irrigation tank is high	Check irrigation filter is clean
			Check that the pump is running and pumping freely
		The float is caught in the high level position	Check float position and move to stop it being caught
<b>Power Fault</b>	Overload Fault Call 0800 484 849	N/A	N/A
<b>Check Filter</b>	Pump Max Run Check Filter	The irrigation pump has been running in excess of 30 minutes continuously	Check and clean the irrigation filter
			Check the irrigation field has no obstructions to letting the fluid flow

ALARM LED - TANK	ALARM TEXT - REMOTE PANEL	CAUSE	SOLUTION
N/A	Oasis Clearwater System OK ----- Oasis Clearwater Holiday Mode (alternates)	The irrigation pump has not run in 48 hours	This is not a fault condition. The wastewater tank has entered a power saving mode that allows the blower to run up to 30 minutes every hour. It will automatically exit holiday mode the next time the irrigation pump runs
N/A	Oasis Clearwater Loss of Comms	No power at the main controller	Check the main controller to ensure it has power. If not find out why and turn power back on. Reset the alarm panel to find the main controller
		Poor radio signal between the main controller at the tank and alarm panel	Find what is obstruction the radio signal from the tank. The radio signal is good for at least 100m, line of sight. If necessary install an extension aerial to the alarm panel to get a better signal
N/A	Oasis Clearwater Searching ...	Alarm panel looking for main controller	Turn main controller Off and back On again. Check to ensure main controller has the RF module installed correctly. Test remote alarm panel beside the tank

A high water fault may be self correcting. It can be caused by the washing machine discharging at the same time as the bath is being emptied and the dishwasher is pumping out. If you think this may have occurred, then wait for 15 minutes until the surge flow has stopped and see if the alarm stops.

**If it does not then check the following:**

- a) Is there a filter in the outlet line before the sprays or drippers? Is it blocked?
- b) Is the irrigation line kinked or broken?
- c) Has the irrigation pump failed?

If you can rectify any of these problems yourself, then you will save the call out cost of your Service Provider. However, they are experts in this field and will assist you whenever you need their help. Call them whenever you need their assistance or you are in doubt about what you need to do. They will happily assist you over the phone.

# WHO TO CONTACT

## WHO TO CONTACT FOR HELP

**Before you call for help and to avoid unnecessary call out fees, check these items before you call for assistance:**

1. Is the power turned ON at the plant?
2. Are there lights ON in the panel face?
3. Has a Safety Switch, not related to the plant, tripped in your switchboard?
4. Has the outlet hose become kinked, preventing the plant pumping out?
5. Is the outlet dripper filter blocked?

**If you have an issue, you can try to reset the system with the following sequence:**

- a) Turn the system OFF using the control panel ON/OFF switch on the side of the panel. This will reset the programme.
- b) Turn the system 'ON' using the ON/OFF switch.
- c) If the system starts and operates correctly, observe the system over the next few days for another ALARM event and discuss it with your Service Agent.
- d) **If the system goes back into the ALARM mode, call your Service Agent. Limit your water usage until the fault is rectified.**

**For Assistance or for your closest Service Agent call Head Office on:**

**03 344 0262**

**0800 48 48 49**

(if no answer please leave your name and number on the answerphone).

# LIMITED WARRANTY



Oasis Clearwater Systems warrants each Oasis Series 2000 Aerobic Wastewater Treatment System to be free from defects in material and workmanship for a period of two (2) years from the date of sale to the ultimate consumer when properly registered with Oasis Clearwater Systems. Oasis Clearwater System's sole obligation under this warranty is as follows: Oasis Clearwater Systems shall fulfil this warranty by repairing or exchanging any component part, ex factory, that shows evidence of defects, provided said component part has been paid for, warrantee has notified Oasis Clearwater Systems of the defect complained of and the component is returned through an authorised Distributor, transportation prepaid. There is no informal dispute settlement available under this LIMITED WARRANTY.

No warranty is made as to the field performance of any system. This LIMITED WARRANTY applies only to the parts manufactured by Oasis Clearwater Systems and does not include any portion of the plumbing, drainage or installation of the systems, and does not include any travel or labour. Accessories supplied by Oasis Clearwater Systems, but manufactured by others, are warranted only to the extent of and by the terms and conditions of the original manufacturer's warranty. In no event shall Oasis Clearwater Systems be responsible for delay or damages or any kind of character resulting from, or caused directly or indirectly by, defective components or materials manufactured by others.

Recommendations for special applications will be based on the best available expertise of Oasis Clearwater Systems and published industry information. Such recommendations do not constitute a warranty of satisfactory performance.

This LIMITED WARRANTY extends to the ultimate consumer of the product.

As herein, "ultimate consumer" is defined as the purchaser who first has the plant installed, or in the case of a system designed for non-permanent installation, the purchaser who first uses the system. It is the purchaser's or any sub-vendee's obligation to make known to any other consumer, the terms and conditions of this warranty. This warranty is a LIMITED WARRANTY and no claim of any nature shall be made against Oasis Clearwater Systems unless and until the ultimate consumer, or his legal representative, notifies Oasis Clearwater Systems in writing of the defect complained of and delivers the product and/or defective part(s), freight prepaid, to Oasis Clearwater Systems or an authorised service agent.

Oasis Clearwater Systems reserves the right to revise, change or modify the construction and design of the Oasis Series 2000 Aerobic Treatment System, or any component part or parts thereof, without incurring any obligation to make such changes or modifications in equipment previously sold. Oasis Clearwater Systems also reserves the right, in making replacements of component parts under this warranty, to furnish a component part which, in its judgement is equivalent to the part replaced.

## SERVICING

Your system must be serviced by Oasis Clearwater Environmental Systems or an authorised agent. If the system is not serviced at 6 monthly intervals all warranties will be voided.

## WATER INGRESS

All wastewater treatment systems are designed to treat **controlled domestic (human) wastewater inflows ONLY**. If the flows exceed design parameters due to wet weather (stormwater ingress, etc) or uncontrolled inflows (failed cisterns, automatic urinals, etc) all target design parameters and warranty will be voided.

# oasisclearwater.co.nz

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## Head Office

**A** PO Box 16276 Hornby, Christchurch 8441

**P** 0800 48 48 49

**F** 03 344 0267

**E** [office@oasisclearwater.co.nz](mailto:office@oasisclearwater.co.nz)

**W** [oasisclearwater.co.nz](http://oasisclearwater.co.nz)



## Appendix G

# Oasis Series 2000 Product Information



# **Oasis Clearwater**

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## **ENVIRONMENTAL SYSTEMS**

A Fletcher Concrete and Infrastructure Ltd Business

### **OASIS CLEARWATER SERIES 2000**

### **AEROBIC WASTEWATER TREATMENT SYSTEMS**

## **TECHNICAL SPECIFICATION**

COMPLIANCE: NZS 3101-2006 | AS/NZS 1547:2012 | TP58 APPROVAL  
OSET TRIAL TESTED AND INDEPENDENTLY VERIFIED

## **TECHNICAL SPECIFICATIONS**

• Primary Pre-Treatment Chamber	1,750 litres
• Secondary Filter Chamber w/ A100 (1.6mm)	1,750 litres
• Aeration Chamber	1,880 litres
• Clarification chamber	430 litres
• Pump Chamber	1050 litres
• Total Operating Capacity	6,860 litres
• Total Holding Capacity	9,400 litres
• Control Panel - Audio & Visual Alarm	
• Aerator (Normal Operation = 24 hrs)	55 Watts
• Irrigation Pump (Normal Operation – 0.5-1hr/day)	600 Watts
• Tank Construction-All Concrete	
• Tank Dimensions:	
○ Height	2300 mm
○ Diameter	2500 mm
○ Weight	7.5 tonnes
• Maximum Rated Capacity	10 Persons (Domestic Situation.)
• Loading per day:	1,600 litres - average 2,000 litres - maximum intermittent

## Appendix H

# QLDC Onsite Wastewater Disposal Application

## INTRODUCTION

The objective of this form is to collate the required information that will support QLDC with evaluating the risk of the proposed Onsite Wastewater Disposal system in terms of Building Code compliance (G13), RMA Act and Environmental and Public Health requirements.

## REFERENCES

The design standard for waste water treatment and effluent disposal systems is **AS/NZS 1547:2012**. All references within this form relate to this standard.

## RISK BASED APPROACH

QLDC has adopted a risk based approach which involves evaluating key factors relating to the system design and site and soil features to ensure that any risk to environment or public health is fully mitigated. The key potential risks that QLDC will consider include, but are not limited to, the following:

### High risks

- Pathogen risks

### Moderate risk

- Odours
- Loss of amenity service due to technology failure, power outage
- High capital and/or operating costs

### Minor risks

- Slope instability on the steeper sites
- Noise
- Risk to cultural values
- Nutrients (nitrogen and phosphorus) and emerging contaminants

## HIGH RISK APPLICATIONS

Throughout this application form there are a number of information fields that are highlighted in red. These relate to key risk factors that the system designer must consider during their design process. If these risks are present then an explanation of what design mitigations have been taken is required.

For systems that breach the requirements of Section 3, you will be required to raise an application with the Otago Regional Council for a Resource Consent. Once the ORC Resource Consent has been granted it can be referenced as part of the QLDC Building Consent Application.

QLDC reserves the right to engage expert peer review of applications that are either very high risk, or system designs which appear to have inadequate design mitigations in place. The cost of this will be on-charged to the applicant as part of their building consent fees.

