

1st August 2024

Robert Frame

Client
Rocket Frame Builders Limited
info@rfbuilders.net.nz (Via Email)

Attention: Robert Frame

Project Ref: #2455243

Letter Ref: E-LTR-G-002

353 Dunstan Road Wastewater Report

Hi Bob,

Please find attached in the link below, the Wastewater Design Report for 353 Dunstan Road.

Thank you for contacting us to provide the required reporting.

Yours faithfully



Ollie Behrent
Geotechnical Team Leader

Attachments

1. Wastewater Reporting

[📎 2455243_REP001_2024-08-01_353_Dunstan_Road_Wastewater_Report_Rev1.pdf](#)

Disclaimer

Third Parties: This letter has been prepared for the sole use of our client, for the particular brief and on the terms and conditions agreed with our client. It may not be used or relied on (in whole or part) by anyone else, or for any other purpose, or in any other contexts, without our prior written agreement. We will not be liable for any loss, damage, cost, or expense incurred by such other persons.

Disciplines are limited to those stated: Although we are a multi-disciplinary organisation, we only provide input on each project from the particular disciplines engaged by our client and expressly stated in this document and our obligations are limited to the inputs expected from those specified disciplines. Please let us know if you would like to engage additional services or disciplines for your project.



KIRK ROBERTS
CONSULTING



Structural | Geotechnical | Civil | Environmental | Fire

ENGINEERING
SERVICES

353 Dunstan Road,
Alexandra

JOB No.: 2455243
DATE: 1 August 2024
ISSUE: 1

WASTEWATER DESIGN REPORT

find better ways.

QUALITY CONTROL

Title 353 Dunstan Road, Alexandra – Wastewater Report

Client Rocket Frame Builders Limited

Version A

Status FINAL

Date 1 August 2024

Project Number 2455243

Author Elliott Samuel
BSc (Geol)
Engineering Geologist

Signature:



Reviewed By Name: Ollie Behrent
BAppSc, PMEG, MEngNZ
Geotechnical Team Leader

Signature:



Limitations

This report has been prepared at the specific instructions of our client in connection with the above project and in support of a Building Consent application with Queenstown Lakes District Council.

Only our client is entitled to rely upon this report, and then only for the purpose stated above. Kirk Roberts Consulting accepts no liability to anyone other than these parties in any way in relation to this report and the content of it and any direct or indirect effect this report may have. Kirk Roberts Consulting does not contemplate anyone else relying on this report or that it will be used for any other purpose.

Should anyone wish to discuss the content of this report with Kirk Roberts Consulting, they are welcome to contact us on [07 571 0950](tel:075710950) and www.kirkroberts.co.nz

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1. INTRODUCTION

Kirk Roberts Consulting Engineers have been engaged to undertake the design of an on-site wastewater management system for a proposed residential dwelling at 353 Dunstan Road, Alexandra. The following design allows for the treatment of all wastewater generated from the dwelling in Appendix A.

Street: 353 Dunstan Road, Alexandra

Legal Description: Lot 1 DP 316193

Site Area: 25,150 m² (approx.)

Council: Central Otago District Council

Regional Council: Otago Regional Council

The site is fully vegetated with grass and is flat lying. Access to the site is off Dunstan Road down an existing driveway. The site is occupied by an existing residential dwelling.

Information Attached:

Information provided in support of the design includes the following:

- Design calculations.
- Site plan – locating proposed secondary treated wastewater treatment unit and disposal area.
- ORC Bore Map.
- LAA Cross Section and Plan View.
- Floor plan of the proposed dwelling.
- Hand Auger logs (HA01 – HA06) – locations shown on site plan.
- Hynds FujiClean ACE NZ1500 Technical Sheet.

2. REGULATIONS

Design for the wastewater system and effluent disposal system is in accordance with AS/NZ 1547:2012, On-site domestic wastewater management.

All work must comply with the New Zealand Building Code. Relevant sections of the New Zealand Building Code include B1 Structure, B2 Durability, G9 Electricity (if electrical power is involved) and G13 Foul Water.

3. PREVIOUS INVESTIGATIONS

No previous consents for wastewater disposal within the lot have been provided to Kirk Roberts Consulting.

4. SITE INVESTIGATION

Site investigations conducted on site took place on the 24th of July 2024 and consisted of the following:

- Site walkover and inspection by an Engineering Geologist.
- 6 hand auger boreholes and 4 scala penetrometer tests across the site to determine subgrade soil characteristics.
- Review of desktop data and available soil records from nearby previous investigations.
- Site Assessment – Surface Evaluation.

Hand Auger logs and locations are located in Appendix B.

5. SITE CHARACTERISTICS

5.1 Slope Stability/Analysis

The site is relatively flat with minimal slope across the proposed disposal area and therefore, no reduction factors are required to be applied to the Design Loading Rate (DLR).

5.2 Site Characteristics

Mean annual rainfall total: 351 - 400 mm Otago Regional Council - GrowOtago			
Vegetation Cover: Full grass coverage + Maple trees			
Slope Shape: Linear			
Slope Angle: Very gentle (Flat)			
Surface Water Drainage: Land Application Area set away from pathways and hard surfaces.			
Flooding Potential: No, CODC does not show any flood hazard features associated with the investigated site.			
Seasonal Water Tables: ORC Bores¹			
Winter: >24.71 m bgl		Summer: >24.71 m bgl	
Water table: Nearby borehole (G42/0602) located west of site at Dunstan Road has groundwater 24.71 m (bgl).			
Surface Water Separation: Refer to the site plan attached. 50 m clearance to water courses achieved with disposal field in location provided.			
Site Clearances: Refer to the site plan attached. All clearances with exception to surface water separation are as per table 6.2 (R1 and R2 have been adhered to).			
Site Characteristics: Disposal field is clear of any obstructions or negative features that could cause ponding or any other detrimental effects to the receiving soils and is grassed.			
Disposal System Aspect: The site is clear of any obstructions and receives north facing sunlight.			
North	√	East	West
North-West	√	South-East	South-West
North-East	√	South	

5.3 Site Geology

Published geological information² indicates that the site is underlain by OIS4 (Late Pleistocene) outwash deposits of Albert Town Advance comprised of unweathered to slightly weathered, loose, sandy to silty, well-rounded gravel usually on large outwash plains.

