9 September 2022

Consents Officer
Selwyn District Council
P O Box 90
Rolleston 7643

CC
Consents Officer
Environment Canterbury
P.O. Box 345
Christchurch 8140

PRODUCER STATEMENT – DESIGN

Onsite Wastewater Treatment & Land Application Systems for Proposed Subdivision Resource Consent Application for the Discharge of Onsite Wastewater to Land

Global wastewater consent for 3 lots of proposed subdivision

Owner:	Lochlea Farming Co Ltd
Address:	606 Ridge Road Motukarara Selwyn District
Legal Description:	Subdivision of Section 3 Block VI Reserve 959
Certificate of Title:	CB25B/823
Land Area:	42.4161 hectares
Proposed Subdivision:	Lot 1 – 4.65 hectares, existing dwelling Lot 2 – 1.0000 hectare Lot 3 – 1.0000 hectare Lot 4 – 1.0000 hectare Lot 5 – 34.75, no dwellings - no build covenant
SDC RCN:	

Introduction:

This report considers the site conditions affecting the design of an on-site wastewater treatment and land discharge system, and provides recommendations and specifications as a Resource Consent* application based on:

Environment Canterbury Land & Water Regional Plan (LWRP) Rule 5.8; Conditions 1-7 - Discharge of wastewater from a new, modified or upgraded on-site domestic wastewater treatment system onto or into in circumstances where a contaminant may enter water and;
Australia/New Zealand Standard 1547:2013 – On-site domestic wastewater management

Note: The statements herein do not approve the installed system.

*Resource Consent required due to non-compliance with the following conditions of Rule 5.8:

- Condition 2: discharge is onto land area less than 4 hectares

All other conditions of Rule 5.8 comply

Site Description:

The site is located at 606 Ridge Road, Motukarara. It is legally described as proposed Lots 2-4; subdivision of Lot 1 DP 3694 – SDC subdivision application pending on wastewater consent

- Water supply is from individual on site wells – to be drilled. Well envelope area as shown – 20 metres off all boundaries (LWRP Rule 5.113) and 50 m separation to proposed land application system envelopes (LWRP Rue 5.8; Condition 3e)
- There are no drains, water bodies or wells (including proposed property well) in the vicinity of the proposed land application system envelopes
- No sign of instability, or flooding, was observed or historically noted, within the site or in the vicinity of the proposed land application system

Soil Evaluation:

The soil evaluation was carried out on: Wednesday 13th July 2022.
2 test pits excavated within the areas of the proposed land application system envelopes.
Holes excavated up to 2,200 mm. Refer to subdivision detail and site evaluations for test pit detail

Typical Soil Profile:	400 mm	topsoil
	400 mm	silt loam
	>800 mm	sandy loam to fine sand

Proposed System Design Parameters:

Domestic effluent will be treated by an approved aerated (advanced) wastewater treatment system (AWTS):

- 3-bedroom dwelling – 40 m² conventional bed
- 4-bedroom dwelling – 56 m² conventional bed
- 5-bedroom dwelling – 64 m² conventional bed
- 6-bedroom dwelling – 80 m² conventional bed

As per the accompanying Wastewater System Detail.

No adverse effects on the environment or surrounding neighbours are envisaged as a result of the above standard of treatment.

This wastewater treatment design complies with all relevant regulations contained within the Building Act 2004 and its associated regulations, namely:

- B1 – Structural – the aerated wastewater treatment (AWTS) system chosen must meets the requirements of AS/NZS 1546 Pt 1:2008
- B2 Durability – Waterbased is confident that all component materials of the wastewater system described herein, meet the durability requirements of B2, and in particular, Table 1 for plumbing and piping.
- G13 Foul Water – All conditions and requirements, in regard to the septic tank and sand trench/bed design, under G13 can be met.
- E1 Surface Water – All stormwater will be diverted away from the installed on-site wastewater system.

Design Criteria:

Design criteria based on AS/NZS1547:2012 and ECAN guidelines

Soil Classification: well drained; Category 1-3 soil – Kaiapoi deep silt loam over sand
Conservatively taken as Category 3-4 to allow for winter wetness
NOTE: Classification at base of land application system

Design basis: Conservative, maximum Design Loading Rate (DLR) = 25 mm/day (actual based DLR for silt loam / loam 30-50 mm/day, ex secondary treatment)

Design volumes: Design volumes for various house sizes.
Volume of wastewater generated per day

3-bedroom dwelling (up to 5 people)	= 1,000 litres/day
4-bedroom dwelling (up to 7 people)	= 1,400 litres/day
5-bedroom dwelling (up to 8 people)	= 1,600 litres/day

Based on 200 litres/person/day on a reticulated water supply (AS/NZS 1547:2012 Table H3 & Table J1).

LAS areas: Required wastewater discharge areas dependent of dwelling bedroom number
Wastewater volume / conservative design irrigation rate of 25.0 mm/day

3-bedroom dwelling @ 1,000 litres/day	= 40 m^2
4-bedroom dwelling @ 1,400 litres/day	= 56 m^2
5-bedroom dwelling @ 1,600 litres/day	= 64 m^2

Refer to attached LAS design & detail. Note; LAS located in an envelope as indicated.