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## 1 SITE DESCRIPTION

Property Owner:	Woodlot Properties Ltd
Location Address:	Frogmore Lane, Wakatipu Basin
Legal Description (e.g. Lot3 DP1234) :	Lot 3B RM 230062
List any existing consents related to waste disposal on the site:	RM230062 – Six Lot Subdivision RM250133 – Lot 3A Dwelling
General description of development and describe all sources of wastewater:	New wastewater treatment and disposal system for new four bedroom dwelling

## 2 SITE ASSESSOR, DESIGNER AND INSTALLER DETAILS

### 2.1 SITE ASSESSOR

Company	Civilised Ltd		
Contact Name	John McCartney	Phone	027 2233036
Qualifications/Technical Experience	BE (Civil), Chartered Professional Engineer, Chartered Member of Engineering New Zealand, 27 years experience in land development and environmental engineering.		

### 2.2 SYSTEM DESIGNER

Company	Civilised Ltd		
Contact Name	John McCartney	Phone	0272233036
Qualifications/Technical Experience	BE (Civil), Chartered Professional Engineer, Chartered Member of Engineering New Zealand, 27 years experience in land development and environmental engineering.		

### 2.3 SYSTEM INSTALLER

Company	To be confirmed		
Contact Name	Click here to enter primary contact name	Phone	Phone Number
Qualifications/Technical Experience	Click here to enter relevant qualifications or brief summary of technical experience that verifies they are suitably qualified to perform the role		

### 2.4 SERVICING TECHNICIAN/COMPANY

Company	To be confirmed	Phone	Phone Number
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### 3 ORC RESOURCE CONSENT REQUIREMENTS:

Please complete below checklist to confirm whether an Otago Regional Council (ORC) resource consent will be required to discharge domestic waste water in the Queenstown Lakes District:

Yes	No	System Requirement
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Daily discharge volume exceeds 2,000 litres per day
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Discharge will occur in a groundwater protection zone or in the Lake Hayes catchment
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Discharge will occur within 50 metres of a surface water body
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Discharge will occur within 50 metres of an existing bore/well used to supply water for domestic needs or drinking water for livestock
<input type="checkbox"/>	<input checked="" type="checkbox"/>	There will be a direct discharge into a drain, water race or groundwater
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Discharge may runoff onto another persons' property

If any of these apply then you will need to make an ORC resource consent application for domestic wastewater discharges to land with a maximum volume of 14,000 litres. The application form for this is [Form 6A](#).

Once the ORC consent has been granted please enter the reference number below and provide a copy of the approved ORC consent.

<b>ORC Resource Consent Number:</b>	To be advised
-------------------------------------	---------------

### 4 SITE ASSESSMENT DETAILS

For the areas where the treatment plant and land application system and reserve area are to be located, please provide the following information:

Land use description:	Will be part of curtilage area for dwelling used for landscaping purposes.
Topography:	Flat to moderately sloping
Slope angle:	1:8
Vegetation cover:	Grass, low planting (tussocks or similar).
Are there areas of potential ponding?	No
Are there risks associated with drainage patterns and overland flow paths?	No

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# AF OSW Onsite Wastewater Disposal Application Form



<p>Does site have Flood potential? (show with return period on site plan)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, please provide information below on what design considerations have been adopted to mitigate this risk (e.g. elevated tanks, sealed lids etc.)</p>	
<p><a href="#">Click here to enter design mitigations.</a></p>		
<p>Is the system within 100m distance to nearest open water bodies, ephemeral streams and wetland?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, please provide information below on what design considerations have been adopted to mitigate this risk.</p>	
<p>It is not within 100 metres to surface water bodies. However, still need to treat effluent to a high standard and drain to ground at a low rate.</p>		
<p>Is the system within 50m distance to stormwater drains and stormwater soakage areas?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, please provide information below on what design considerations have been adopted to mitigate this risk.</p>	
<p>Are Water bores within 50m? (reference ORC Maps)</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><b>If Yes then an ORC resource consent is required</b></p>	
<p>Are there are other key site features that may affect the system design?</p>		
<p>Slope stability assessment- For land slopes greater than 15° (25%) summarize any areas unsuitable for waste water irrigation.</p>	<p>No slope stability issues identified on site.</p>	
<p>What is the depth to the highest potential ground water level:</p>	<p>Summer:</p>	<p>&gt; 3m</p>
	<p>Winter:</p>	<p>&gt; 3m</p>
	<p>Information Source:</p>	<p>Assessed based on test pit data and topography</p>
<p>Is there potential for waste water to short circuit through permeable soils to surface and / or ground water?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, please provide information below on what design considerations have been adopted to mitigate this risk.</p>	

	Soils are not overly permeable and the design loading rate will be low to account for this.
--	---

**5 SOIL INVESTIGATION**

For the areas where the land application system and reserve area are to be located, provide the following information

Has a Site Specific Field investigation been completed? Is Report attached?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Note: Report shall include a plan showing test pit or bore location, and a detailed soils report in accordance with Table B2 and Figure B1 or and equivalent format and detail. Photos of the profiles and soils shall be included including photos of soil ribbon tests (Section E4.1)
Field investigation date:	13 July 2021
Number of test pits or bores:	1 test pit within the site 7 test pits across the wider site
If fill material was encountered during the soil investigation, describe the fill material and explain how this will impact on the waste water land application system design and performance?	No fill encountered, all wastewater disposal is to be into undisturbed natural ground.
Has the soil permeability beneath the proposed land application field been tested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes please provide details of test method and results (e.g. Percolation test method (refer to B6 for applicability):
	Permeability has been conservatively assessed based on the soils encountered and local knowledge.

## 6 SOIL CATEGORY

Based on the site investigation report please confirm the soil category that is present for the land application system.

Select One	Soil Category (Table 5.1)	Soil Texture ( <i>Appendix E</i> )	Drainage Characteristic	Risk limits for Groundwater Setback
<input type="checkbox"/>	1	Gravel and sands	Rapid	5m
<input type="checkbox"/>	2	Sandy loams	Free	5m
<input type="checkbox"/>	3	Loams	Good	1.5m
<input checked="" type="checkbox"/>	4	Clay loams	Moderate	1.5m
<input type="checkbox"/>	5	Light clays	Moderate to slow	0.6m
<input type="checkbox"/>	6	Medium to heavy clays	Slow	0.6m

<p>Is the groundwater level (refer section 4) within the above risk limits for the site?</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If Yes, please provide information below on what system design considerations have been adopted to mitigate the risk to groundwater. For example:</p> <ul style="list-style-type: none"> <li>• Secondary treatment</li> <li>• Tertiary UV treatment</li> <li>• Modified trench or bed details for category 1 soils to ensure even distribution</li> </ul> <p><a href="#">Click here to enter design mitigations.</a></p>
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Note: The soil category and groundwater level will determine the required loading rate for the land application system. This needs to be specified in section 7.2 and should be referenced from L1, M1 or N1 tables.

## 7 SYSTEM DESIGN

### 7.1 SYSTEM INPUT INFORMATION

Property Water Supply	<input type="checkbox"/> Council reticulation <input checked="" type="checkbox"/> Water bore <input type="checkbox"/> Rainwater collection <input type="checkbox"/> Other- please provide details: Private water scheme
Total number of bedrooms that will be serviced by the system	Four bedrooms in the house with one further possible – will allow for five bedrooms

Maximum design occupancy	Up to 8 people
Flow allowance litres / day per person: Refer to Appendix H, Table H3 and H4. Justify variations.	200 litres per person per day
List any water conservation devices or water recycling details and volume estimates (Table H3):	Nil
Specify flow allowance for any other activity on the site such as spa baths, luxury showers etc:	Nil
List any allowance for seasonal variations and loads:	Nil
Total design flow allowance (litres per day):	Max. 1,600 litres per day <b>Note: If above 2,000 litres per day an ORC resource consent is required</b>

## 7.2 SYSTEM SELECTION & CAPACITY

Select One	Proposed Treatment System	Manufacturers Details	No. of Chambers and Capacity (litres)	Emergency Storage (litres)
<input type="checkbox"/>	Primary System (e.g. Septic tank)	Click here to enter text.	Chambers & Litres	Litres
<input checked="" type="checkbox"/>	Secondary Treatment system <sup>1</sup>	Humes Oasis Clearwater Series 2000	Multi chambers, 9,400 litres	Nil
<input type="checkbox"/>	Tertiary Treatment System	Click here to enter text.	Chambers & Litres	Litres
<input type="checkbox"/>	Other:	Click here to enter text.	Chambers & Litres	Litres
Rated treatment capacity of the system (litres/day):		2,000 litres per day		

<sup>1</sup> For on-site wastewater management systems requiring secondary or better treatment, QLDC strongly recommends that applicants select treatment plants certified by the On-site Effluent Treatment National Testing Programme (OSET NTP), or an equivalent or better independent certifying organisation. These have been verified as meeting the secondary effluent treatment requirements of AS/NZS 1547.

Details of effluent filter:	Outlet bio-filter
-----------------------------	-------------------

Select One	Proposed Land Application System	Design Description. Please attach site plans/drawings	Design Loading Rate mm/day (DLR or DIR)
<input type="checkbox"/>	Surface dripper irrigation	NOT PERMITTED IN QLDC DUE TO FREEZING	N/A
<input type="checkbox"/>	Sub-surface dripper irrigation	NOTE: MUST BE MINIMUM OF 300mm TO PREVENT FREEZING Click here to enter text.	Click to enter DLR or DIR
<input checked="" type="checkbox"/>	Conventional Bed	Two beds 2m wide x 20m long	20mm/day
<input type="checkbox"/>	Conventional trench	Click here to enter text.	Click to enter DLR or DIR
<input type="checkbox"/>	Deep trench	Click here to enter text.	Click to enter DLR or DIR
<input type="checkbox"/>	Discharge control bed or trench	Click here to enter text.	Click to enter DLR or DIR
<input type="checkbox"/>	Mound system	Click here to enter text.	Click to enter DLR or DIR
<input type="checkbox"/>	Other (specify):	Click here to enter text.	Click to enter DLR or DIR

Note: The land application system site plans/drawings are to include dimensions, location, layout and component labels, cross-section details (with dimensions) and where appropriate; filter cloth, material type, structural details, flushing points, venting, valving, special fittings, intercepting drains and other detail specific to the design.