Was Fill Material Intercepted During the Sub-soil Investigation? No
Has Percolation Testing Been Carried Out?: No
Is Topsoil Present?: Yes
Topsoil Depth: 0.10 m within proposed dispersal area (refer HA-01 - HA-06).

¹ Otago Regional Council, ORC Bores, data retrieved July 2024 from <https://maps.orc.govt.nz/portal/home/webmap/viewer.html?useExisting=1&layers=e105e799a22b47368e3bcfb7d20a54c1>

² New Zealand Geology Webmap, 1:250K Geological Units, data retrieved July 2024 from <https://data.gns.cri.nz/geology/>

Soil Category and Classification: Category 1 – Gravels and sands, Structureless (massive). As per assessment from hand augers when wastewater investigation was carried out (refer HA-01 - HA-06).

Field photos



Photograph 1 Looking north, indicates a flat lying site with grass vegetation.



Photograph 2 Hand Auger 5 indicates Category 1 soils encountered directly below topsoil.

6. DESIGN INFORMATION/ASSUMPTIONS

below shows a summary of information/assumptions used in the on-site wastewater management design. The plans provided indicate the dwelling consists of 3 bedrooms. There are no other potential rooms in the dwelling that could be utilised as a future bedroom. The treatment system is designed specifically for the proposed dwelling with a total of 3 bedrooms.

Utilising the bedroom occupancy of the dwelling and Table J1 of AS/NZS1547:2012, the wastewater treatment capacity design will be for an occupancy of 5 people.

Table 6.1 below shows a summary of information/assumptions used in the on-site wastewater management design. The plans provided indicate the dwelling consists of 3 bedrooms. There are no other potential rooms in the dwelling that could be utilised as a future bedroom. The treatment system is designed specifically for the proposed dwelling with a total of 3 bedrooms.

Utilising the bedroom occupancy of the dwelling and Table J1 of AS/NZS1547:2012, the wastewater treatment capacity design will be for an occupancy of 5 people.

Table 6.1: Summary information.

ITEM	DESCRIPTION	DESIGN INPUT	NOTES
1.0	General		
	Basis of Design	AS/NZ 1547:2012	
2.0	Determining Design Flow		
	Water supply	Water bore/Private Water Scheme	
	Water Fixtures	Standard water fixtures	Refer NZS1547 Table H3
	Unit Flow Factor	200 l/day –	Refer NZS1547 table H3
	Typical occupancy	5	3-bedroom house as per the architectural plans supplied

	Design Flow	1,000 L/day	Unit flow factor x design occupancy
3.0	Design Loading Rate (DLR)		
	Method of Land Application	Discharge Control Trench	AS/NZS1547:2012 Figure L4
	Treated effluent	Secondary Treated	
	Soil Category	1	Gravels and sands NZS1547 table E1
	Design Loading Rates	50 mm/day	NZS1547 table L1 for Category 1 Soils – secondary treated. Tertiary Treatment recommended.
	Disposal Area	L = Q / DLR x W L = 1000 / (50 x 1.5) L = 13.4 m W = 3 x 0.5 m wide trenches	Based on daily flow and DLR
4.0	Wastewater Treatment Facility		
4.1	Septic System	Hynds FujiClean ACE NZ1500	
	Tank Capacity	4,370 L Exceeds requirements of Table J1	NZS1547 table J1.
	Septic Filter Type	Oxybee media and Standard irrigation filter	FujiClean ACE NZ1500 – Technical Information
	Emergency Storage Volume	1,104 L	FujiClean ACE NZ1500 – Technical Information
	System Treatment Targets	Total Suspended Solids <10 mg/L BOD <10 mg/L	FujiClean ACE NZ1500 – Technical Information
5.0	Land Application System		
	Effluent Distribution Method	LPED via Discharge Control Trench	Appendix D
	Pump System	Submersible FS-756 or FS-5025	FujiClean ACE NZ1500 – Technical Information
	Spacing between disposal pipes	1.0 m	As per Table L2, AS/NZS1547:2012
	Dimensions of Effluent Field	3 x 13.4 m long x 0.5 m wide trenches Combined dispersal and reserve area = 40 m ² (approx.)	
	Distribution System	1 x distribution pipe lengthwise in each 0.5 m bed. 25 mm pipe within distribution pipes providing LPED disposal. Details attached below indicate the penetrations in the pipe work for disposal. Depth to base of field: 1.0 m below ground level.	LAA Soakage Cross-Section Appendix D
	Monitoring/Flush Ports	Installed at end of each line	Appendix D
	Are Surface Water Interception/Diversion drains Required?	Yes, Plan provided	Shown in Appendix D

Table 6.2: Site clearances as per table R1 & R2 (all approximated).

Separation Distance from	Treatment Separation Distance (m)	Disposal Field Separation Distance (m)
Boundaries	>5.0m	>2.50m
Surface water	>20m	>20m
Groundwater	>1.2m	>1.2m
Stands of Trees/Shrubs	>5.0m	>2.0m

Wells, water bores	>50 m as Per ORC Requirement	>50 m as per ORC requirements
Embankments/retaining walls	>5.0m	>5.0m
Buildings	>5.0m	>5.0m
Other (specify):		

7. CONSTRUCTION, INSTALLATION, OPERATION AND MAINTENANCE

7.1 Construction and Installation

To meet the performance requirements for the construction and installation of on-site system, waste-water systems shall comply with NZS1547:2012 and a maintenance agreement needs to be made with the treatment and disposal system supplier.

Prior to construction the contractor will test hole (2) locations within the primary and reserve disposal fields to confirm assumptions from the geotechnical data. The base of the Land Application Area shall be founded within the Gravel layer (Category 1 Soils). The system design will be confirmed once these conditions have been evaluated.

The trench to be constructed as in Figure L4 with the effluent pressure dose loaded by pump, from the wastewater treatment unit. The sand-fill media shall be a medium sand with a grain size of 0.25 – 1.0 mm, a uniformity coefficient less than 4, less than 3% fines passing a 200 sieve (0.074 mm), free of lay, limestone and organic material. Polyethylene lining of the sides of the trench is required to ensure the dosed effluent passes through the full depth of the sand.