Assessment of effects:

a) Description of system – as above

b) Significant adverse effects on the environment – effects considered to be less than minor provided the system performs to manufacturer's claims and is installed as per the accompanying wastewater system design.
c) Separation distance to all open water sources > 20 metres from land application system envelope. Nearest surface water to subdivision canal; 210 m east, cross-gradient
d) Discharge outside of all surrounding well protection zones including proposed wells
    i. Property wells; > 50 m – to be drilled as part of subdivision, refer to site plan
    ii. Nearest neighbouring well M36/1501; 85 m W of nearest proposed land application system envelope on Lot 3
    iii. Nearest downstream neighbouring well M36/1501; 135 m S of nearest proposed land application system envelope on Lot 1
    iv. No downstream community wells
e) Land application located with separation distance to groundwater is conservatively > 1.8 metres (July 2022 record rainfall month). Gleyed soil observed @ 2.2 m below ground level.
   Base of modified conventional bed 0.2 m below ground level.
   >1.6 m separation Rule 5.8 Condition 3h
f) Proposed land area of discharges (land application system envelopes) not contaminated – refer LLUR sheet. Possible further investigation as part of subdivision consent
g) Land application system envelopes positioned out of any potential flood areas. Elevated land, refer LIDAR map and profile
h) Not listed as an archaeological site nor registered as a Ngai silent file, statutory acknowledgement or Rūnanga sensitive area
i) System options considered:
   Approved aerated (advanced) wastewater treatment system (AWTS) to conventional bed land application system chosen as the best option based on the constraints of site and discharge system robustness; limited high land area and good silty/sandy soils

Management and Monitoring:

As with council policy and Environment Canterbury resource consent a service contract MUST be entered into with the owner to ensure the system is commissioned and serviced. The nominated, qualified/experienced service agent, undertakes to service the system once per year, with a copy sent to both the council and homeowner, with a copy retained for their records.

The service contract will remain valid until the property is sold, when a new contract will be entered into with the new owner.

Payment of the service fee must be made by the owner to ensure continuity of the agreed contract.

Servicing is a requirement of the resource consent for discharge of on-site domestic wastewater.
Refer to Environment Canterbury LWRP Rule 5.8 Condition 5.

Installation:

A suitably qualified installation and registered drainlayer will install the approved aerated wastewater treatment system (AWTS), conventional bed land application system and associated pipework.
Installation as per manufacturers/suppliers' guidelines, NZBC G13, AS/NZS 1547:2012 and ECan LWRP Rule 5.8; Condition 4

Within one month of installation, system to be commissioned and Environment Canterbury notified (including a copy of service contract) as per LWRP Rule 5.8; Condition 4. This is the responsibility of the owner/drainlayer/system installer.

System Operation:

The wastewater system must be operated and maintained in accordance of the manufacturers 'Operations & Maintenance Manual' (as provided by the tank manufacturer) and Section 6.3 of New Zealand Standard AS/NZS 1547:2012 – On-site Domestic Wastewater Management, failure to do so may result in the incorrect functioning and premature failure of the system. Correct system operation and maintenance is the responsibility of the owner and is a condition of Environment Canterbury LWRP Rule 5.8; Condition 5.

Certification:

I certify this onsite wastewater treatment system has been designed in accordance with AS/NZS1547:2012 – On Site Domestic Wastewater Management and Environment Canterbury LWRP Rule 5.8 – Conditions 1-4
NOTE:
LWRP Rule 5.8; Condition 4, in part relates to the installation of the wastewater system and is the responsibility of the wastewater system installer.
LWRP Rule 5.8; Conditions 5-7 relate to the installed system and are the responsibility of the property owner.

Disclaimer:

The client, or their specified agent, is to make full disclosure to Waterbased, of relevant information on existing and/or proposed activities on this site that will influence estimation of likely daily wastewater quantity, (potential number of bedrooms and other waste producing activities), and quality, (in particular any chemicals in the water supply and/or wastewater stream potentially toxic to biological processes). This design is based on the site assessment carried out by Waterbased or their agreed agent(s). Subsequent changes to the site that might affect the topography and soil profiles; or changes affecting the likely daily wastewater quantity or quality, are to be notified to the consultant. Failure by the client, or their specified agent, to provide this information will invalidate this design producer statement.