Select One	Proposed Loading Method	Details
<input type="checkbox"/>	Trickle load, gravity	Click here to enter text.
<input type="checkbox"/>	Gravity dosing: Flout, siphon or other	Click here to enter text.
<input checked="" type="checkbox"/>	Pump	To include dosing pump.
<input type="checkbox"/>	Other	Click here to enter text.

### 7.3 ADDITIONAL SYSTEM REQUIREMENTS

Select One	Additional design considerations	Details
<input checked="" type="checkbox"/>	Specify details or alarm system(s)	Oasis Series 2000 comes with operational alarms.
<input checked="" type="checkbox"/>	Specify available reserve area (5.5.3.4)	Reserve area available adjacent to the disposal field.
<input checked="" type="checkbox"/>	Specify fencing, warning signs and vegetation and planting requirements	Only shallow rooting grasses, tussocks, rushes are to be planted over the disposal field.
<input checked="" type="checkbox"/>	Storm / surface water management:	Shallow swale to direct upslope runoff around the disposal field.
<input checked="" type="checkbox"/>	Depths pipes to buried:	Minimum of 300mm below ground level.
<input checked="" type="checkbox"/>	Flood protection:	None required.
<input checked="" type="checkbox"/>	Cut off / diversion drains (show on site plan):	Refer drawings
<input type="checkbox"/>	Other:	<a href="#">Click here to enter text.</a>

### 8 ATTACHMENTS CHECKLIST

Select One	Required Documents
<input type="checkbox"/>	Copy of any existing QLDC or ORC consents
<input checked="" type="checkbox"/>	Copy of QLDC Site & Soils Assessment (if previously completed)
<input type="checkbox"/>	Copy of slope stability geotechnical report (if required)
<input type="checkbox"/>	Copy of flood hazard assessment (if required)
<input checked="" type="checkbox"/>	Site Specific Field Investigation Report. <i>Ensure it covers information requirements covered in sections 5 &amp; 6</i>
<input checked="" type="checkbox"/>	Detailed plans of system layout showing treatment unit, drains/pipes and land application field including cross-section detail <i>Ensure it covers information requirements covered in sections 7</i>
<input checked="" type="checkbox"/>	For secondary treatment units provide evidence of OSET NTP (or equivalent) certification
<input checked="" type="checkbox"/>	Independent certification of in-ground tanks in terms of AS/NZS 1546.1 2008, or an equivalent standard. Provide details of performance criteria to which certification applies.
<input checked="" type="checkbox"/>	Design Producer Statement of the on-site wastewater management service

<input type="checkbox"/>	Loading certificate in accordance with Section 7.4.2 (d)
<input type="checkbox"/>	Operation & Maintenance guidelines for the treatment plant and land application system
<input type="checkbox"/>	Homeowner's operation manual for the treatment plant and land application system
<input type="checkbox"/>	To scale site plan. The following must be included on the plan: <ul style="list-style-type: none"> <li>• Buildings Boundaries</li> <li>• Treatment system components Reserve disposal area Retaining Walls</li> <li>• Embankments</li> <li>• Cutoff drains / diversion bunds Water bodies</li> <li>• Stormwater drains, discharge points or soakage facilities</li> <li>• Flood risk areas</li> <li>• Other wastewater treatment units and discharge systems</li> <li>• Water bores</li> <li>• Direction of ground water flow</li> <li>• Existing and proposed trees and shrubs</li> <li>• North arrow</li> </ul>

## 9 APPLICANT STATEMENT:

I believe to the best of my knowledge that the information provided in this application is true and complete. I have the necessary experience and qualifications to design the above proposed waste water treatment system in accordance with the requirements of AS/NZS 1547:2012:

Company: Civilised Ltd  
 Email: John@civilised.nz  
 Phone number: 027 2233036  
 Name: John McCartney  
 Signature:



Date: 11/06/2025

Please scan this completed document to PDF and upload along with supporting Building Consent application information to the QLDC Sharefile portal:

<http://www.qldc.govt.nz/planning/building-consents/apply-online/>

## Appendix I

# On-site Effluent Treatment National Testing Programme – Performance Certificates

## On-site Effluent Treatment National Testing Programme (OSET NTP)

### PERFORMANCE CERTIFICATE Oasis Series 2000L On-site Domestic Wastewater Treatment System, OSET NTP Trial 10, 2014/2015

#### System Tested

The **Oasis Series 2000L system** is a Submerged Aerated Filter Wastewater Treatment Plant using 200m<sup>2</sup> multiple PE tubes as the submerged fixed growth filter system. The manufacturers rated design capacity is 1,600 litres/day. Total operational liquid volume is 6,720 litres (Primary Chamber 3,400 litres; Aeration Chamber 1,880 litres; Clarifier 430 litres; Pump Chamber 1,010 litres; Emergency storage 2,540 litres). No tertiary treatment (such as UV disinfection) is incorporated. It comprises a single 5 chamber concrete tank. The air blower is Gardner Denver AP80 running continuously, located in a turret over the plant. There is a Zabel 1.6mm effluent filter in the Primary Chamber and an Azud 130 micron final effluent filter. The manufacturers stated service frequency is 6 monthly.

#### Test Flow Rate

The **Oasis Series 2000L system** was tested at 1,000 litres/day (equivalent to servicing a 3-bedroom 5 to 6 person household) over an 8 month (35 week) period November 2014 to July 2015 followed by a 1 month (4 week) high load effects test involving 5 days at 2,000 litres per day then 1,000 litres/day over the following 2 weeks.

#### Testing and Evaluation Procedures

A total of 37 treated effluent samples of organic matter (BOD<sub>5</sub>) and suspended solids (TSS) at generally six day intervals during weeks 9 to 35 were tested and evaluated against the secondary effluent quality requirements of the joint Australia/NZ standard AS/NZS 1547:2012.

A total of 16 treated effluent samples of organic matter (BOD<sub>5</sub>), total suspended solids (TSS), total nitrogen (TN), ammonia nitrogen (NH<sub>4</sub>-N), total phosphorus (TP) and faecal coliforms (FC) at generally six day intervals during weeks 23 through 35 were tested and the results benchmarked and rated on their median values. In addition, the energy used by the treatment system was assessed on the mean of consumption levels over the 16 sample days.

#### AS/NZS 1547:2012 Secondary Effluent Quality Requirements

These requirements are that 90% of all test samples must achieve a BOD<sub>5</sub> of  $\leq 20$  g/m<sup>3</sup> and TSS of  $\leq 30$  g/m<sup>3</sup> with no one result for BOD<sub>5</sub> being  $>30$  g/m<sup>3</sup> and no one result for TSS being  $>45$  g/m<sup>3</sup>. The **Oasis Series 2000L system achieved** a performance level of **100%** for BOD<sub>5</sub> and **100%** for TSS based on the full set of 37 test results in weeks 9 to 35, with no results exceeding the maximums. The **Oasis Series 2000L system thus meets** the secondary effluent quality requirements of AS/NZS 1547:2012 at the test flow rate of 1,000 L/day (ie at 63% of the plants advised design capacity).

#### Benchmark Ratings

The **Oasis Series 2000L system achieved** the following effluent quality ratings for the sixteen benchmarking results in weeks 20 to 35.

Indicator Parameters	Median	Std Dev	Rating	Rating System				
				A+	A	B	C	D
BOD (mg/L)	2	0	A+	<5	<10	<20	<30	≥30
TSS (mg/L)	1.5	1.3	A+	<5	<10	<20	<30	≥30
Total Nitrogen (mg/L)	20.5	3.8	B	<5	<15	<25	<30	≥30
NH <sub>4</sub> - Nitrogen (mg/L)	0.2	0.1	A+	<1	<5	<10	<20	≥20
Total phosphorus (mg/L)	3.9	0.4	B	<1	<2	<5	<7	≥7
Faecal Coliforms (cfu/100mL)	10,400	5,800	C	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	1.3	0.04	B	0	<1	<2	<5	≥5

This Performance Certificate is specific to the **Oasis Series 2000L** model as specified above when operated at a flow rate of 1,000 litres/day (63% of advised plants design capacity), and is valid for 5 years from the date below. For the full OSET NTP report on the performance of the **Oasis Series 2000L system** contact **Oasis Clearwater Environmental Systems**, Christchurch, P: +64 3 344 0262, or E: [office@oasisclearwater.co.nz](mailto:office@oasisclearwater.co.nz).