7.2 Operation, Maintenance and Monitoring

Operation and maintenance procedures are needed to help achieve effective long-term performance from the on-site system so that it complies with the public health and environmental requirements. Operation and maintenance of on-site system shall be in accordance with NZS1547:2012 Appendix T.

7.3 Wastewater Tank and Effluent Disposal Recommendations

Kirk Roberts Consulting have specified a Hynds FujiClean ACE NZ1500 system as it has the operating capacity to treat the daily flow of wastewater from the proposed dwelling. The design has been completed in accordance with AS/NZS1547:2012.

A discharge control trench bed utilising LPED distribution has been selected for disposal due to Category 1 gravels and sands soil encountered on site. The proposed disposal system is located on a portion of ground with a slope less than 10% and therefore no requirement for slope reduction factors is necessary.

The location of the disposal field is greater than 50 m from water courses onsite and therefore does not require a discharge consent from the Otago Regional Council. The location of the disposal field shall not be shifted without written approval from Kirk Roberts Consulting.

It is important that disposal areas are not developed/surcharged with building works and to ensure effluent field is sufficient distance from house to ensure maximum sunlight on disposal areas.

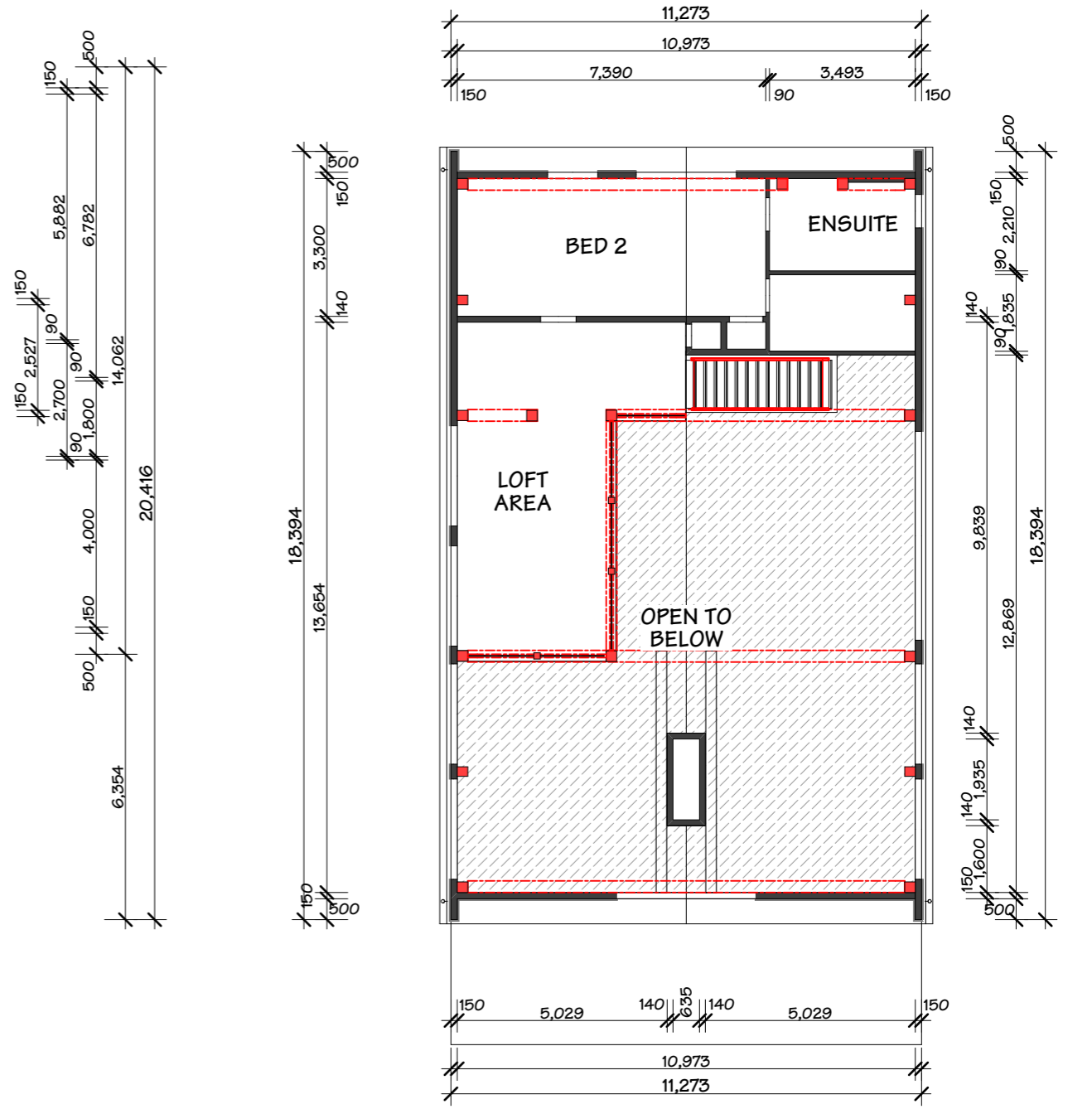
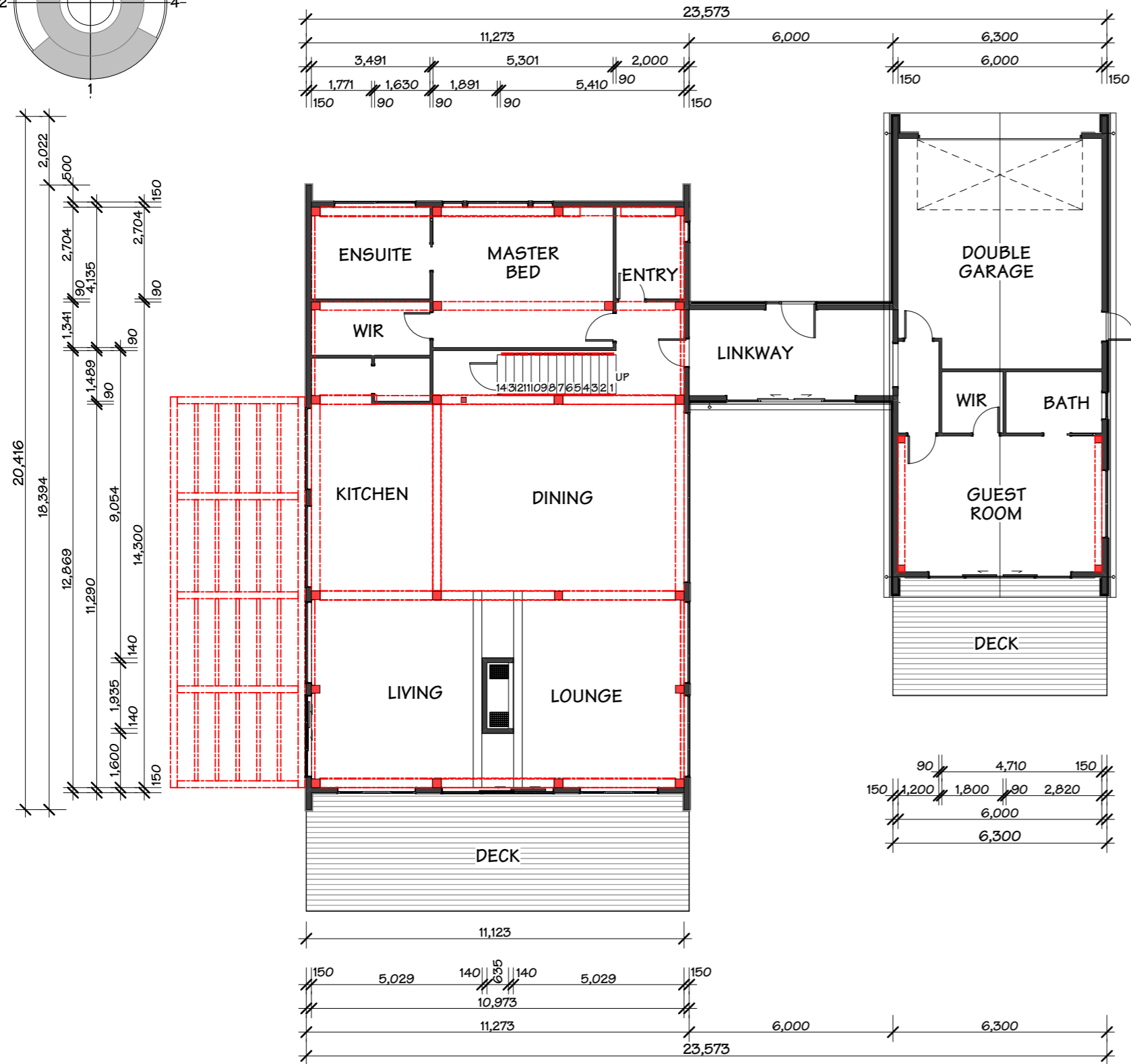
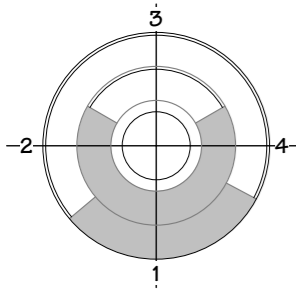
All disposal areas are to be kept clear of stock or vehicle movements. Damage to the land application area can render the system ineffective and dictate the need to install new beds within the reserve area. Fencing the disposal area will be required if stock are present.