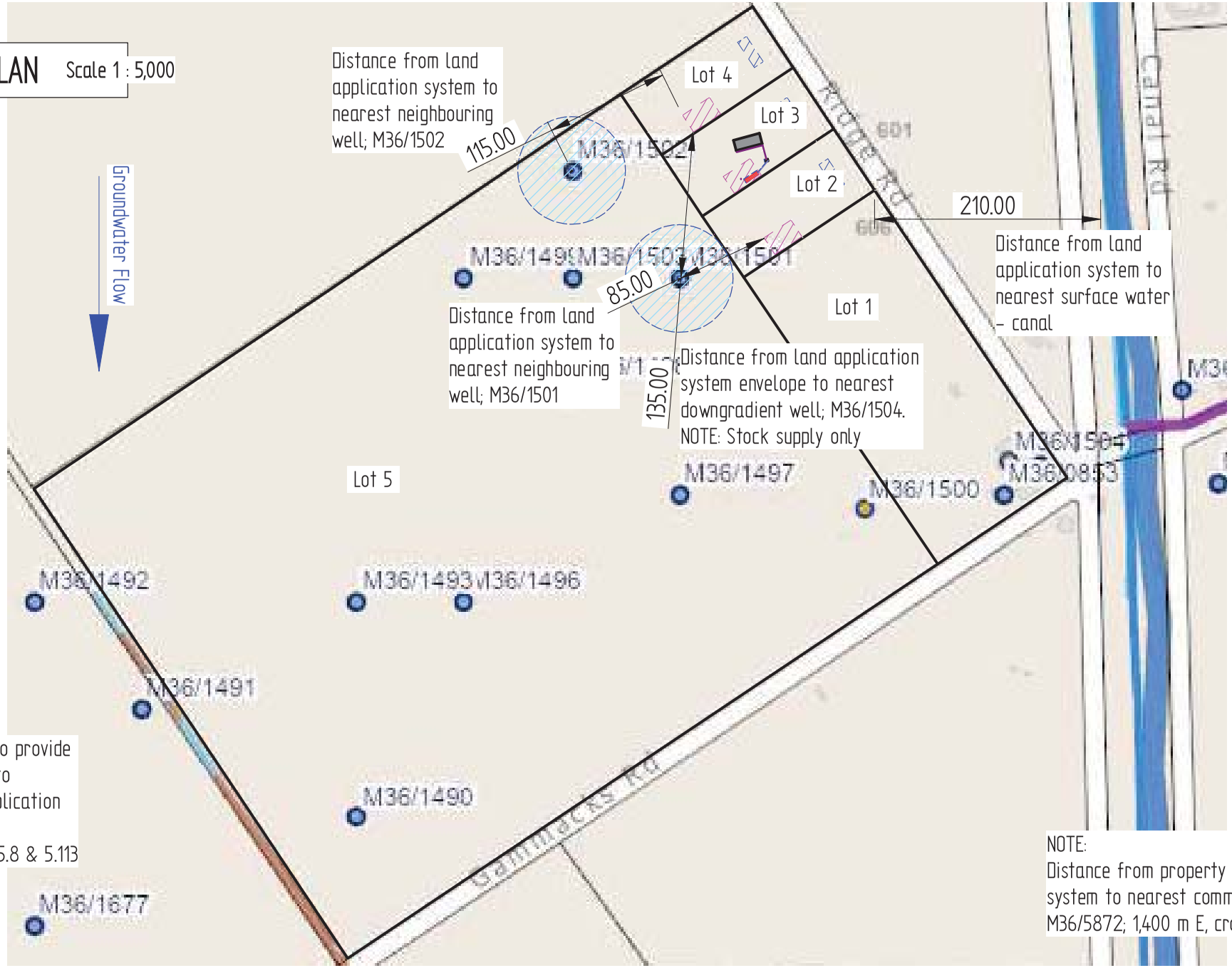
Approval is to be sought from Waterbased, should variations to any specifications and layout in this report/drawing be considered necessary by the installer prior to, or at the time of, installation. Failure to do so will invalidate the Design Producer Statement and Waterbased will no longer take responsibility for the design, and, furthermore, any costs associated with variations of any consents required as a result of any of the aforementioned changes, shall be borne by the client or their specified agent.

Yours faithfully,

Chris Kortegast
Water/Wastewater Engineer

LOCATION PLAN

Scale 1 : 5,000



Land application system envelopes 50 m from well envelopes

Well envelope areas to provide separation distances to boundaries & land application system envelope.
Based on LWRP Rules 5.8 & 5.113

NOTE:
Distance from property boundary system to nearest community wells – M36/5872; 1,400 m E, cross-gradient

waterbased
Consultancy | Design | Systems | Services
www.waterbased.co.nz m 021 928 370 p 03 355 9235

All dimensions to be verified on site.
Unless otherwise stated all dimensions specified are in metres

Global Resource Consent Application for Discharge of On Site Wastewater
Lochlea Farming Co Ltd, Lots 2-4, 606 Ridge Road, Motukarara
Local Authority: Selwyn District Council

LEGAL DESCRIPTION: Lots 2-4 subdn of Section 3 Block VI Reserve 959 | REF: 220704MOT

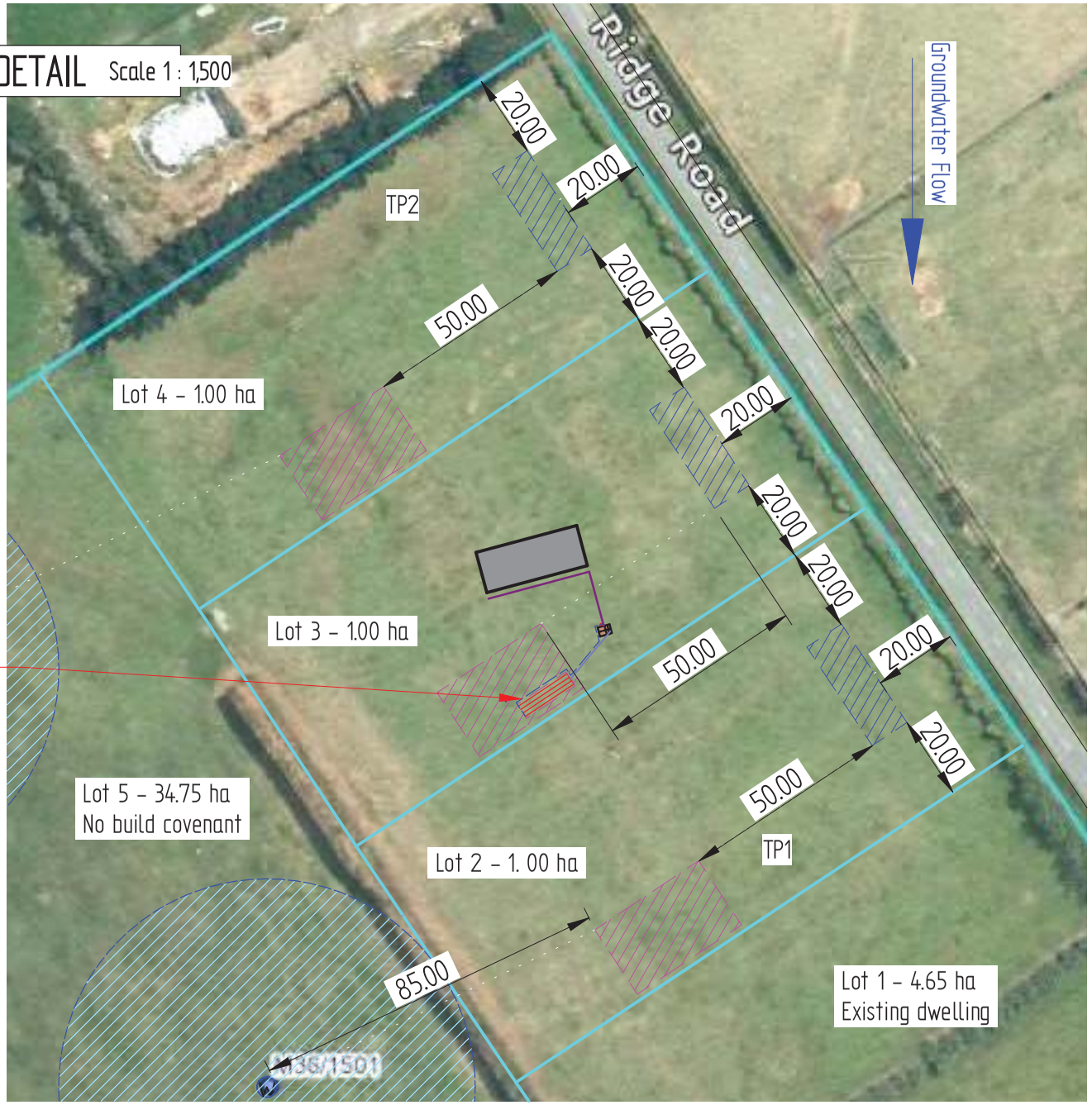
DESIGN: Chris Kortegast
DRAWN: Chris Kortegast
CHECKED:

DATE: 09/09/2022

SHEET 1 OF 6
REVISION:
SCALE: 1 : 5,000 @ A4

SUBDIVISION SITE DETAIL

Scale 1 : 1,500



Test Pit 2 (TP2) – 2,200 mm
400 mm topsoil
400 mm silty loam
>800 mm sandy loam to fine sand
NOTE:
Gleyed @ 2,200 mm below ground level

Indicative 54 m² conventional bed within land application system envelope.
Shown as 4 laterals @ 16 m long
Based on 4 bedroom dwelling @ 1,400 l/day/DLR 25 mm
(conservative, actual 30–50 mm)
AS/NZS1547:2012

= 50 m radius well protection zone

Land application system envelopes 50 m from well envelopes

Well envelope areas to provide separation distances to boundaries & land application system envelope.
Based on LWRP Rules 5.8 & 5.113

North

Test Pit 1 (TP1) – 2,200 mm
400 mm topsoil
400 mm silty loam
>800 mm sandy loam to fine sand
NOTE:
Gleyed @ 2,200 mm below ground level

waterbased
Consultancy | Design | Systems | Services
www.waterbased.co.nz **m** 021 928 370 **p** 03 355 9235

All dimensions to be verified on site.
Unless otherwise stated all dimensions specified are in metres

Global Resource Consent Application for Discharge of On Site Wastewater
Lochlea Farming Co Ltd, Lots 2-4, 606 Ridge Road, Motukarara
Local Authority: Selwyn District Council

LEGAL DESCRIPTION: Lots 2-4 subdn of Section 3 Block VI Reserve 959 **REF:** 220704MOT

DESIGN: Chris Kortegast
DRAWN: Chris Kortegast
CHECKED:
DATE: 09/09/2022

SHEET 2 OF 6
REVISION:
SCALE: 1 : 1,500 @ A4

TYPICAL WASTEWATER SYSTEM DETAIL

Based on a 4 bedroom dwelling
on Lot 3 of proposed subdivision

Well envelope area to provided separation distance to boundaries of 20 m (LWRP Rule 5.113; Condition 1) & land application system envelope of 50 m (LWRP Rule 5.8; Condition 3e)

North

Land application system envelopes.
Dripline can be laid anywhere within.

Lot 4

Lot 3

Lot 2

Indicative dwelling

Indicative sewer drain only

4.00

14.00

Optional, recommended continuous flushing line from land application system to primary inlet square junction. 25 mm MDPE fitted with 20 mm ball valve in valve box. Fitted to reduce build up of biofilm within discharge pipework (potential cause of premature system failure)

Mounded conventional bed land application system.
Indicative positioning within envelope.
Bed area required based on a conservative 25 mm/day design loading rate (DLR), actual 30-50 AS/NZS1547:2012
3 bedroom dwelling = 40 m².
4 bedroom dwelling = 56 m² (as shown)
5 bedroom dwelling = 64 m²
Discharge pipework 40 mmDWV (or 32 mm uPVC) laid in 110 mm drainage coil ofr base slotted 100 mm DWV)
Drilled 3 mm holes @ 1,000 centres along the length of each lateral. First & last holes 500 mm from ends of pipe.
Bed mounded 400 m above ground level for precipitation run-off and protection from winter wetness
Flushing cap upstands on the end of each lateral.
Refer to Land Application Construction Detail - Sheets 4-6
NOTE:
Land application system protected from stock and vehicles, and demarcated with planting or fencing.

Flushing points/vents at the end of bed.
One lateral flushed per time when servicing

50 mm MDPE PN 6.3 mainline pipework;
45 mm ID = 3 bedroom dwelling
63 mm MDPE PN 6.3 mainline pipework;
57 mm ID = 4-5 bedroom dwellings

Approved advanced/aerated wastewater (secondary) treatment system (AWTS).
Supplied system to have been tested at the OSET testing facility and/or be approved by the local district council
1. Primary 2. filtered primary 3. aeration 4. clarification/recirculation 5. pump-out
NOTE:
Indicative positioning only. Final position to be determined by drainlayer inconjunction with owner. Positioning to minimise drain fall and depth of tank in ground.
ALSO NOTE:

- Maximum tank cover 500 mm
- All tank access points must be brought to ground level. Main tank lid planted over.
- Access point turrets MUST be sealed with flexible manhole sealant only.
- Pump discharge pipework MUST be accessible from ground level
- Power supply to AWTS tank via circuit-breaker board. Supply to be fitted with RCD protection.
- High level alarm/controller mounted on tank