#### Authorised By:

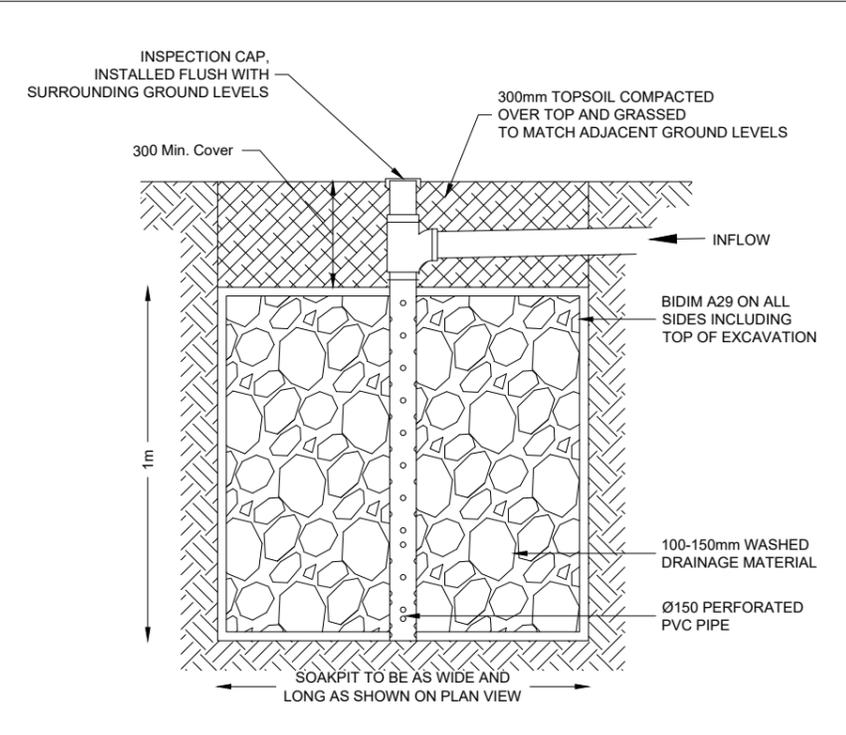
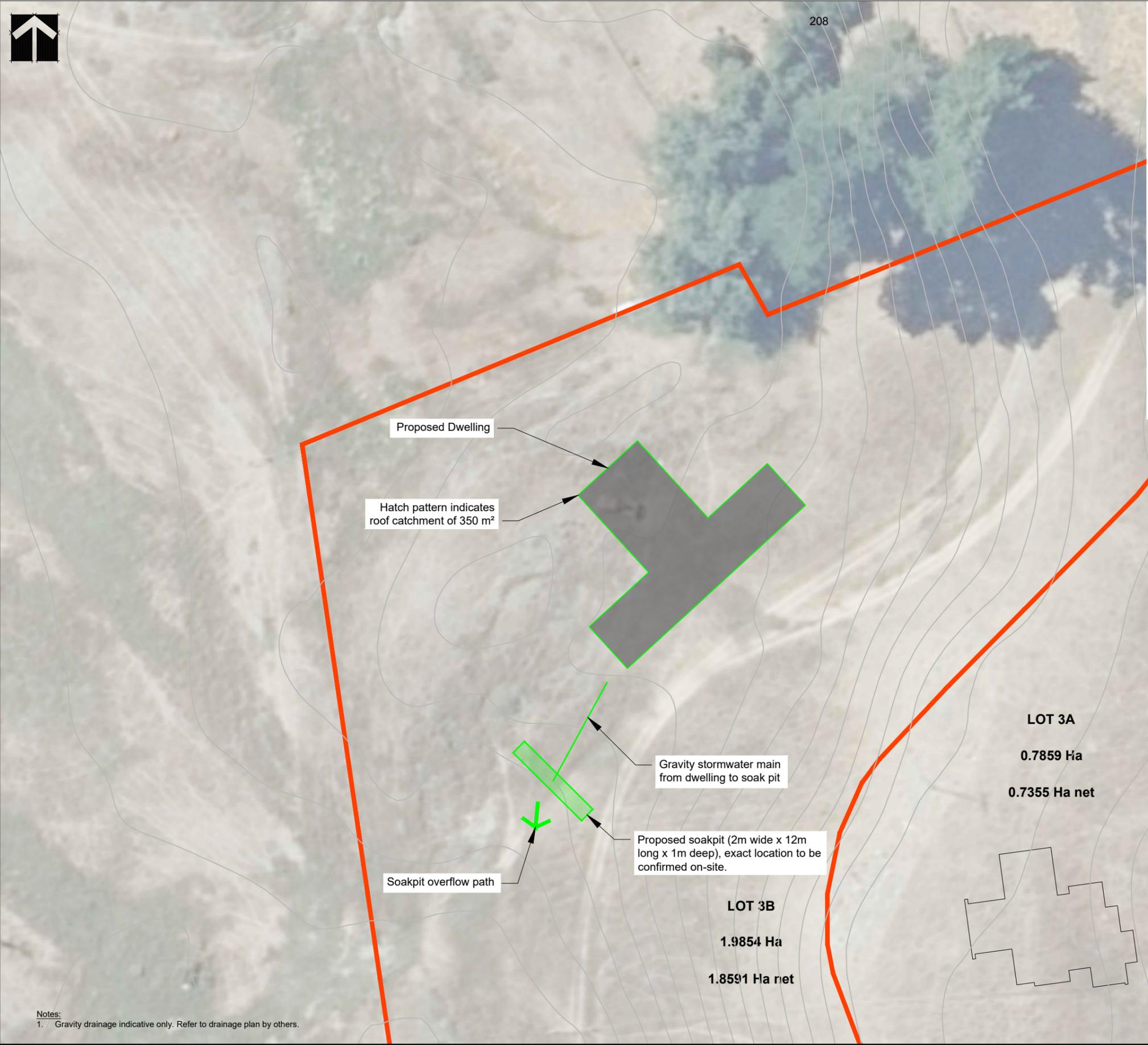


Ray Hedgland, Technical Manager, OSET NTP  
1 February 2016

**On-site Effluent Treatment National Testing Programme, c/- Technical Manager, 2/12 Mt Blanc Pl, Northpark, Howick, AUCKLAND 2013 Mob: 021 626 772 E-mail: [ray@hedgland.co.nz](mailto:ray@hedgland.co.nz)**

## Appendix J

# Stormwater Drainage Information



**SOAKPIT DETAIL**  
SCALE N.T.S

Proposed Dwelling

Hatch pattern indicates roof catchment of 350 m<sup>2</sup>

Gravity stormwater main from dwelling to soak pit

Proposed soakpit (2m wide x 12m long x 1m deep), exact location to be confirmed on-site.

Soakpit overflow path

**LOT 3A**  
**0.7859 Ha**  
**0.7355 Ha net**

**LOT 3B**  
**1.9854 Ha**  
**1.8591 Ha net**

Notes:  
1. Gravity drainage indicative only. Refer to drainage plan by others.

CONSULTANT		 CIVILISED LTD PO BOX 1461 QUEENSTOWN 9348 T: 027 223 3036 E: john@mccartneys.nz		CLIENT		WOODLOT PROPERTIES LTD		PROJECT/LOCATION		PROPOSED DWELLING - LOT 3B RM230062 FROGMORE LANE - QUEENSTOWN		CONTRACT NUMBER		-	
JFM 12/06/2025 DESIGN DATE		JFM 12/06/2025 DRAWN DATE		JFM 12/06/2025 CHECKED DATE		TITLE STORMWATER DRAINAGE GENERAL LAYOUT		DRAWING NUMBER QV077-D-610		REVISION A		SCALE (AT A3) As Shown			
A 12/06/2025 Initial Issue JFM		APPROVED													

# On Site Soakage

Project:	New Dwelling	Project Number:	QV077
Site Location:	Lot 3B, Frogmore Lane, Queenstown	Client:	Woodlot
Date:	12th June 2025	Method:	NZBC E1/VM1

### Storage Volume Required

Required Volume:

$$V_{stor} = R_c - V_{soak}$$

$$R_c = 10 \times C \times i \times A$$

$$R_c = 8.94 \text{ m}^3/\text{hr}$$

$$V_{soak} = A_{sp} \times S_r / 1000$$

$$V_{stor} = R_c - V_{soak}$$

Where:

C = 0.95 Table 1 NZBC E1/VM1

i = 26.9 mm/hr for 1 hour duration, 5% AEP, RCP8.5, 2081-2100

A = 0.035 Ha (impervious area) - **Roof runoff**

S<sub>r</sub> = 0 mm/hr (conservative rate)

### Rock Filled Pit Dimensions

$$R_c = 8.94 \text{ m}^3/\text{hr}$$

$$V_{soak} = 0.00 \text{ m}^3$$

$$V_{stor} = 8.94 \text{ m}^3$$

Pit Size:

Height H = 1 m

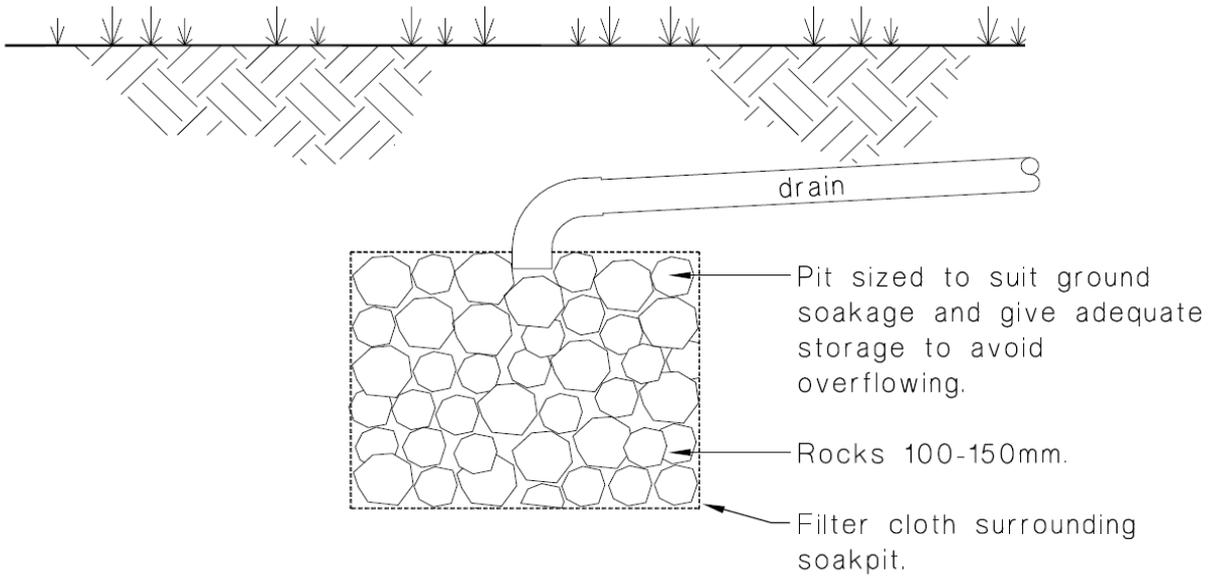
Width W = 2 m

Length L = 12 m

Efficiency = 0.38 Void ratio

Volume = 9.12 m<sup>3</sup>

Capacity is OK



(a) Rock soak pit

## Appendix K

# Power Supply Confirmation

**AURORA ENERGY LIMITED**

PO Box 5140, Dunedin 9058

PH 0800 22 00 05

WEB [www.auroraenergy.co.nz](http://www.auroraenergy.co.nz)

29/05/2025

REF: 126632

John McCartney  
Civilised Ltd  
[john@civilised.nz](mailto:john@civilised.nz)

Dear John,

**ELECTRICITY SUPPLY AVAILABILITY FOR A PROPOSED 2 LOT SUBDIVISION  
FROGMORE LANE, DALEFIELD, QUEENSTOWN 9371 .**

Thank you for your inquiry outlining the above proposed development.  
Subject to technical, legal and commercial requirements, Aurora Energy can make a Point of Supply<sup>1</sup> (PoS) available for this development.

**Disclaimer**

This letter confirms that a PoS **can** be made available. This letter **does not** imply that a PoS is available now, or that Aurora Energy will make a PoS available at its cost.

**Next Steps**

To arrange an electricity connection to the Aurora Energy network, a connection application will be required. General and technical requirements for electricity connections are contained in Aurora Energy's Network Connection Standard. Connection application forms and the Network Connection Standard are available from [www.auroraenergy.co.nz](http://www.auroraenergy.co.nz).

Yours sincerely

A handwritten signature in black ink, appearing to read "Niel Frear".

**Niel Frear**

CUSTOMER INITIATED WORKS MANAGER

<sup>1</sup> Point of Supply is defined in section 2(3) of the Electricity Act 1993.



GeoSolve Ref: 230800  
18 March 2025

Attention: Woodlot Properties Limited  
[kaye@woodlotproperties.co.nz](mailto:kaye@woodlotproperties.co.nz)  
[david@woodlotproperties.co.nz](mailto:david@woodlotproperties.co.nz)

## Geotechnical Assessment Proposed Lot 3B, Frogmore Lane, Queenstown

Dear Kaye and David,

### 1.0 Introduction

This letter details the results of a geotechnical assessment completed by GeoSolve Limited for the proposed Lot 3B at Frogmore Lane, Queenstown.

The work described in this letter has been completed in accordance with the terms and conditions outlined in GeoSolve proposal reference number 230800. The opinions and conclusions presented in this report are based on the following sources of information:

- A walkover inspection and mapping of the site by an engineering geologist.
- A review of historic geotechnical information currently held on the GeoSolve database for other sites in the local area;
- A review of the Council hazard maps and other QLDC data, and;
- A review of the published geological map, 'Institute of Geological & Nuclear Sciences Ltd, Geology of the Wakatipu, 1:25,0000 Geological Map 18.'
- 4 x test pits and Scala penetrometer tests in the area of the building platform.

The aim of this assessment is to summarise the geological environment and geotechnical issues, and confirm the suitability of the proposed lot for residential building.

### 2.0 Site Description

- The proposed platform location is on the north western side of the Woodlot Frogmore Lane Subdivision.
- The site is undeveloped and has a cover of grass. Photograph 1 below shows a general view of the site.
- The ground slopes gently to the north west at 5-10°. Contours are shown on the attached Figure 1. Moderately steep slopes are present immediately to the south east of the site, and are part of the existing subdivision area.
- No active, or potential overland flow paths were observed on site. Overland flow/surface run-off will be from the higher ground to the immediate south east of the site.



*Photograph 1. General View of the site looking north west*

### 3.0 Subsurface Conditions

#### Geological Setting

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.

#### Seismic

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, approximately 16 km to the east. 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.

#### Stratigraphy

4 test pits and Scala penetrometer testing was completed in the area of the proposed platform.

The general geological model across the subdivision is outlined as follows;

- 0.5 to 0.8 m of topsoil and colluvium, overlying;
- 0.9 to 1.6 m of glacial outwash deposits (GRAVEL), overlying
- 0.4 to 1.3 m + of glacial pond sediment (SILT);

#### Groundwater

The regional groundwater table will be significantly below the ground surface, and beneath any likely future earthworks.

Shallow seepages were encountered in 3 of the test pits in glacial pond sediments at depths of 1.7 to 2.4 m.

## 4.0 Natural Hazards

### Slope Stability

- No known large scale mapped slope stability features e.g. deep-seated schist landslides, are present in the site boundary, or immediate areas, and none were observed during the site inspection.

### Liquefaction

- QLDC Hazard mapping shows the site to be 'Domain A' with respect to liquefaction, Domain A is described as '*the ground is predominantly underlain by rock or firm sediments. It is unlikely that damaging liquefaction will occur*' (GNS Science 2019).
- The regional groundwater table, and associated saturation of the soil profile, is expected to be at depth in this location.
- Seepage was noted in the Pond Sediment, however full saturation was not recorded. Liquefaction is expected to be a low risk at the site. A review can be completed as part of the Geotechnical completion report to confirm if any specific development requirements.

### Seismic

- A severe seismic risk is present in the region, as discussed in Section 3.0, and, as per building code requirements, appropriate allowance should be made for seismic loading during detailed design of a future building, foundations, earthworks and retaining walls.

### Other hazards

- No other naturals have been identified at the site.

## 5.0 Considerations for Future Residential Development

Standard construction methods and engineering solutions are available to address the expected ground conditions and geotechnical issues present at the site, however, additional engineering input should be expected to address the ground conditions outlined above.

General guidance and review of the geotechnical design considerations are provided below.

## Foundations

Preliminary guidance for residential building foundations is provided below. Specific Engineering Design (SED) of foundations is expected to be required. The requirement for SED can be confirmed once earthwork levels are known and confirmed in a Geotechnical Completion Report and associated Schedule 2A

Glacial outwash is expected to be present at shallow depths. These materials will provide 200- 300 kPa ultimate bearing capacity for shallow foundations constructed at or close to the current ground surface.

The underlying pond sediments, at depths of 1.5 m+ below the current ground surface, are assessed as not suitable for direct foundation bearing. Ground improvement and/or specific foundation types will be required for foundations that bear on this pond sediments.

## Excavations / Lot Development Earthworks

Any excavations at the site will be in soil materials comprising outwash gravel, and if excavations deeper than 1.5 m are proposed, glacial pond sediments.

Seepages are present in the glacial pond sediments and these materials are therefore likely to be relatively weak with respect to excavation instability. Geosolve recommend excavations undertaken to form the subdivision do not extend down into the pond sediment. Geotechnical review of any bulk earthworks is recommended to confirm any specific requirements such as drainage.

We recommend permanent batters in the outwash gravel do not exceed 2H:1V (26°) in the first instance.

## 6.0 Summary

In summary:

- Residential development at the site is achievable using standard engineering and construction methods.
- There are no underlying issues or natural hazards that preclude development.
- The presence of pond sediments will need consideration for excavations and foundation design and geotechnical review of the platform earthworks should be undertaken to confirm any specific engineering requirements.
- Specific geotechnical assessment is expected to be required for a future dwelling. This requirement can be confirmed for the Geotechnical completion report and Schedule 2A.

## 7.0 Report Closure

This report has been prepared for Woodlot Properties Limited with respect to the particular brief given to us and it may not be relied upon in any other context or for any other purpose without our prior review and written agreement.