The system shall be installed by a registered drain layer and associated Central Otago District Council and Regional Council Certificates & Producer statements completed for Code Compliance application.

Should you have any queries please do not hesitate to contact us.

Appendix A Site Plans

1. Dwelling Layout
2. Site Investigation Plan and Land Application Area Plan



JOB TITLE:
PETER WILLIAMS

DRAWING TITLE:
DIMENSION PLAN

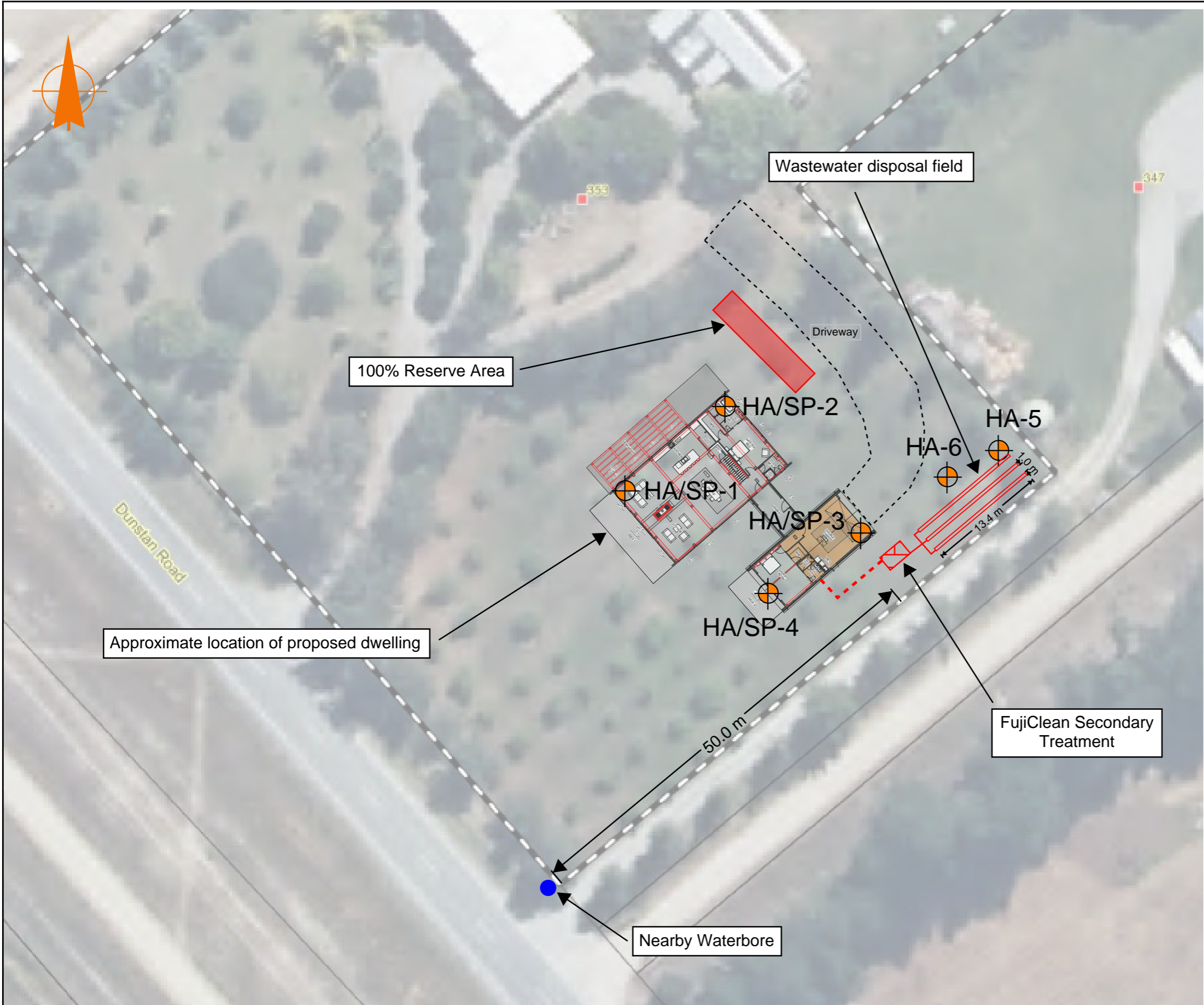
LEGAL DESCRIPTION:
LOT: TBC
DP: TBC
ADDRESS: TBC

NOTES:
- Subject to council approval
- All measurements to be confirmed on site by the contractor prior to the commencement of work.
- All construction to comply with the NZBC/NZS:3604, alongside with all standards alike.

DATE OF ISSUE:
03 MAY 24
AMENDMENT DATE:
240503.1430
VERSION:
WD-01

DESIGNER:
HTC
DRAWN:
JON
CHECKED:
JON

SCALE:
1:150
JOB#:
23071
SHEET:
4



LEGENDS

 Scala Penetrometer and Hand Auger locations, July 2024

NOTES

Location of Features and Ground Investigation points are approximate only.
 Site Plans Sourced from Central Otago District Council Property Viewer.

PROJECT: 2455243
 CREATED BY: ES
 APPROVED BY: OB
 DATE: July 2024

DWG NO: 002
 REVISION: A
 Scale: As shown

353 Dunstan Road, Alexandra

**WASTEWATER INVESTIGATION
 LOCATION PLAN**



Appendix B Site Investigations

1. Kirk Roberts Consulting – Hand Auger Logs (HA-01-HA-06)

Appendix C Council Maps

1. Otago Regional Council Bore Map

Hazardous Activities and Industries Map



LINZ, DCC, WDC, CDC, QLDC, CODC and ORC, Deprecated Basemap - Eagle Technology, Land Information New Zealand, OpenStreetMap Contributors, Kiwi rail.

- BoreData - Aquifer Test
- Irrigation
- No use code
- Unverified HAIL
- Domestic
- Small Community Supply
- Verified HAIL
- ORC Properties



Information on this map may not be used for the purposes of any legal disputes. The user should independently verify the accuracy of any information before taking any action in reliance upon it. This map was generated for A4 printing on 24/07/2024 at the scale of 1:4,514.