Discharge pump duties, including flushing flow for a minimum 0.6 m/sec flushing velocity
3-bedroom; 100 litres/ minute @ 7 mh
4-bedroom; 130 litres/minute @ 7 mh
5-bedroom; 145 litres/minute @ 7 mh

waterbased
Consultancy | Design | Systems | Services
www.waterbased.co.nz m 021 928 370 p 03 355 9235

All dimensions to be verified on site.
Unless otherwise stated all dimensions specified are in metres

Global Resource Consent Application for Discharge of On Site Wastewater
Lochlea Farming Co Ltd, Lots 2-4, 606 Ridge Road, Motukarara
Local Authority: Selwyn District Council

LEGAL DESCRIPTION: Lots 2-4 subdn of Section 3 Block VI Reserve 959 | REF: 220704MOT

DESIGN: Chris Kortegast
DRAWN: Chris Kortegast
CHECKED:
DATE: 09/09/2022

REVISION:
SCALE: 1 : 500 @ A4

Drainage All Pass 20 (DAP20) or
Graded Rounds 20 (GR20) – 0.30m deep
Required quantity: 10.0 x 4.0 x 0.3 = 12 m³ or 20 tonne

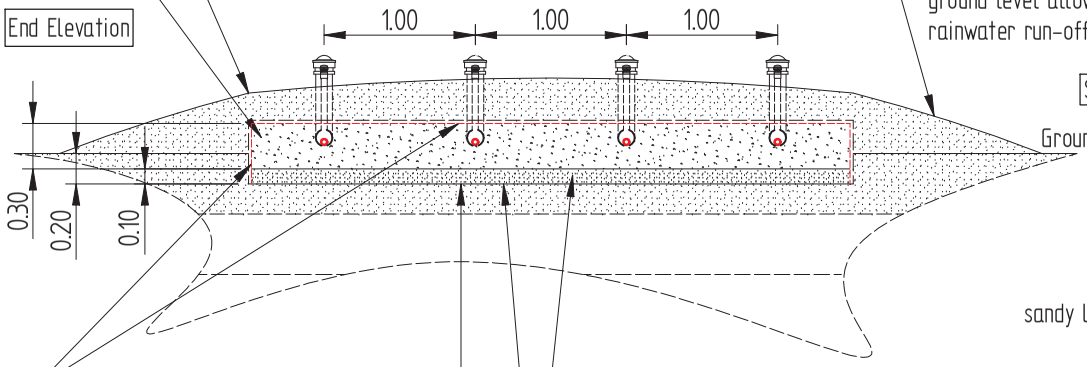
Returned topsoil (8.0 m³) minimum 200 mm cover over DAP20. Additional topsoil – from site scrape or brought in
Required quantity: 80 m² x ~ 0.2 = 16 m³

Distribution pipework 40 mm DWV (or 32 mm pressure pipe) drilled with a 3 mm hole every 1,000 mm. First & last holes 500 mm from end. Holes to alternate top and bottom along the length of pipe. Invert of pipe to be laid in drainage coil ducting 0.15 m from the base of the DAP20 / GR20

Distribution pipe laid inside 110 mm punched/slotted drainage coil. (Drainaway or Novaflow) or 100 mm DWV, base slotted every 300 mm Invert of pipe to be laid 0.15 m from the base of the DAP20 / GR20

NOTE:
Field discharge flowrate approximately 60 litres/minute (l/m) @ 2 m head.
Discharge pump minimum duty:
100 l/m @ 7 m head (includes flushing flow)

End Elevation



Topsoil shaped to existing ground level allowing for rainwater run-off

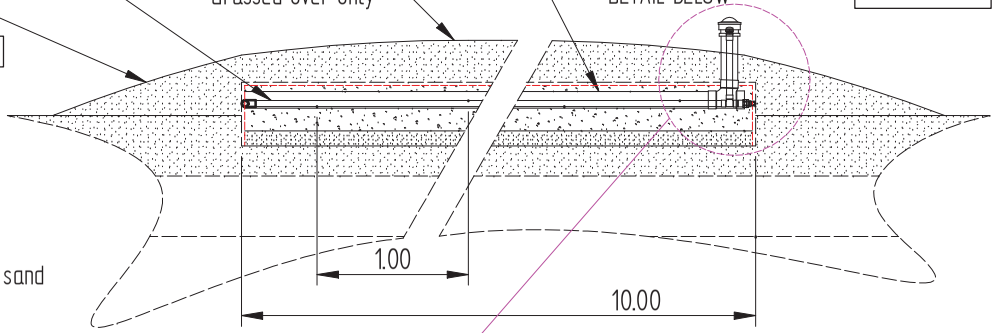
Soil Profile

Ground level
topsoil
silt loam
sandy loam / fine sand

Grassed over only

REFER FLUSHING DETAIL BELOW

Side Elevation



Filter geotextile (Bidim or Duraforce Strength Class A or similar) laid around perimeter of bed to base of DAP20. Geotextile to lay over top and sides of DAP20 before covering with topsoil. Do NOT lay filtercloth under base of bed

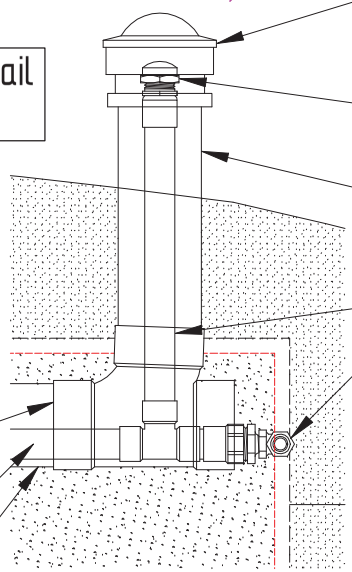
Base of bed ideally deep ripped before forming bed and in situ topsoil MUST be scarified before laying 2A filter media