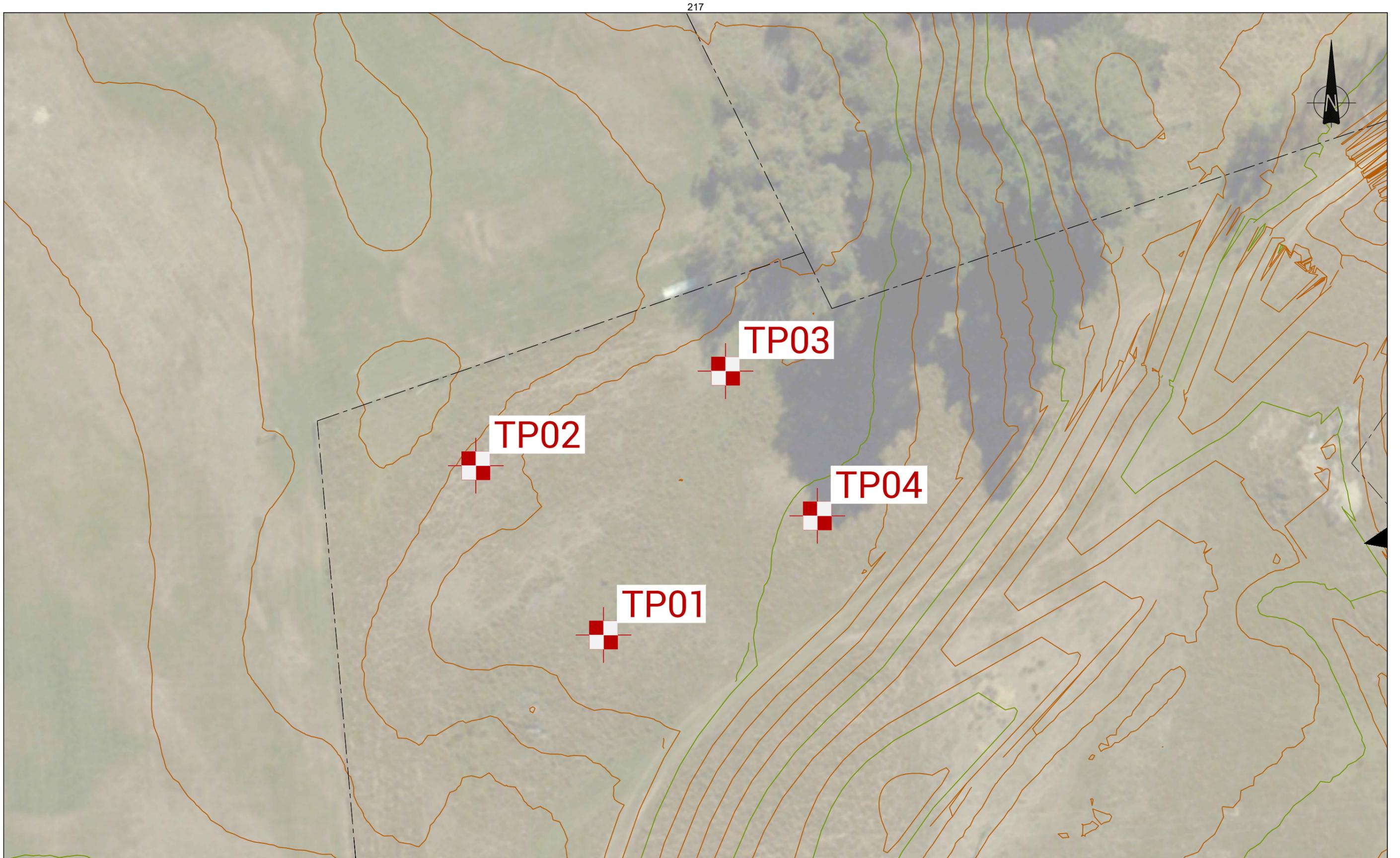
The opinions that are presented in this report are based upon the sources outlined in Section 1. Inferences concerning the nature, continuity and condition of the subsurface materials are inferred and cannot be guaranteed.

Yours faithfully,



Paul Faulkner  
Principal Engineering Geologist

Attachments:            Figure 1 Site Plan  
                                 Test Pit Logs.



**Notes:**

1. These drawings have been prepared for the benefit of Woodlot Properties Limited with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

**Legend:**

-  Building Platform
-  Test Pit
-  SC3 Scala Penetrometer Test



Level 1, 70 MacAndrew Road, South Dunedin  
www.geosolve.co.nz

DRAWN	WCG	Feb.25
DRAFTING CHECKED	WF	Feb.25
APPROVED	PF	Feb.25
CADFILE: 230800.dwg		
SCALES (AT A3 SIZE): 1:400		
PROJECT No: 230800		

**Woodlot Properties Limited**

Frogmore Lane Subdivision  
Geotechnical Investigations  
Site Plan

FIG No:  
Appendix A, Figure 1

REV.  
0









# Little's Stream Lot 3

## LANDSCAPE AND VISUAL ASSESSMENT

15 AUGUST 2025

Richard Tyler Landscape Architect - NZILA Registered  
SITE Landscape Architects



## 1.0 Introduction

Site:	Lot 3 RM230062, <b>2.77 Ha</b>
Zoning:	Wakatipu Basin Rural Amenity Zone and Wakatipu Basin Lifestyle Precinct.
Appended Material:	L-01 to L-03: View Location Plan, Structural Landscape Plan Viewpoint 1 – Littles Road, Virtualview Visual Simulation
Application Status:	Non complying Activity

This report provides an expert assessment of the potential landscape and visual effects arising from the proposed establishment of a building platform at 465 Littles Road, Queenstown. The assessment follows the methodology set out in *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines* (NZILA, July 2022) and is undertaken within the statutory context of the Queenstown Lakes Proposed District Plan (PDP).

The proposal seeks consent for a single residential building platform on land that is partially zoned within the Wakatipu Basin Lifestyle Precinct (WBLP) and partially within the Wakatipu Basin Rural Amenity Zone (WBRAZ). The platform is located just beyond the WBLP boundary, on a slightly lower and more visually contained part of the site. This location has been selected on the basis of achieving a better environmental and visual outcome than a technically compliant location entirely within the WBLP.

The assessment considers both the direct visual effects from public and private viewpoints, and the broader effects on the character of the Shotover River Terrace Landscape Character Unit (LCU), including potential cumulative effects.

## 2.0 Methodology

This assessment includes a description of the proposal and site, the existing landscape character and values, assessment of potential effects on visual amenity and landscape character, and assessment against the relevant parts of the District Plan.

The methodology is derived from 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines', Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.

In my assessment of effects I refer to the 7-point scale listed below, as derived from the NZILA Guidelines. The top rows show how the rating scale can be related to wording in the RMA:

### Assessment scale:

							Significant
Planning	less than minor		minor		more than minor		
Landscape	very low	low	low-mod	moderate	mod-high	high	very high

## 3.0 Proposal

The proposal involves subdividing existing Lot 3 (2.77 ha), formed under RM230062 at Littles Stream, Dalefield, into two lots. A new Lot 3B of 1.98 ha will contain a proposed building platform on the lower slopes of the site with a building design presented within the platform.

The platform is “T”-shaped, reflecting the proposed building footprint, with a fixed height of 6 m above RL 409.5. The building design features a simple gable running northeast–southwest, connected to a gently sloping pavilion roof running northwest–southeast. Cladding materials include tray metal, metal fascia, Accoya weatherboard in a natural stain, and schist. All materials except the schist and stained Accoya will have an LRV of 7–20%.

Existing vegetation will be retained and supplemented with new mounding and native planting along the western and southern edges of the platform to assist visual absorption within Lot 3B. The site spans both the Wakatipu Basin Lifestyle Precinct (WBLP) and the Wakatipu Basin Rural Amenity Zone (WBRAZ), with most of the proposed platform outside the WBLP and a very small portion within it.

Alternative building platforms within the WBLP have been considered. While technically compliant, they are on more elevated, open landforms with reduced capacity for integration. The proposed location, although largely outside the WBLP, offers superior containment and integration potential within existing planted slopes and proposed mounding.

The building platform location will:

- Minimise visual prominence when viewed from public roads and neighbouring dwellings;
- Allow for strong integration with existing and proposed vegetation;
- Avoid placing built form on more elevated parts of the site within the WBLP.

## 4.0 Existing Landscape

### 4.1 Site and Surroundings

The site is on the southern side of Littles Road in the Littles Stream area, forming part of a six-lot subdivision accessed via Frogmore Lane. The subdivision occupies the western extent of a terraced and undulating glacial landform alongside the Shotover River, slightly elevated above the surrounding valley floor.

At its western end, this landform marks the termination of the WBLP, which stops at the base of the hill where flat pastoral land begins. The subject site occupies the lower terrace slopes, including a small, slightly elevated flat area visually associated with the elevated slopes rather than the flat paddocks below. A fenceline running along the site boundary reinforces this separation in character when viewed from Littles Road and surrounding places.

To the north, land rises to a separate glacial landform. Littles Road winds up this landform to the west, offering intermittent views towards the site from an elevated corner. The WBLP extends north and east of the site, encompassing a rural-living landscape along Moorhill Road, Fitzpatrick Road, and Station Rise.

### 4.2 District Plan Context

The WBRAZ applies to areas where further subdivision is unlikely to maintain the Basin’s landscape character and visual amenity. The WBLP identifies areas where rural-living development can be absorbed at an average density of one unit per hectare while maintaining rural character.

The site is mostly within LCU 3: Shotover River Terrace, with a small portion in LCU 2. The WBLP line follows the base of the slope at the site’s western end, with the proposed platform just outside this line at the slope’s toe. The Environment Court set this boundary to allow development within the terrace slopes while keeping the flat valley floor free of buildings. The intent was that buildings can be integrated into undulations in the landform while keeping the steeper slopes free of development, which is reinforced in the LCU Schedule listed below under ‘*Capability to absorb additional development*’.

LCU 3 characteristics relevant to the site include:

- *Settlement patterns: ... Throughout the western end of the unit, dwellings are positioned on the flat river terraces in order to avoid the steeply sloping escarpments towards Littles Stream..... The Lifestyle Precinct*

*Zoning of parts of the unit anticipates change to the existing settlement patterns including an overall density of residential activity at 1 hectare average and settlement patterns that are sympathetic to the wider amenity landscape context and surrounding ONFs and ONLs.*

- *Views: ... Key views relate to ... short to mid-range views across the western end of the unit from Littles Road.*
- *Sense of place: Generally, the unit reads as a discrete rural residential area that is strongly connected to the Shotover River and the undeveloped ONL area to the south.*
- *Potential landscape issues and constraints associated with additional development: Relatively open and exposed nature of the unit, within an extremely high value landscape context dominated by ONLs, makes it highly sensitive to landscape change. This includes: the lower lying river terraces at the western end of the unit.*
- *Potential landscape opportunities and benefits associated with additional development: Established and reasonably generously scaled rural living patterning throughout the western end of the unit (approximately 2ha to 4ha). Relatively visually discreet nature of the north eastern portion of the western end (on the upper true left flanks of Littles Stream); Retirement and native restoration planting of steeper slopes (>15°), including the escarpments and ridgetops throughout the western portion of the unit, to reinforce the river terraced landform and assist with the integration of (potentially, existing and) new rural living development in views from Littles Road.*
- *Environmental characteristics and visual amenity values to be maintained and enhanced: Sense of (relative) remoteness and connection with the riverscape and surrounding mountains; At the western end of the unit (where land is zoned Precinct): maintenance of the existing reasonably generous scaled rural living patterning, by confining any new built form to the flat river terraces set well back from the river corridor; reinforcement of the distinctive landform patterning via native restoration planting of the steep banks and ridgetops.*
- *Capability to absorb additional development:*
  - Moderate-High: The area zoned Lifestyle Precinct, excluding the steep banks and ridge sides within the western part of the unit, which are to be kept free from development.*
  - Low: The Rural Amenity zoned western and central portions of the unit coinciding with the lower lying river terraces flanking the Shotover River.*

As noted above, absorption capability is moderate-high within the WBLP zoned area of site and excludes 'steep banks and ridge sides within the western part of the unit', and is rated Low for the flatter parts.

Alternative building platforms within the WBLP have been considered and are indicated on the landscape plan. While technically compliant, they are on more elevated, open landform with reduced capacity for integration. The proposed location, although largely just outside the WBLP, offers superior containment and integration potential within existing planted slopes and proposed mounding, while forming part of the existing rural living character.

## 5.0 Landscape and Visual Effects Assessment

### 5.1 Visual Effects - Overview

The NZILA Assessment Guidelines describes the distinction between visual and landscape effects.

*Visual effects assess how a proposal is seen from public and private viewpoints and the degree to which it alters visual amenity or scenic quality. Key considerations include:*

- *Visibility and prominence*
- *Viewer sensitivity (e.g. motorists, residents, cyclists)*
- *Change to visual amenity*

For this proposal the primary visual change is the introduction of a building platform, earth mounding, and planting.

## 5.2 Visibility and Visual Catchment

A site visit was undertaken with the proposed building platform marked out using survey pegs. This confirmed that visibility is generally limited to a small number of specific viewpoints due to the combined effects of topography, existing vegetation, and intervening land use. Appended Site View 1, taken from adjacent to the proposed platform shows the surrounding visual catchment.

The primary public view is from Littles Road to the west, at the elevated corner where the road winds down from the higher terrace. From this location, the proposed building's roofline would be visible above the proposed earth mounding. In other sections of Littles Road, views are screened by a combination of landform and vegetation, including established shelterbelts and amenity plantings.

The proposal will also be partially visible from several private properties:

- 208 Littles Road – Located to the north-west of the site, with a mix of open paddocks and grassed mounds.
- 27 Moorhill Road – Located to the south-west, with a dwelling in the south-western corner and open paddocks in the foreground.
- Dwellings on the north side of Littles Road – Elevated above Littles road, providing longer-range views across the site similar to that perceived from Littles Road corner
- From 238 Littles Road to the north-east of site, existing mature vegetation in the south-west corner of the property – including a clump of pines and a row of poplars – currently screens all views of the proposed platform. While it is possible these trees could be removed in the future, their established role in providing privacy makes removal unlikely. Even if removed, the lower elevation of the platform relative to the dwelling at 238 Littles Road (approximately 9 m lower) would maintain privacy and limit any change to visual amenity for these occupants.

Overall, the visual catchment is relatively small and localised, with limited potential for long-range or elevated views of the proposal due to the site's low position at the toe of the slope and its relationship with surrounding topography.

## 5.3 Visual Effects Assessment

### 5.3.1 Littles Road (Virtualview Viewpoint 1)

View type / Sensitivity:	Transient, low sensitivity for passing motorists; moderate sensitivity for local residents familiar with the road and attuned to changes in the local landscape.
Visibility:	Roofline partly visible above proposed earth mounding, with visibility reducing as planting matures.
Visual Effect:	Low to Moderate – mitigated by earth mounding and planting.
<b>Character Effect:</b>	Low – While there will be a localised change in character from open paddock to rural-lifestyle use, this is not out of keeping with the wider evolving development pattern on the elevated terrace landform that is within the WBLP.

---

Description:	<p>From Littles Road, the proposal will present as a small and recessive element in the broader panorama. Initially, parts of the roofline will be visible, but this will reduce as proposed planting establishes. The building will appear as a modest extension to the existing rural-lifestyle pattern on the terrace slopes above, blending with the established framework of vegetation.</p> <p>Alternative platforms located within the WBLP were considered, but these occupy higher, more exposed positions on terraces, making integration less effective. The proposed location benefits from containment by existing planted slopes, allowing for effective mounding and planting to soften visibility and reduce visual prominence.</p> <p>For most road users, the platform will occupy a small portion of their view and sit low in the scene, with a vegetated backdrop that prevents it from appearing intrusive. Scenic values associated with the surrounding ONLs, glacial landforms, and open rural character will be maintained.</p>
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### 5.3.2 208 Littles Road

View type / Sensitivity:	Static, high sensitivity from the dwelling; lower from the paddocks where views are experienced intermittently.
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Visibility:	Screened from the dwelling by existing mounding within no. 208, partial visibility from the paddocks adjacent to the site boundary.
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Visual Effect:	Low – The platform is screened with mounding and planting
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<b>Character Effect:</b>	Low – The proposal is compatible with the evolving rural-lifestyle context and consistent with the pattern of visible dwellings on the slopes above.
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Description:	<p>From the dwelling, the proposed building will not be visible due to the substantial grassed mounds within 208 Littles Road. From the adjacent paddocks, visibility will vary with location - at points close to the boundary, the mounding and proposed planting will screen it entirely, further back, the roofline may be visible above the mounding and planting.</p> <p>The perception for paddock users will be that a building exists nearby, but it will be visually softened and obscured. Domestic activity associated with the building will be screened, minimising effects on rural amenity and maintaining privacy. Overall visual effects are considered low, with character effects low due to compatibility with the existing rural-lifestyle context on the slopes above.</p>
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### 5.3.3 27 Moorhill Road

View type / Sensitivity:	Static, high sensitivity for residents at the dwelling; lower for paddock use.
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Visibility:	Partial, oblique view through proposed deciduous trees; building located at a greater distance (230 m) and on lower topography than alternative platform site.
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Visual Effect:	Low – The platform will be viewed obliquely, low in the view
<b>Character Effect:</b>	Low – The proposal is compatible with the evolving rural-lifestyle context and consistent with the pattern of rural dwellings on the slopes above.
Description:	<p>The dwelling at 27 Moorhill Road will have filtered views of the proposed building through the proposed tree plantings in the south-western corner of the subject site. The platform’s lower elevation and greater setback provide a more recessive visual outcome than the southern alternative platform location, which would be closer, higher, and more readily visible here.</p> <p>In the broader context, the proposal will appear as part of the existing sequence of rooflines and buildings integrated into the planted slopes within the WBLP. Rural amenity values, including privacy and open views to the surrounding landscape, will be maintained.</p>

### 5.3.1 238 Littles Road

View type / Sensitivity:	Static, high sensitivity for residents at the dwelling; lower for paddock use.
Visibility:	None at present due to screening trees.
Visual Effect:	Negligible
<b>Character Effect:</b>	Very Low – The proposal is not visible and compatible with the evolving rural-lifestyle context and consistent with the pattern of rural dwellings on the slopes above.
Description:	<p>No. 238 Littles Road has a clump of pines and row of poplars in the south-west corner screening views of the proposal. It is highly unlikely these trees will be removed, as they provide privacy to the existing development.</p> <p>If they do get removed, the proposed platform is located at a lower elevation (approximately 9m) from the nearest building within this lot, and any views will be over the top to the landscape beyond which will maintain privacy and visual amenity for these occupants.</p>

### 5.3.2 Dwellings on the North Side of Littles Road

View type / Sensitivity:	Static – High sensitivity for residents who experience the view regularly from homes and outdoor spaces.
Visibility:	Roofline partly visible above mounding at a minimum distance of 350 m.

Visual Effect:	Low – The platform will be at a distance of 350m or more
<b>Character Effect:</b>	Low – The proposal sits low in the view and is compatible with the evolving rural-lifestyle context and consistent with the pattern of visible dwellings on the slopes above.
Description:	I was not able to visit these locations, but I anticipate that from these dwellings, the proposal will be a small, recessive feature in a wide panorama dominated by distant ONL mountain backdrop and more immediate glacial landforms. It will be seen in association with the established rural-lifestyle pattern on the terrace slopes, maintaining the open rural foreground and mid-ground. The mounding and planting will assist integration, and privacy will be unaffected at this viewing distance.

#### 5.4 Landscape Character Effects

*Landscape character effects relate to changes to the **physical, perceptual, and experiential qualities** of the landscape, whether or not the proposal is perceived by people.*

Landscape character effects will be **low**. The proposal will read as a modest extension of the existing rural-living pattern, rather than a new or isolated incursion into rural land.

The building platform sits at the base of the terrace slopes, visually associated with existing development above rather than with the flat pastoral land below. This location benefits from containment by existing vegetation and the ability to introduce earth mounding and supplementary planting that integrate with the surrounding planted slopes. Steeper slopes will remain open or be revegetated, preserving the legibility of the landform and development pattern above.

The proposed location, while technically just outside the WBLP, better aligns with the District Plan's intent than the more elevated WBLP-compliant alternatives. The latter would introduce built form into more exposed positions, increasing visual prominence and reducing the opportunity for integration. By contrast, the proposed platform's position within the undulating toe-slope enables a low-profile built form, well integrated into the rural-living context.

In terms of experiential qualities, the proposal will not erode the sense of spaciousness or rural character. The visual relationship between the elevated slopes, the open paddocks, and the surrounding ONLs will be maintained. The result is a small-scaled, contained change that is compatible with the existing character of LCU 3: Shotover River Terrace, avoiding perceptions of sprawl or cumulative overdevelopment.

#### 5.5 Cumulative Effects

*Cumulative effects refer to the combined impact of this proposal when considered alongside past, present, or reasonably foreseeable development in the area. In rural environments, a key concern is the gradual erosion of open space and landscape values due to the spread of dispersed rural-lifestyle development.*

The surrounding landscape already exhibits a low but discernible level of rural-lifestyle development, with established dwellings on terrace slopes and at a lesser density on the surrounding valley floor. The proposed platform aligns with this existing character, and its design and location ensure that it does not create a new or prominent development pattern that may lead to a wholesale shift in character.

Key factors contributing to low cumulative effects include:

- **Density compliance:** The proposal aligns with the anticipated WBLP average of one unit per hectare and integrates with existing settlement patterns.

- Topographic integration: Located on lower terrace slopes at the toe of the hill, the platform sits in a visually recessive position relative to the broader landscape.
- Mitigation measures: The design incorporates reduced building height, earth mounding, and extensive planting, which collectively minimise visibility and visual dominance.
- Relationship to alternative platforms: While technically compliant alternative sites within the WBLP were assessed, these are more elevated and exposed, increasing visibility and cumulative landscape impact. The proposed location provides superior integration potential.
- Consistency with existing patterns: The platform does not represent a shift in land use or the initiation of a new development type. Instead, it continues the low-density, well-managed rural-lifestyle pattern, reinforcing rather than undermining existing character.
- Protection of key landscape values: Open paddocks, steep escarpments, and areas of high natural amenity remain undeveloped, preserving the sense of remoteness, connection to riverscapes, and visual amenity associated with the LCU 3 Shotover River Terrace.

Considering these factors, the cumulative landscape and visual effects of the proposed subdivision are assessed as low to negligible, with no threshold of adverse change being approached. The proposal will maintain the overall integrity, visual cohesion, and amenity values of the surrounding rural landscape.

## 6.0 Conclusion

The proposed two-lot subdivision and associated building platform at Littles Road is located on a low, contained terrace slope that allows for effective integration with existing topography, planting, and established rural-lifestyle development.

Key conclusions from the assessment are:

- Visual effects are low – the building will be largely screened or partially visible in limited viewpoints, with mitigation measures ensuring minimal impact on privacy or amenity.
- Landscape character effects are low – the proposal extends existing rural-living patterns in a contained and compatible manner, avoiding sprawl or over-intensification.
- Cumulative effects are low to negligible – the development aligns with existing settlement patterns and avoids adverse cumulative impacts on the landscape or visual amenity.
- Site selection is preferable – compared with alternative WBLP-compliant platforms, the proposed location is lower, less exposed, and better integrated, enhancing its visual and character outcomes.

Overall, the proposal represents a well-integrated, low-impact addition to the rural-living landscape, maintaining the open character, scenic amenity, and experiential qualities of the surrounding landscape. It is consistent with the objectives of the District Plan and attributes set out under the LCU 3: Shotover River Terrace.

## 7.0 Appendices

### 8.0 QLDC District Plan Assessment - Wakatipu Basin Lifestyle Precinct

Assessment Matters in relation to **Rule 27.5.9** (Wakatipu Basin Rural Amenity zone and Wakatipu Basin Lifestyle Precinct Subdivision Activities) Subdivision Design and Landscape:

ASSESSMENT MATTERS	DESCRIPTIVE ASSESSMENT
<p><b>29.9.3.3 Subdivision Design and Landscape:</b></p> <p><i>a. The maintenance of the Basin’s landscape character and visual amenity values including reference to the identified elements set out in Schedule 24.8 – Landscape Character Units, and the following assessment matters:</i></p>	
<p><i>i. the retention of existing vegetation and landform patterns;</i></p>	<p>The proposed subdivision maintains and enhances existing vegetation, with supplementary planting integrated around the proposed building platform. Earth mounding and planting reinforce the natural terrace slope, while steeper slopes remain vegetated or open, preserving integrity of landform.</p>
<p><i>ii. the alignment of lot boundaries in relation to landform and vegetation features and neighbouring development;</i></p>	<p>The proposed lot boundary follows the existing driveway at the change in grade between steeper slopes and terrace and is close to the edge of existing planting within Lot 3A.</p>
<p><i>iii. earth mounding, and framework planting to integrate buildings and vehicle access;</i></p>	<p>Earth mounding and integrated planting around the platform soften visual prominence, provide screening from private and public viewpoints, and blend the platform into the surrounding rural-lifestyle landscape.</p>
<p><i>iv. planting of appropriate species that are suited to the general area, including riparian restoration planting;</i></p>	<p>Proposed plantings use native and locally appropriate species, consistent with existing vegetation patterns.</p>
<p><i>v. the retirement of steep slopes over 15 degrees and restoration planting to promote slope stabilisation and indigenous vegetation enhancement;</i></p>	<p>Steeper slopes within the site are retained free from development and supplemented with native revegetation to promote slope stabilisation and enhance indigenous biodiversity.</p>
<p><i>vi. the integration of controls for future development that address building height, building colours and materials, building coverage, earthworks, retaining, fencing, gates, vehicle access (including paving materials), external lighting, and domestic infrastructure (including water tanks),</i></p>	<p>Future development is controlled through building height limit, material selection, colour palettes, and building coverage consistent with rural-lifestyle character. Earthworks, mounding, fencing, access, lighting, and domestic infrastructure will be integrated and managed through conditions to minimise visual effects.</p>
<p><i>vii. the integration of existing and provision for new public walkways and cycleways / bridlepaths;</i></p>	<p>The site does not border any public land to warrant new walk or cycle ways.</p>
<p><i>viii. whether the use of varied allotment sizes maintains a sense of spaciousness, or successfully integrates development with existing landform, vegetation or settlement patterns.</i></p>	<p>The proposed lot size (1.98 ha for Lot 3B) maintains a sense of spaciousness and integrates effectively with the surrounding pattern of low-density rural-lifestyle development on the terrace slopes.</p>
<p><i>b. The extent to which existing covenants or consent notice conditions need to be retained or</i></p>	<p>Existing consent conditions and covenants have been considered; any ongoing landscape management or planting obligations can be</p>

<i>are otherwise integrated into the conditions governing the proposed development;</i>	integrated with appropriate planning mechanisms to ensure continued protection of landscape character.
<i>c. Where the site adjoins an ONF or ONL, the extent to which the development affects the values of that ONF or ONL.</i>	The site is well set back from the nearby Shotover River ONL; the platform is positioned at low elevation on the terrace slope and will not dominate views from or towards the ONL. Visual and character effects on adjoining ONL values are low.
<i>d. The extent to which the development adversely affects Escarpment, Ridgeline and River Cliff Features shown on the District Plan web mapping application, and in particular whether a building platform, access or associated earthworks would be visually prominent on escarpments, river cliff features and ridgelines, as viewed from any public place, including roads.</i>	The platform is located at the toe of slopes, well away from ridgelines and escarpments. Earth mounding and planting further reduce visual prominence, ensuring no adverse effects on escarpments or river cliff features.
<i>e. Where building platforms are proposed to be located within the road setback, the extent to which future development (including landscaping and mounding) will maintain views to Outstanding Natural Features and the surrounding Outstanding Natural Landscape mountain context when viewed from the road.</i>	The building platform is sufficiently set back from Littles Road, and mitigation planting maintains long-distance views to surrounding ONLs and mountain backdrops.
<i>f. Where the site size and dimensions are such that compliance with the setback from roads, or the setback from any Escarpment, Ridgeline or River Cliff Feature is not practicable, the extent to which any adverse effects arising from the visibility of future buildings or access is mitigated or remedied, acknowledging the constraints of the site.</i>	n/a
<i>g. Whether mitigation elements such as a landscape management plan or proposed plantings should be subject to bonds or consent notices.</i>	All planting should be undertaken prior to issuing of titles and will be managed through on-going conditions of consent.
<i>h. Whether the layout of reserves and accessways provides for adequate public access and use.</i>	n/a
<i>i. Whether the proposed subdivision provides an opportunity to maintain landscape character and visual amenity through the registration of covenants or consent notices requiring open space to be maintained.</i>	As noted, existing consent conditions and covenants have been considered; any ongoing landscape management or planting obligations can be integrated with appropriate planning mechanisms to ensure continued protection of landscape character.



↑  
Dwelling at 27 Moorhill Road

↑  
Littles Road corner

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Dwelling at 2208 Littles Road behind mounding within that site

↑  
Dwelling at 238 Littles Road behind trees

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Dwellings on north side of Littles Road

**Photo Notes:**

Camera: Iphone 13 Pro  
 Lens: Iphone panorama  
 Photo taken: 23.04.25

Photo is smaller and wider than real life view