Appendix D LAA Plans

1. LAA Plan View and Cross Section

CALCULATION SHEET

PROJECT: 353 Dunstan Road, Alexandra

Title: LAA Section View

By [initials]: ES

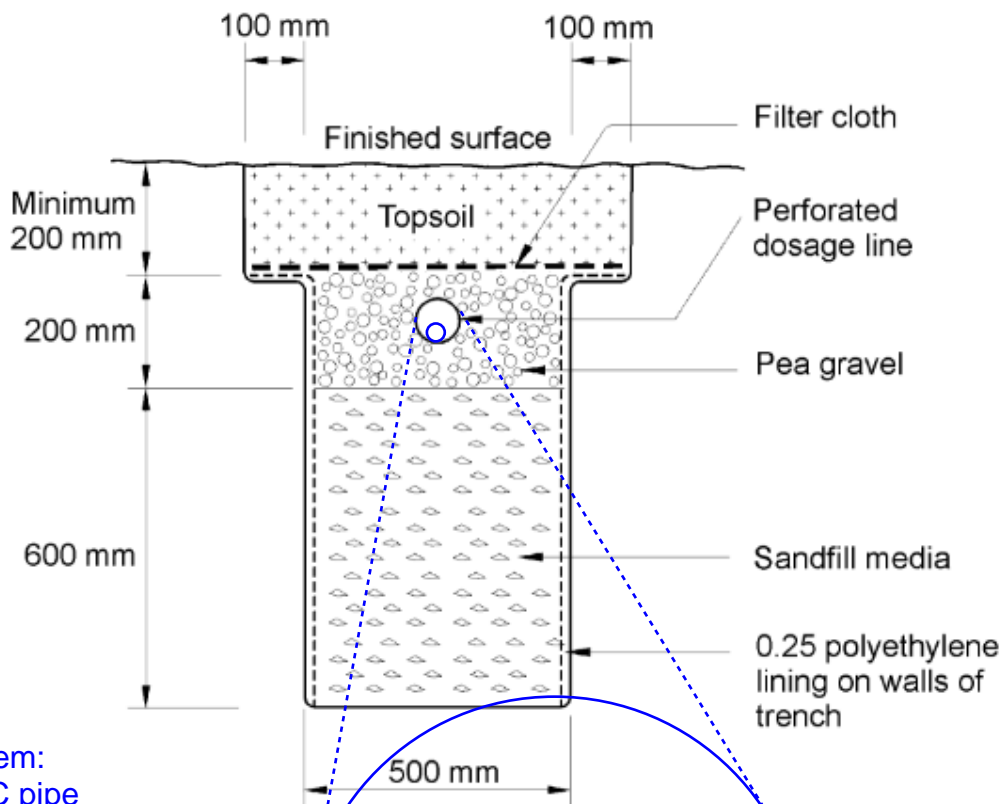
Sheet No: 1

Project No: 2455243

Date: 25/07/2024

Rev: 1

Figure L4 sourced from AS/NZS1547:2012
with markup by Kirk Roberts Consulting



LPED System:
25 mm PVC pipe
with 8 mm holes
drilled at 0.5 m
centres

10 mm holes at 0.5 m
centres drilled in 100
PVC pipe at approx. 5
and 7 o'clock

CALCULATION SHEET

PROJECT: 353 Dunstan Road, Alexandra

Title: Land Application Area Plan View

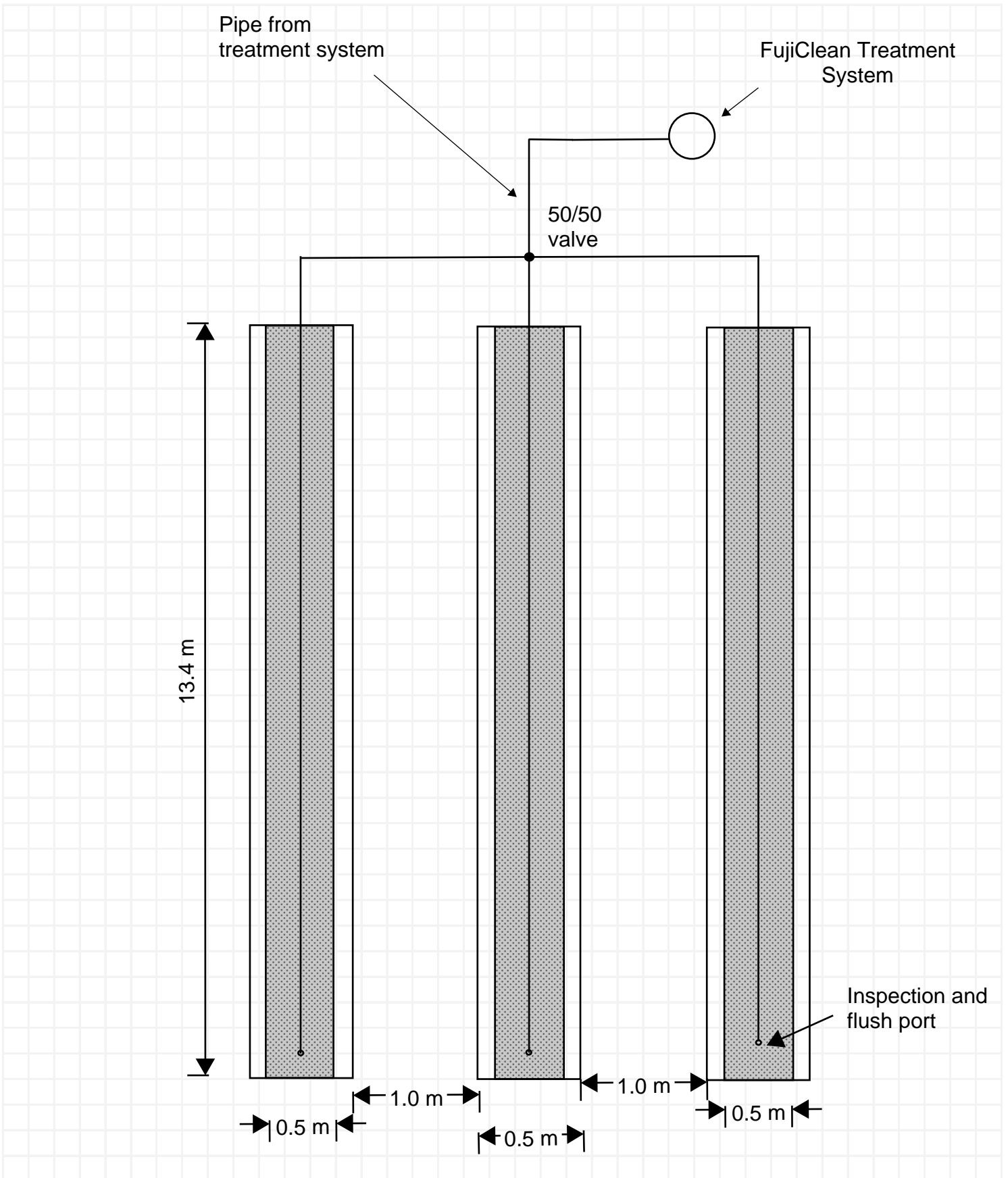
By [initials]: ES

Sheet No: 2

Project No: 2455243

Date: 25/07/2024

Rev: 1



Appendix E Hynds FujiClean ACE NZ1500

FujiClean ACE NZ1500

Aerated Wastewater Treatment Plant

Technical Sheet WW 1.5ACENZ
Updated May 2023

Technical Information

Product:	FujiClean ACE NZ1500
Model:	1.5 m ³ /day - FujiClean ACE NZ1500 Advanced Secondary System AWTS
Process:	Contact Media Filtration Technology
Codes:	VWTP1500ACE

Dimensions Volumes Weights		
Measurements	Unit	Tank
Total Height (incl. riser)	mm	2210
Entry Height	mm	1460
Exit Height	mm	1990
Length	mm	2510
Width	mm	1440
Total Volume	m ³	4.37
Useful Volume	m ³	3.27
Weight	T	0.44
Main Service Entry Ø	mm	600
Primary Chamber Access Ø	mm	450
Desludge Port Ø	mm	450
Inlet/Outlet pipe Ø	mm	Inlet = 100 Outlet = 25 (Pumped)

Material

Tank	FRP (Fibre Reinforced Plastic)
Media (Spherical-skeleton, netblock, net-hollow-cylindrical)	Polypropylene & Polyethylene
Aeration Ramp	PVC PN 16