2A Sand or 2A crushed glass filter media – 0.1m deep
Required quantity:
10.0 x 4.0 x 0.1 m deep = 4.0 m³ or 6.0 tonne
Acts a dissipation/wicking layer prior to the wastewater entering the in situ topsoil.
Also provides a further degree of filtering and buffering of the wastewater in conjunction with the topsoil / biomat buffering

Topsoil excavated to 200 mm only.
Do NOT excavate into subsoil

NOTE:
- Bed MUST be laid level with natural contour of the land
- Bed pipework laid at an even grade along length of bed

Flushing detail
Scale 1 : 10



100 mm Fresh Air Inlet (1516.100). Rubber insert removed for easy access to flushing cap

40 mm BSPm socket (113.40) and 40 mm screwed cap (SC40) for service flushing

100 mm DVW (100.100~) upstands (1 per lateral) to protect flushing upstand. Set in garden bed or planting

40 mm DVW (100.40~) flushing upstands

Recommended optional 'Continuous flushing' pipework. 40 mm BSPf socket (112.40) to 40x20 mm reducing hex nipple (SRHN4020) to 20 mm female MD tee (MDFT20) & 20 mm female bend (MDFB20) on end lateral to 25 mm MDPE pipe. Return to inlet square junction of septic tank via 20mm PVC ball-valve in valve box

NOTE:
Flushing caps ideally positioned for aesthetics and protection of the upstands

100 mm DWV Tee (104.100.88) or 100 mm Bend (101.100.88) if continuous flushing not used

40mm DVW distribution lateral

Punched/slotted drainage coil or slotted 100 mm DWV

LAND APPLICATION SYSTEM CONSTRUCTION DETAIL
3-bedroom = 40 m² bed @ DLR 25 mm/day

waterbased
Consultancy | Design | Systems | Services
www.waterbased.co.nz m 021 928 370 p 03 355 9235

All dimensions to be verified on site.
Unless otherwise stated all dimensions specified are in metres

Global Resource Consent Application for Discharge of On Site Wastewater
Lochlea Farming Co Ltd, Lots 2-4, 606 Ridge Road, Motukarara
Local Authority: Selwyn District Council

LEGAL DESCRIPTION: Lots 2-4 subdn of Section 3 Block VI Reserve 959 | REF: 220704MOT

DESIGN: Chris Kortegast
DRAWN: Chris Kortegast
CHECKED:
DATE: 09/09/2022

REVISION:
SCALE: 1 : 50 @ A4

Drainage All Pass 20 (DAP20) or
Graded Rounds 20 (GR20) – 0.30m deep
Required quantity: 14.0 x 4.0 x 0.3 = 17 m³ or 28 tonne

Returned (11.2 m²) psoil minimum 200 mm cover over DAP20.
Additional topsoil – from site scrape or brought in
Required quantity: 110 m² x ~ 0.2 m = 22 m³

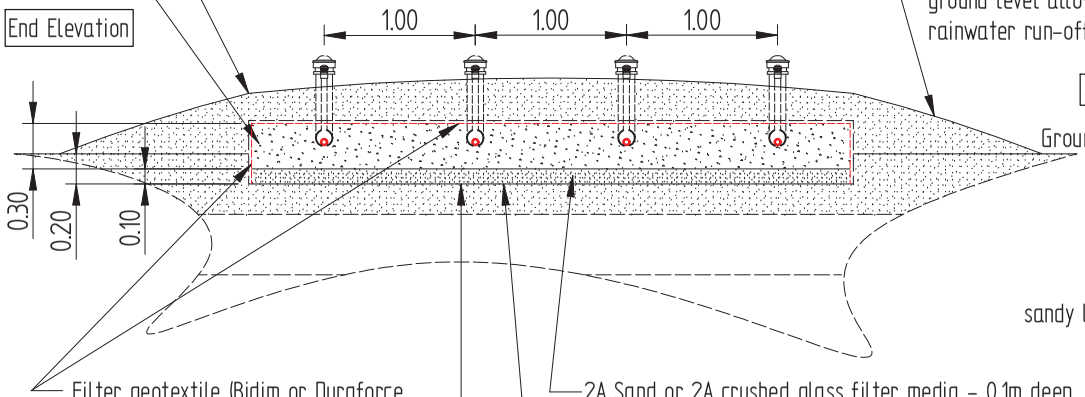
Distribution pipework 40 mm DWV (or 32 mm pressure pipe) drilled with a 3 mm hole every 1,000 mm. First & last holes 500 mm from end. Holes to alternate top and bottom along the length of pipe. Invert of pipe to be laid in drainage coil ducting 0.15 m from the base of the DAP20 / GR20

Distribution pipe laid inside 110 mm punched/slotted drainage coil. (Drainaway or Novaflow) or 100 mm DWV, base slotted every 300 mm Invert of pipe to be laid 0.15 m from the base of the DAP20 / GR20

NOTE:
Field discharge flowrate approximately 90 litres/minute (l/m) @ 2 m head.
Discharge pump minimum duty:
130 l/m @ 7 m head (includes flushing flow)