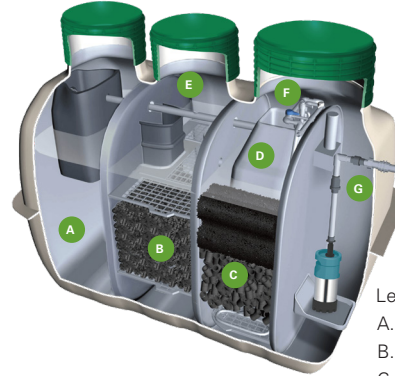
Performances

Influent Quality			
Parameters	Unit	Performances	
		AS 1546.3:2017 Certified Limits	NZ Market Limits
BOD₅	mg/L	467	373
	kg/day	0.56	0.56
TSS	mg/L	467	373
	kg/day	0.56	0.56
TN	mg/L	100	80
	kg/day	0.12	0.12
Fat & Oil*	mg/L	50	50
Detergent	mg/L	10	10
Daily flow	L/day	1200	1500
Application Limits	Domestic wastewater		
	• Single dwelling		
	• Max. 8 people		

Effluent Quality			
Parameters	Unit	Performances	
		AS 1546.3:2017 Certified Limits	NZ Market Limits
BOD₅	mg/L	<5	<10
TSS	mg/L	<5	<10
TN	mg/L	<15	<15
Dosing Volume	L/Activation	150 - 200	150 - 200

* A grease trap is required for wastewater coming from a commercial kitchen

Features



Legend

- A. Primary treatment chamber
- B. Anaerobic filtration chamber
- C. Aerobic contact filtration chamber
- D. Clarification chamber
- E. Recirculation and sludge transfer
- F. Airlift pump(flow equalisation)
- G. Pump out/irrigation chamber

Operation

Installation Limits	
Traffic Load	Not permitted
Safe Loading (Max depth of cover to tank)	450 mm

Useful Volumes	
Primary Treatment Chamber m³	1.114
Anaerobic Filtration Chamber m³	0.982
Aerobic Contact Filtration Chamber m³	0.580
Clarification Chamber m³	0.281
Pump Station m³	0.308
Emergency Storage m³	1.104

Maintenance		
	AS 1546.3:2017 Certified Limits	NZ Market Limits
Desludging Required (Primary Chamber)	3 Years	3 Years
Servicing Frequency	3 monthly	6 monthly

Electromechanical Components	
Blower Type	Diaphragm FujiMAC100RII
Blower Rated Output	0.068kW
Average Noise Level	39 dB
Voltage	Single Phase 230V
Air Diffusers	2
Type of Air Diffusers	Air bubble
Type of Sludge Recirculation	Airlift
Controller	FujiClean ACE NZ1500
Pump Type	Submersible FS-756 or FS-5025
Pump Rated Output	0.55kW or 1kW

Consumables (Subject to Recommended Servicing)	
Air Filter	Every 1 year
Diaphragm	Every 2 years
Air Diffusers	Every 8 years

Components and Options

FujiClean ACE NZ1500 Components

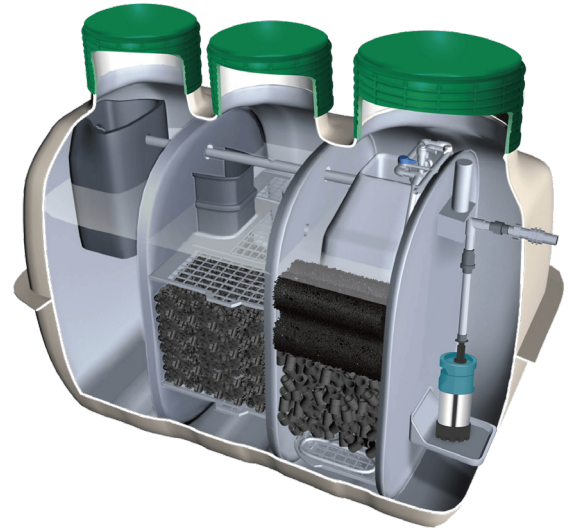
Kit Components	Quantity	Length (mm)	Diameter/Width (mm)	Heights (mm)	Weight (T)
Treatment System	1	2510	1440	2210	0.44
Filter Access Lid	2	-	450	-	-
Main Access Lid	1	-	600	-	-
Irrigation Filter - 130 Micron	1	-	-	-	-

For further details please contact Hynds Wastewater Team

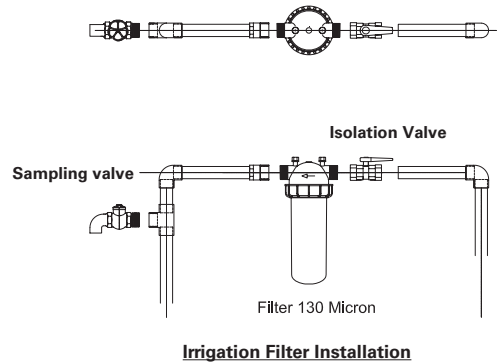
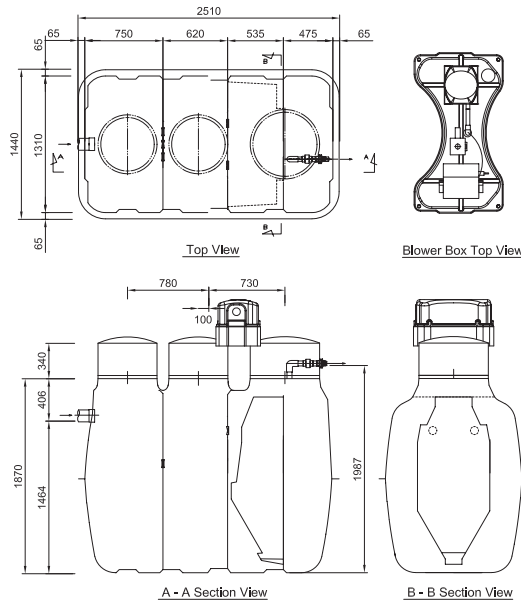
FujiClean ACE NZ1500 Options

Kit Components	Quantity	Length (mm)	Diameter/Width (mm)	Heights (mm)	Weight (T)
PP Riser Kit Complete	-	-	2x Ø450 1xØ600	150	-
PP Riser Kit Complete	-	-	2x Ø450 1xØ600	300	-
PP Cover Lids	-	-	2x Ø450 1xØ600	-	-
Pump - FS-756 or FS-5025	-	-	-	-	-
Blower - FujiMAC100RII	-	-	-	-	-

For further details please contact Hynds Wastewater Team



Dimensions



NOTE: The sampling valve must be locked or rendered inoperable. Location of the sampling valve must be clearly marked "Wastewater - Do not drink/use"

Certifications/Accreditations



Warranties

	Year	Extension
Tank	10	NA
Other Components	2	NA

Supporting Documents and Resources

Installation Manual	Owner's Manual
Operation and Maintenance Manual	Field Service Report
Global Certificate AS1546.3:2017/AS1546.1:2008	Installation & Commissioning Report
Loading certificate (By Designer)	Claims Procedure & Certificate of Warranty
ID Card(where applicable)	Service Contract

Conditions of Warranty:

- Refer to Hynds Wastewater Warranty Terms and Conditions
- Commissioning report completed and returned by trained installer
- Documented service history commencing from commissioning date

Important Pump/s Disclaimer: The selected pump must match the hydraulic requirements of the land application system (LAS) for the specific on-site wastewater management system (OWMS). As there are several different LAS designs, each will require pumps to provide the required pressure and flowrate to ensure sustained and effective LAS performance. It is strongly recommended that the specifications of the selected pump for each OWMS are formally provided by the designer of each OWMS.

hyndswastewater.co.nz
0800 425 433

Disclaimer: While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.

HYNDS
WASTEWATER

CUSTOMER & SYSTEM DETAILS		
Customer Name:	Blower Serial number:	
Treatment system type & Size:	Tank number:	
Site Address:	Date of Service:	
Time of Arrival:	Time of Departure:	Job Number:
Service Company:	Service Persons name:	

GENERAL STATE			
State of unit on arrival:	<input type="checkbox"/> Operational	<input type="checkbox"/> Non-operational	
Number of occupants:	Date of last desludging:		
Unit well vented:	<input type="checkbox"/> YES	<input type="checkbox"/> NO*	
Smell detected near the unit	<input type="checkbox"/> None	<input type="checkbox"/> A little*	<input type="checkbox"/> Significant*
Water appearance at the outlet	<input type="checkbox"/> Colourless	<input type="checkbox"/> Slightly coloured*	<input type="checkbox"/> Coloured*

PRIMARY CHAMBER/S			
Sludge level in primary tank (cm):	Crust thickness in primary tank (cm):		
Primary tank must be deslugged	<input type="checkbox"/> YES	<input type="checkbox"/> NO	
Primary filter cleaned	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A
Inlet junction	<input type="checkbox"/> Clogged	<input type="checkbox"/> Unclogged*	

REACTOR CHAMBER/S			
Aeration operating	<input type="checkbox"/> Well	<input type="checkbox"/> Poorly*	
Foam detected in the reactor	<input type="checkbox"/> None	<input type="checkbox"/> A little*	<input type="checkbox"/> Significant*
Inlet junction	<input type="checkbox"/> None	<input type="checkbox"/> A little*	<input type="checkbox"/> Significant*

CLARIFIER			
Sludge return operating	<input type="checkbox"/> Well	<input type="checkbox"/> Poorly*	
Purge sludge return	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Floating matter	<input type="checkbox"/> None	<input type="checkbox"/> A little*	<input type="checkbox"/> Significant*
Inlet/s cleared	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A

IRRIGATION CHAMBER			
Floating matter	<input type="checkbox"/> None	<input type="checkbox"/> A little*	<input type="checkbox"/> Significant*
Pump screen cleaned	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Chamber flushed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Chamber vacuumed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A

IRRIGATION FIELD

Irrigation filter cleaned	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Air valve working	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Flushed lines	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A
Field operating	<input type="checkbox"/> Well	<input type="checkbox"/> Poorly*	

BLOWER

Blower operating	<input type="checkbox"/> Well	<input type="checkbox"/> Poorly*	
Air filter	<input type="checkbox"/> Replaced	<input type="checkbox"/> Cleaned	
Timer on blower (if yes: time on / off)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	/ min

CONTROLLER

High level alarm	<input type="checkbox"/> Operational	<input type="checkbox"/> Non-operational	
Air alarm	<input type="checkbox"/> Operational	<input type="checkbox"/> Non-operational	
Vacuumed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

INVESTIGATION (IF REQUIRED)

Samples taken	<input type="checkbox"/> Influent	<input type="checkbox"/> Effluent	
Dissolved oxygen level in reactor:	mg/l		
Water temperature in reactor:	°C		
pH level in reactor:			

COMMENTS

* All service checks selected with an "*" must have a description of the remedial action required to ensure the component is in good working condition

Checked by:

Signature:

Date:

Appendix F Risk Letter

1 August 2024

Rocket Frame Builders Limited
info@rbuilders.net.nz

(by email)

JOB NO. 2455243

To whom it may concern,

Re: On-Site Effluent Disposal Risk Reduction Report for 353 Dunstan Road, Alexandra

Kirk Roberts have undertaken an on-site investigation of the site and soil characteristics at the above site on 22nd July 2024. We have designed a secondary treated wastewater system with land application via LPED within a control discharge trench. A FujiClean ACE NZ1500 secondary treated wastewater system & has been selected for the site.

We have considered the following factors when locating the disposal field to reduce the risk to the surrounding environment and public health:

- Tank located such that contractor will be able to access for de-sludging and maintenance services.
- Tank to be situated to ensure the pump within the system has sufficient capacity to pressurise disposal system.
- The FujiClean system has the sufficient capacity to treat the 1000L of wastewater produced per day.
- A 100% reserve area has been provided if ever required.
- Effluent from the wastewater treatment unit receives further treatment by natural processes in the land application system. Effluents spreads across the full land application area and soaks into the surrounding soil. The soil and bacteria in the soil provide further treatment.
- In the absence of documentation stating otherwise, standard water fixtures have been assumed to have been installed in the existing dwelling. Daily effluent volume may be further decreased by way of standard or full water reduction fixtures if required.
- The disposal field is to be fenced off if vehicle trafficking or stock are expected within proximity of the field.
- Minimum requirements of setbacks to effluent field from buildings, boundaries & trees are exceeded.
- The Otago Regional Council Bore map indicates no bores are located within 50.0 m of the disposal system.

Should you have any queries please do not hesitate to contact us.

Yours sincerely,



Elliott Samuel
Engineering Geologist