Topsoil shaped to existing ground level allowing for rainwater run-off

End Elevation

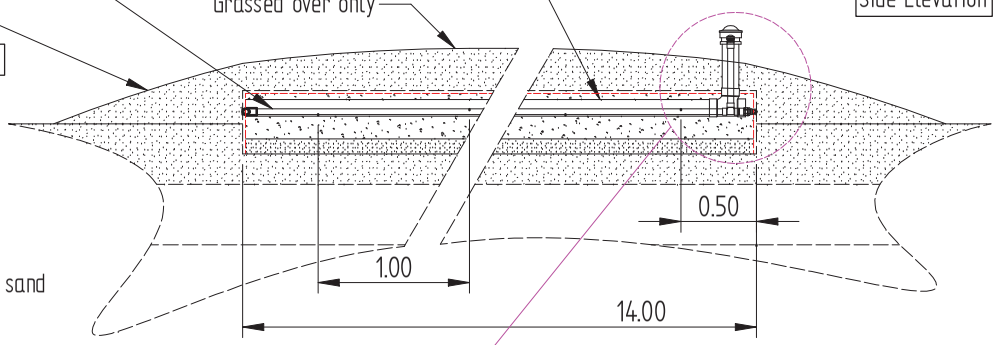


Soil Profile

Ground level
topsoil
silt loam
sandy loam / fine sand

Grassed over only

Side Elevation



Filter geotextile (Bidim or Duraforce Strength Class A or similar) laid around perimeter of bed to base of DAP20. Geotextile to lay over top and sides of DAP20 before covering with topsoil.
Do NOT lay filtercloth under base of bed

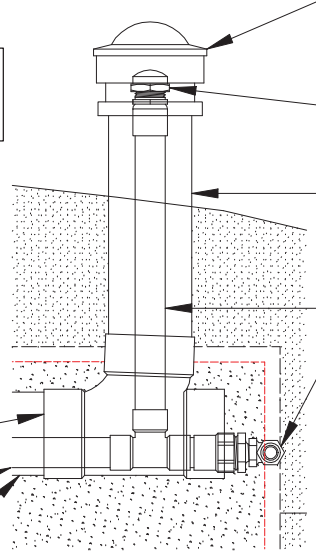
Base of bed ideally deep ripped before forming bed and in situ topsoil MUST be scarified before laying 2A filter media

2A Sand or 2A crushed glass filter media – 0.1m deep
Required quantity:
14.0 x 4.0 x 0.1 m deep = 5.6 m³ or 8.4 tonne
Acts a dissipation/wicking layer prior to the wastewater entering the in situ topsoil.
Also provides a further degree of filtering and buffering of the wastewater in conjunction with the topsoil / biomat buffering

Topsoil excavated to 200 mm only.
Do NOT excavate into subsoil

NOTE:
- Bed MUST be laid level with natural contour of the land
- Bed pipework laid at an even grade along length of bed

Flushing detail
Scale 1 : 10



100 mm Fresh Air Inlet (1516.100). Rubber insert removed for easy access to flushing cap

40 mm BSPm socket (113.40) and 40 mm screwed cap (SC40) for service flushing

100 mm DVW (100.100~) upstands (1 per lateral) to protect flushing upstand. Set in garden bed or planting

40 mm DVW (100.40~) flushing upstands

Recommended optional 'Continuous flushing' pipework. 40 mm BSPf socket (112.40) to 40x20 mm reducing hex nipple (SRHN4020) to 20 mm female MD tee (MDFT20) & 20 mm female bend (MDFB20) on end lateral to 25 mm MDPE pipe. Return to inlet square junction of septic tank via 20mm PVC ball-valve in valve box

NOTE:
Flushing caps ideally positioned for aesthetics and protection of the upstands

100 mm DWV Tee (104.100.88) or 100 mm Bend (101.100.88) if continuous flushing not used

40mm DVW distribution lateral

Punched/slotted drainage coil or slotted 100 mm DWV

LAND APPLICATION SYSTEM CONSTRUCTION DETAIL
4-bedroom = 56 m² bed @ DLR 25 mm/day

waterbased
Consultancy | Design | Systems | Services
www.waterbased.co.nz m 021 928 370 p 03 355 9235

All dimensions to be verified on site.
Unless otherwise stated all dimensions specified are in metres

Global Resource Consent Application for Discharge of On Site Wastewater
Lochlea Farming Co Ltd, Lots 2-4, 606 Ridge Road, Motukarara
Local Authority: Selwyn District Council

LEGAL DESCRIPTION: Lots 2-4 subdn of Section 3 Block VI Reserve 959 | REF: 220704MOT

DESIGN: Chris Kortegast
DRAWN: Chris Kortegast
CHECKED:
DATE: 09/09/2022

REVISION:
SCALE:

Drainage All Pass 20 (DAP20) or
Graded Rounds 20 (GR20) – 0.30m deep
Required quantity: 16.0 x 4.0 x 0.3 = 19.2 m³ or 31.7 tonne

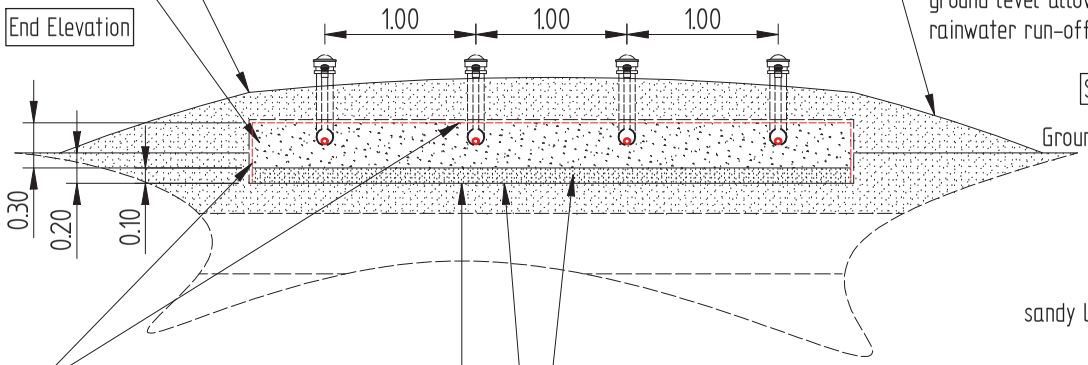
Returned (12.8 m²) soil, minimum 200 mm cover over DAP20.
Additional topsoil – from site scrape or brought in
Required quantity: 120 m² x ~ 0.2 m = 24 m³

Distribution pipework 40 mm DWV (or 32 mm pressure pipe) drilled with a 3 mm hole every 1,000 mm. First & last holes 500 mm from end. Holes to alternate top and bottom along the length of pipe. Invert of pipe to be laid in drainage coil ducting 0.15 m from the base of the DAP20 / GR20

Distribution pipe laid inside 110 mm punched/slotted drainage coil. (Drainaway or Novaflow) or 100 mm DWV, base slotted every 300 mm Invert of pipe to be laid 0.15 m from the base of the DAP20 / GR20

NOTE:
Field discharge flowrate approximately 105 litres/minute (l/m) @ 2 m head.
Discharge pump minimum duty:
145 l/m @ 7 m head (includes flushing flow)

End Elevation



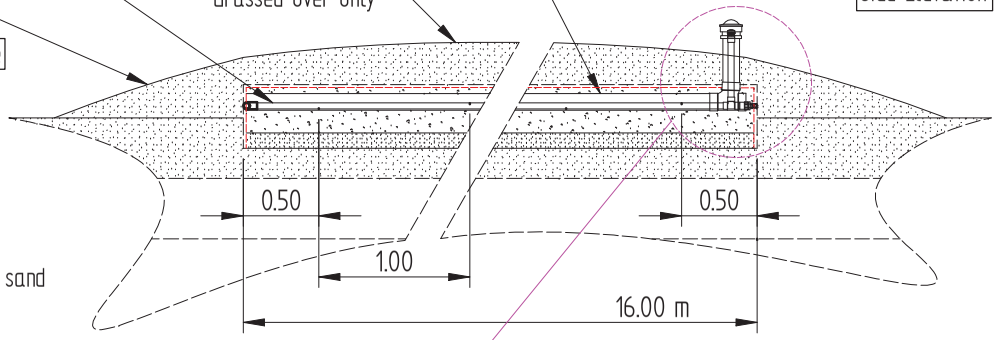
Topsoil shaped to existing ground level allowing for rainwater run-off

Soil Profile

Ground level
topsoil
silt loam
sandy loam / fine sand

Grassed over only

Side Elevation



Filter geotextile (Bidim or Duraforce Strength Class A or similar) laid around perimeter of bed to base of DAP20. Geotextile to lay over top and sides of DAP20 before covering with topsoil. Do NOT lay filtercloth under base of bed

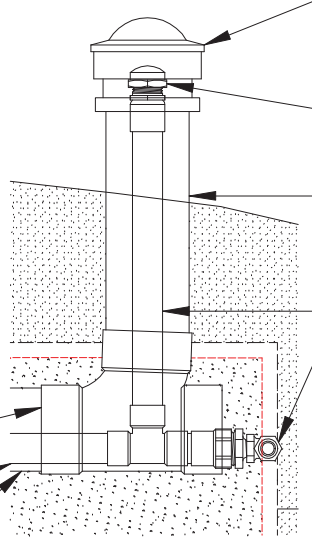
Base of bed ideally deep ripped before forming bed and in situ topsoil MUST be scarified before laying 2A filter media

2A Sand or 2A crushed glass filter media – 0.1m deep
Required quantity:
16.0 x 4.0 x 0.1 m deep = 6.4 m³ or 9.6 tonne
Acts a dissipation/wicking layer prior to the wastewater entering the in situ topsoil.
Also provides a further degree of filtering and buffering of the wastewater in conjunction with the topsoil / biomat buffering

Topsoil excavated to 200 mm only.
Do NOT excavate into subsoil

NOTE:
- Bed MUST be laid level with natural contour of the land
- Bed pipework laid at an even grade along length of bed

Flushing detail
Scale 1 : 10



100 mm Fresh Air Inlet (1516.100). Rubber insert removed for easy access to flushing cap

40 mm BSPm socket (113.40) and 40 mm screwed cap (SC40) for service flushing

100 mm DVW (100.100~) upstands (1 per lateral) to protect flushing upstand. Set in garden bed or planting

40 mm DVW (100.40~) flushing upstands

Recommended optional 'Continuous flushing' pipework. 40 mm BSPf socket (112.40) to 40x20 mm reducing hex nipple (SRHN4020) to 20 mm female MD tee (MDFT20) & 20 mm female bend (MDFB20) on end lateral to 25 mm MDPE pipe. Return to inlet square junction of septic tank via 20mm PVC ball-valve in valve box

NOTE:
Flushing caps ideally positioned for aesthetics and protection of the upstands

100 mm DWV Tee (104.100.88) or 100 mm Bend (101.100.88) if continuous flushing not used

40mm DVW distribution lateral

Punched/slotted drainage coil or slotted 100 mm DWV

LAND APPLICATION SYSTEM CONSTRUCTION DETAIL
5-bedroom = 64 m² bed @ DLR 25 mm/day

waterbased
Consultancy | Design | Systems | Services
www.waterbased.co.nz **m** 021 928 370 **p** 03 355 9235

All dimensions to be verified on site.
Unless otherwise stated all dimensions specified are in metres

Global Resource Consent Application for Discharge of On Site Wastewater
Lochlea Farming Co Ltd, Lots 2-4, 606 Ridge Road, Motukarara
Local Authority: Selwyn District Council

LEGAL DESCRIPTION: Lots 2-4 subdn of Section 3 Block VI Reserve 959 **REF:** 220704MOT

DESIGN: Chris Kortegast
DRAWN: Chris Kortegast
CHECKED:
DATE: 09/09/2022

SHEET 6 OF 6
REVISION:
SCALE: