



2 March 2020

Houlahan Enterprises Limited, Vicki Gillies and Colin Foster
c/- Patterson Pitts Group
PO Box 84
Cromwell 9342

Detailed Environmental Site Investigation for Private Plan Change at 74 Mutton Town Road, Clyde

Our Reference: 19057_1

1 Introduction

Peter Dymock of Patterson Pitts Group (PPG) requested, on behalf of Houlahan Enterprises Limited, Vicki Gillies and Colin Foster, that JKCM Ltd, trading as Insight Engineering (IE), undertake a detailed environmental site investigation (DSI) of the property at 74 Mutton Town Road, Clyde (herein referred to as “the site”) as outlined in our Short Form Agreement (reference P19057, fully executed on 7 February 2020).

Figure 1 (under Appendix 1) indicates the location of the site, which we understand is part of a Private Plan Change application to rezone the site from Rural to Residential. A plan showing other properties involved in the plan change is provided by PPG is provided in Appendix 2.

A preliminary environmental site investigation (PSI) was undertaken (Appendix 3) for the four properties shown in the PPG plan. The site was identified to have a potential risk to human health resulting from the importation of soil from a former commercial orchard property in Earnscliffe. It is recommended that this report is to be read in conjunction with the PSI report as not all site history information is repeated within the body of this DSI report.

The purpose of this DSI was therefore to quantify the potential soil contamination impacts and thereby assess the suitability of the site for residential use, as required by the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations¹ (herein referred to as the NES). This investigation was undertaken in general accordance with the Ministry for the Environment (MfE) *Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand*² and *Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils*³.

2 Objectives of the Investigation

The objective was to determine whether potential soil contamination impacts at the site pose an unacceptable risk to human health if the land was to be used for standard residential purposes.

2.1 Approach

IE completed the following scope of work to satisfy the investigation objectives:

2.1.1 Intrusive Investigation

The following scope of work was undertaken upon completion of the review of site history information:

- Obtain seven (7) soil samples from 7 locations across the site where potential for contamination impacts had been identified;
- Obtain one (1) duplicate soil sample for QA / QC purposes;
- Visual and olfactory inspection of soil samples in the field;
- Submit eight (8) soil samples to Hill Laboratories for analysis of a suite of common heavy metals and organochlorine pesticides;
- Assess laboratory results for the soil samples against the adopted human health criteria for residential land use and maintenance / excavation activities; and
- Present a DSI report outlining our findings, the suitability of the site for residential development / use and recommendations to manage impacted areas (if any).

3 Site Description

Site information is summarised in Table 1.

Table 1: Site Information

Location	74 Mutton Town Road, Clyde
Legal Description	Lot 2 DP331535
Property Ownership	Houlahan Enterprises Limited, Vicki Gillies and Colin Foster
Current Site Use	Rural residential with agricultural use (grazing)
Proposed Site Use	Residential
Site Area	24,760 m ² (2.4760 ha)
Territorial Authority	Central Otago District Council (CODC)
Zoning	RU (RR): Rural Resource Area and Rural Residential

The site setting is summarised in Table 2.

Table 2: Site Setting

Topography	The site slopes gently towards the south west from a relatively flat area in approximately the north eastern third of the site.
Local Setting	The site is located on the south eastern fringe of Clyde. The surrounding area consists generally of rural residential with the exception of horticultural land (viticulture) towards the south and commercial land towards the north.
Nearest Surface Water & Use	Waikerikeri Creek discharges to the Clutha River / <i>Mata-Au</i> approximately 800 m south of the site. The Clutha River / <i>Mata-Au</i> is used as a source of potable water as well as for recreational, electricity generation and irrigation purposes.
Geology	The GNS New Zealand Geology Webmap ⁴ indicates that the site straddles two geological units along a north west to south east axis: The eastern half

	<p>of the site is located within the Late Pleistocene outwash deposits unit, described as “<i>unweathered to slightly weathered, loose, sandy to silty, well rounded gravel usually on large outwash plains</i>”. The western half of the site is located within the Late Pleistocene river deposits unit, described as “<i>generally unweathered, well sorted, loose, sandy to bouldery gravel forming large terraces and outwash plains</i>”.</p> <p>The surface material observed during the site visit is broadly described as light brown sandy gravelly silt.</p>
Hydrogeology	<p>According to a report completed by ORC⁵, the site is located within the unconfined Dunstan Flats Aquifer which consists of highly permeable sandy gravel. Under ‘normal’ conditions, groundwater is considered likely to flow towards the south west, but flow can be affected by high river levels which would result in groundwater flowing towards the east or south east for a relatively short time.</p>

3.1 Current Site Conditions

Claude Midgley of IE completed a site walkover inspection as part of the PSI on 15 January 2020. Observations made at that time are summarised in Table 3.

Table 3: Current Site Conditions

Visible signs of contamination	A small stockpile of treated timber fence posts was observed adjacent to the driveway on the site.
Surface water appearance	No surface water was present at the time of the site walkover inspection.
Current surrounding land use	Mixed rural residential, horticultural and commercial land surrounds the property.
Local sensitive environments	No sensitive environments are located within 200 m of the site.
Visible signs of plant stress	Apart from evidence of dry, summer conditions, no visible signs of plant stress were noted.
Additional Observations	None noted.

3.2 Summary of Identified Hazardous Activities and Industries

The following activities noted on the MfE Hazardous Activities and Industries List⁶ (HAIL) were identified at the site during review of the site history (Appendix 3):

Category A11 – Pest control including the premises of commercial pest control operators or any authorities that carry out pest control where bulk storage or preparation of pesticide occurs, including preparation of poisoned baits or filling or washing of tanks for pesticide application.

- This category is represented by the use of pesticides to control rabbits on various parts of the site. The risk to health from this source is considered to be very low because only ORC approved formulations have been used.

Category A17 – Storage tanks or drums for fuel, chemicals or liquid waste.

- This category is represented by the presence of small (~20L) containers of fuel. The risk to health from these sources is considered to be low.

Category A18 – Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside.

- This category is represented by the presence of small stockpile of treated timber posts on the southern property. The risk to health from this sources is considered to be low because of the limited scale of the potentially impacted area.

Category G5 – Waste disposal to land.

- This category is represented by the importation of 20 to 25 truckloads of soil from a property in Earnsclough to the southern property. The risk to health from this source is unknown because, when IE reviewed historical aerial photographs of the source site for the soil, it was evident that it had been used as a commercial orchard between at least the 1950s and 1980s.

According to Regulation 5 of the NES, the Regulations apply if a HAIL activity has been undertaken, or currently is being undertaken on the property.

4 Intrusive Investigation

Under the NES, the proposed activity is considered to meet the definitions provided under Regulation 5(6) changing the use of a piece of land where a HAIL activity has been undertaken on it (Regulation 5(7)).

The application for a change of use could not be considered to qualify as a Permitted Activity under Regulation 8(4), because it is not highly unlikely that there will be a risk to human health if the activity is done to the piece of land.

Therefore, this detailed environmental investigation was undertaken to assess whether the identified hazardous activities have resulted in an unacceptable risk to human health.

Targeted discrete soil surface samples were collected from strategic locations. The samples were submitted to RJ Hill Laboratories (Hills) for analysis of the relevant contaminants at each location. Sample locations are displayed in Figure 2 (Appendix 1).

4.1 Methodology

The following was undertaken during the soil sampling works:

- Samples were given individual names that corresponded to specific locations recorded on a site plan (refer to Figure 2);
- Visual and olfactory inspection of each sample for indicators of contamination;
- Samples were compressed directly into laboratory supplied containers using a new pair of nitrile gloves for each sample. Prior to sampling, the equipment (hand trowel) was decontaminated using a triple wash procedure with potable water, Decon 90 solution and deionised water;
- Placement of samples into a chilly bin and transport, under standard IE chain of custody procedures, to RJ Hill Laboratories (Hills) for analysis;

- IE requested that Hills analyse samples for contaminants detailed in Table 4, consisting of a suite of heavy metals (As, Cd, Cr, Cu, Pb, Ni and Zn) and organochlorine pesticides (OCPs).

Table 4: Sample Names, Locations and Analytes

Sample Name	Location	Analytes
MT1	Beneath the stockpile of treated timber posts	Heavy metals and OCPs
MT2	Near to the south western corner of the site	
MT3	Centre of the paddock directly west of the dwelling	
MT4	Eastern side of the paddock north west of the dwelling	
MT5	Western side of the paddock north west of the dwelling	
MT6	Eastern side of the paddock north of the dwelling	
MT7	Western side of the paddock north of the dwelling	
MT8	Duplicate of sample MT5	

4.1.1 Quality Assurance / Quality Control

The quality assurance / quality control (QA / QC) procedures employed during the works included:

- Collection of a blind duplicate sample;
- Standard sample registers and chain of custody records have been kept for all samples;
- The use of Hills, accredited by International Accreditation New Zealand (IANZ), to conduct laboratory analyses; and
- During the site investigation every attempt was made to ensure that cross contamination did not occur through the use of the procedures outlined within this document.

4.2 Investigation Criteria

4.2.1 Soil Criteria

The investigation criteria referenced in this report have been selected from the NES to assess risks to human health. Where a soil contaminant standard (SCS) was not available, the hierarchy detailed in the *MfE Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values*⁷ was used to select applicable criteria.

SCSs, or other appropriate criteria for residential land use, with an anticipated ingestion of 10% produce grown on the site, have been selected considering the potential end use of the site.

Criteria for commercial / industrial use have also been presented to assess the risks to human health during the disturbance of soil associated with installation of underground services and other construction works required as part of the site development.

Landcare Research produced a report⁸ on naturally occurring (referred to as background) concentrations of heavy metals in New Zealand. Naturally occurring concentrations were correlated with geological units to enable estimation of the mean and 95% upper confidence limits (UCL) of selected heavy metals. Laboratory results below the 95% UCL estimates for the geological unit described as 'gravel' are considered to qualify as 'cleanfill' according to the MfE definition⁹.

4.3 Results

4.3.1 Soil Encountered

Near surface soil encountered at the site was described as light brown sandy gravelly silt.

4.3.2 Laboratory Test Results

Table 5 compares soil contaminant concentrations in the samples with the adopted investigation criteria described in Section 4.2.1. The full analytical results are included in Appendix 4.

The results of field duplicate analyses collected for QA / QC purposes are summarised in Table 6. The relative percent difference (RPD) was calculated for these samples as shown below.

$$RPD = \frac{(C_o - C_s)}{\left(\frac{C_o + C_s}{2}\right)} \times 100$$

where: Co = concentration of the original sample
 Cs = concentration of the duplicate sample

According to the MfE *Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils*³, it is typically considered acceptable if an RPD range of less than 50% is achieved for soil samples.

Table 5: Laboratory Results Compared with Human Health Criteria

Analyte	Investigation Criteria			Investigation Results						
	Predicted Background Concentrations	Human Health SCSs ^A		MT1	MT2	MT3	MT4	MT5	MT6	MT7
		Residential (10% Produce Ingestion)	Commercial / Industrial and Maintenance / Excavation							
Land Use										
Heavy Metals										
Arsenic	12.06	20	70	<u>47</u>	5	5	6	7	8	7
Cadmium ^C	0.34	3	1,300	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	0.12
Chromium ^D	80.15	460	6,300	33	6	5	6	7	8	7
Copper	42.85	>10,000	>10,000	35	9	8	10	12	31	20
Lead	44.34	160	3,300	15.7	17.0	16.2	17.4	17.8	17.1	14.8
Nickel	44.96	400 ^B	6,000 ^B	6	7	6	6	7	10	8
Zinc	182.8	7,400 ^B	400,000 ^B	33	28	27	28	35	48	44
Organochlorine Pesticides				Below Laboratory Limits of Detection						

Notes:

All values in mg/kg. Only detected analytes are presented. Full laboratory results are provided in Hill Laboratories Certificate.

Italics indicates concentration exceeds Commercial / Industrial and Maintenance / Excavation Criteria.

Bold text indicates concentration exceeds Residential Criteria

Underlined text indicates concentration exceeds the estimated background concentration (GRAVEL).

A The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health ¹.

B Australian National Environmental Protection Council (NEPC) National Environmental Protection (Assessment of Site Contamination) Measure Schedule B(1): Guideline on the investigation levels for soil and groundwater ¹⁰. Health Investigation Levels: HIL A (Residential with 10% produce ingestion) and HIL D (Commercial / Industrial).

C Assumes soil pH of 5.

D Criteria for Cr₆ presented as criteria for Cr₃ are non limiting.

Table 6: QA / QC Results

Analyte	Investigation Results		
	MT5	MT8	RPD (%)
Sample Location			
Arsenic	7	6	15
Cadmium	<0.10	<0.10	-
Chromium	7	6	15
Copper	12	11	9
Lead	17.8	16.6	7
Nickel	7	7	0
Zinc	35	28	22

- Indicates that the RPD could not be calculated

4.4 Discussion

4.4.1 Samples from Paddocks

No contaminants were found at concentrations that pose a risk to human health. Furthermore, the concentrations of all analytes were below the expected naturally occurring concentrations. Soil in those areas qualifies as cleanfill⁹.

4.4.2 Stacked Treated Timber Area

The concentration of arsenic exceeds the residential SCS in a small (approximately 2 m by 2 m) and easily defined area, beneath the stack of treated timber posts.

4.4.3 Duplicate Sample

The field duplicate analyses demonstrated a maximum RPD of 22%, indicating that appropriate decontamination procedures were undertaken between sample locations.

Furthermore, it can be concluded that contaminant concentrations are distributed relatively uniformly within a particular depth, at each sample location.

5 Conceptual Site Model

A contamination conceptual site model, presented in Table 7, consists of three primary components to allow the potential for risk to be determined. These are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

Table 7: Conceptual Site Model

Source	Pathway	Receptor
Heavy metals	Inhalation of dust Dermal absorption (direct contact) Ingestion of soil and / or produce grown in the soil	Maintenance / Excavation workers Site workers Current and future residents
Pesticides		
Acceptable risk to human health?	Residential Use and Earthworks Associated with Land Development in the Northern and Central Properties Yes: With the exception of a small area where treated timber is stored, the concentrations of contaminants are below the SCSs for residential land use.	

6 Conclusions

Information obtained as part of the PSI (refer to Appendix 3 and Section 3) indicates that the site has been used for residential and small-scale agricultural (grazing) purposes. A considerable volume of soil was imported to the property and review of historical aerial photographs of the source site confirms that the land had been used as a commercial orchard between at least the 1950s and 1980s. It was therefore possible that residual heavy metals and / or persistent pesticides could be present in the imported soil.

Evidence of three other HAIL activities (refer to Section 3.2) was found within the site boundary, but there was no evidence those HAIL activities could have resulted in contamination impacts that would pose a significant risk to human health at the site. One of these activities was storage of treated timber in a small stockpile, but the scale of the potentially impacted area was not considered sufficient to represent a significant risk to human health.

A soil sampling plan was designed to assess the potential impacts resulting from the importation of fill from a former commercial orchard property and the opportunity was taken to confirm the assumption regarding the level of impact from the storage of treated timber. A total of eight near surface samples were collected from relatively evenly spaced locations across the site (excluding the residential use area). One of the samples (MT1) was collected from beneath the treated timber storage area and one duplicate sample (MT8) was collected from the location of sample MT5, for QA / QC purposes.

The laboratory results (Refer to Table 5) confirm a minor impact in the timber storage area, where the arsenic concentration marginally exceeds the residential SCS in an area measuring approximately 2 m by 2 m. The relatively low concentration of arsenic in such a small area is not considered likely to present a risk to human health, however the surface soil from that area can be removed to an appropriate disposal facility as a Permitted Activity under NES Regulation 8(3). Alternatively, the impacted soil can be reused on site, in an area where future residents are unable to come into contact with it, such as beneath building foundations, pavements or roads.

Laboratory results for the remaining samples indicate that the imported soil qualifies as cleanfill, according to the MfE definition.

Based on the current contamination status of the site, given the potential sources identified, it is considered highly unlikely that there will be a risk to human health if the following activities are done to the piece of land:

- Developing the site for residential use; and
- Future occupation of the new residential dwellings.

7 Recommendations

It is recommended that the proposed change of land use be allowed as a Restricted Discretionary Activity under the NES¹, because the requirements of Regulation 10(2) have been met.

Future applications for subdivision / development / disturbance of the site should be assessed in terms of activities identified in this investigation and any potential new HAIL activities that could occur at any time after this report was written.

If any material showing signs of potential contamination (visual or olfactory) is unearthed during future soil disturbance events, work should stop immediately and a suitably qualified environmental practitioner should be engaged to assess the risk to human health prior to recommencing earthworks.

8 References

1. Ministry for the Environment 2012: Users' Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health
2. Ministry for the Environment 2011: Contaminated Land Management Guidelines No.1: Reporting on Contaminated Sites in New Zealand
3. Ministry for the Environment 2011: Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils.
4. GNS Webmap Institute of Geological and Nuclear Sciences 2013: 1:250,000 Geology. Viewed at: <http://data.gns.cri.nz/geology/>
5. Otago Regional Council 2012: Alexandra Groundwater Basin Allocation Study.
6. Ministry for the Environment 2011: Ministry for the Environment Hazardous Activities and Industries List
7. Ministry for the Environment 2011: Contaminated Land Management Guidelines No.2 - Hierarchy and Application in New Zealand of Environmental Guideline Values.
8. Landcare Research New Zealand Limited and the Institute of Geological and Nuclear Sciences Limited 2015: Background Soil Concentrations of Selected Trace Elements and Organic Contaminants in New Zealand.
9. Ministry for the Environment 2002: A Guide to the Management of Cleanfills.
10. Australian National Environmental Protection Council 2013: National Environmental Protection (Assessment of Site Contamination) Measure Schedule B(1): Guideline on the investigation levels for soil and groundwater.

9 Limitations

- i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Houlahan Enterprises Limited, Vicki Gillies, Colin Foster, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.
- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site assessments and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it should be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 021 556 549 if you require any further information. The author is a Certified Environmental Practitioners (CEnvP) under the Environment Institute of Australia and New Zealand (EIANZ) accreditation system.

Report prepared by

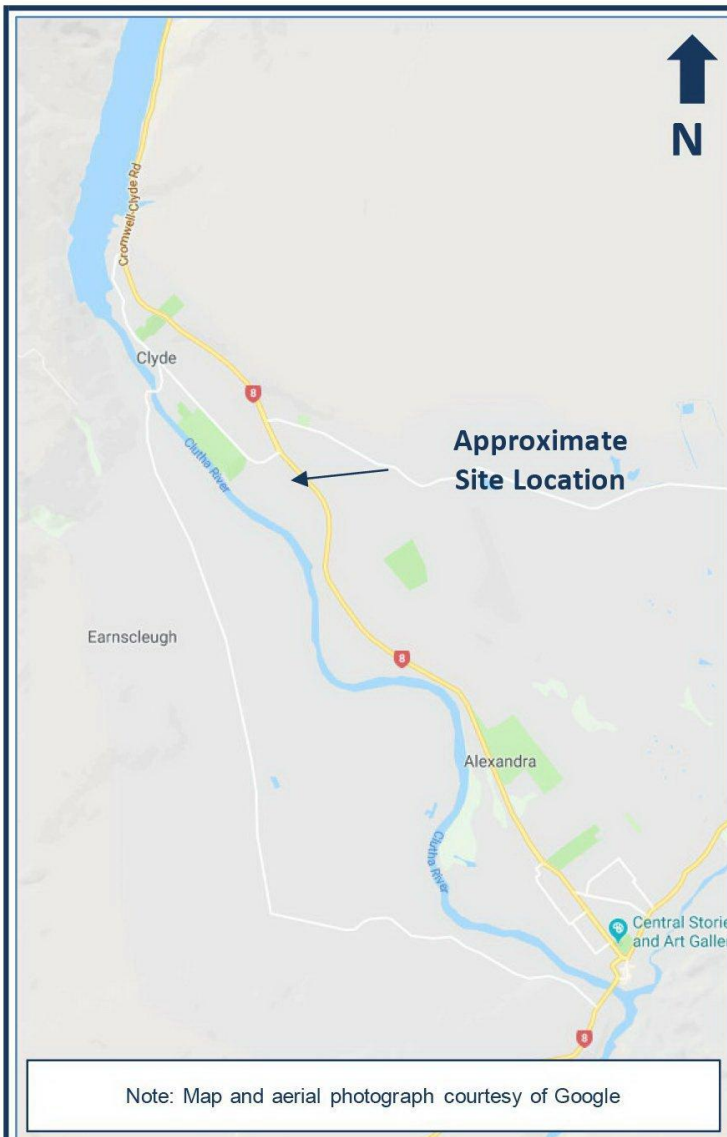



Claude Midgley, CEnvP

Associate Environmental Scientist


APPENDIX 1

Figures



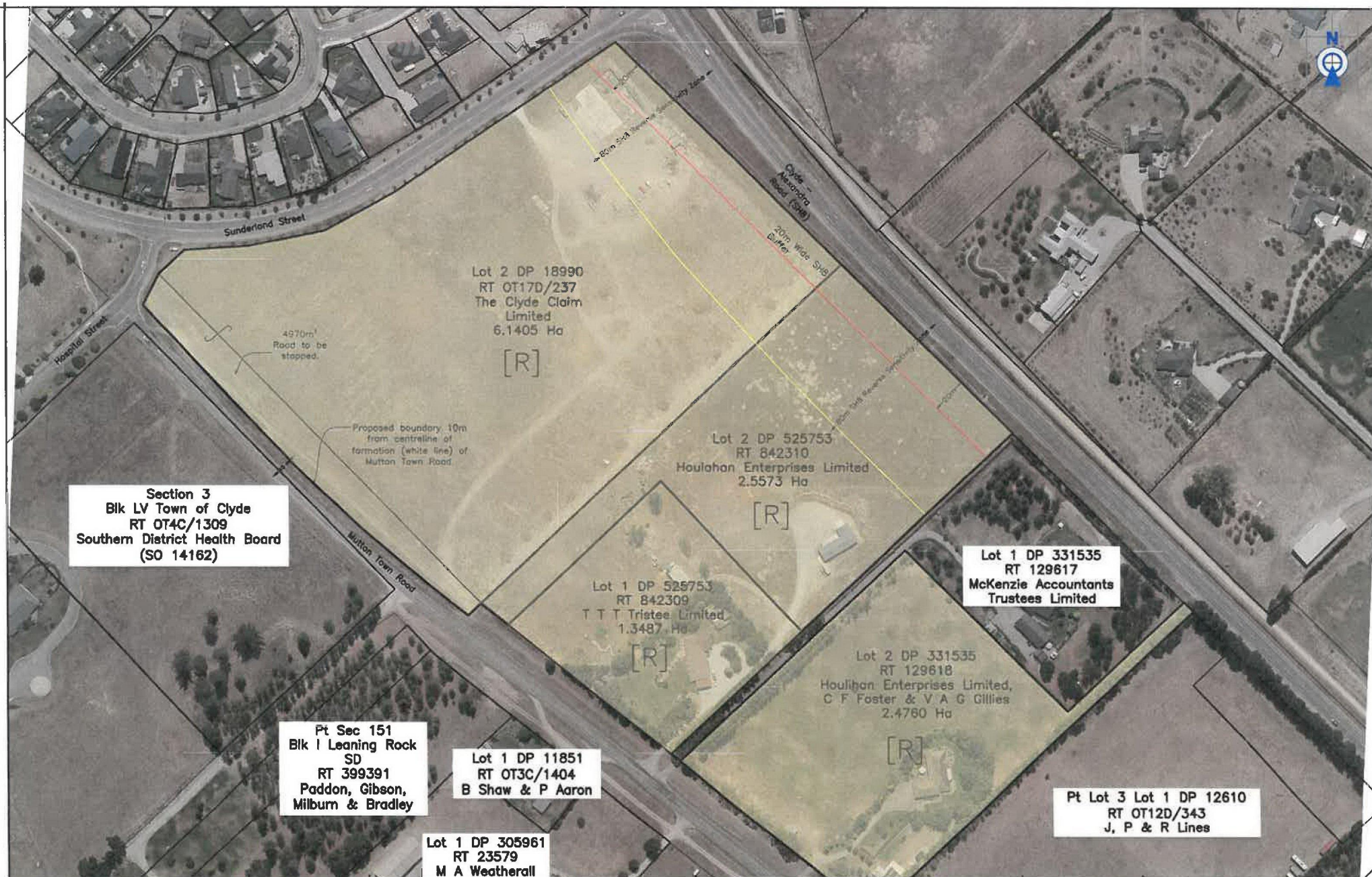
Description	Site Location Plan	Figure Number	1	
Project	74 Mutton Town Road, Clyde	Date	Feb-20	
Client	Houlahan Enterprises Limited, Vicki Gillies and Colin Foster	Drawn by	CM	
Project Number	19057_1	Approved by	JK	



Description	Sample Location Plan	Figure Number	2	
Project	74 Mutton Town Road, Clyde	Date	Feb-20	
Client	Houlahan Enterprises Limited, Vicki Gillies and Colin Foster	Drawn by	CM	
Project Number	19057_1	Approved by	JK	

APPENDIX 2

Proposed Private Plan Change Area



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Client location:

Mutton Town Road

Purpose/Drawing Title

Proposed Private Plan Change
Lot 2 DP 18990, Lot 2 DP 525753,
Lot 2 DP 331535 & Road To Be Stopped.

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Approved by:	DP				
Job Ref:	A4702 / A4723	Sheet No:	1	Revision No:	C
				Date Created:	26/02/2020
					DO NOT SCALE

APPENDIX 3

Preliminary Environmental Site Investigation Report



2 March 2020

Clyde Claim Limited, Houlahan Enterprises Limited,
Ostex Corporation Limited, Vicki Gillies and Colin Foster
c/- Patterson Pitts Group
PO Box 84
Cromwell 9342

Preliminary Environmental Site Investigation for Private Plan Change at Mutton Town Road, Clyde

Our Reference: 19057

1 Introduction

Peter Dymock of Patterson Pitts Group (PPG) requested, on behalf of Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies and Colin Foster, that JKCM Ltd, trading as Insight Engineering (IE), undertake a preliminary environmental site investigation (PSI) of four properties on Mutton Town Road, Clyde (herein referred to as “the site”) as outlined in our Short Form Agreement (reference P19057, fully executed on 1 December 2019).

Figure 1 (under Appendix 1) indicates the location of the site, which we understand is proposed to be the subject of a Private Plan Change application to rezone the site from Rural to Residential. A plan provided by PPG is provided in Appendix 2.

The purpose of this PSI was to assess the suitability of the site for residential use, as required by the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations ¹ (herein referred to as the NES). This investigation was undertaken in general accordance with the Ministry for the Environment (MfE) *Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand* ².

2 Objectives of the Investigation

The objective was to determine if potentially contaminating historical activities pose an unacceptable risk to human health if the land was to be used for standard residential purposes.

2.1 Approach

IE completed the following scope of work to satisfy the investigation objectives:

2.1.1 Review of Site Information

Several sources were contacted for information relating to the sites past and present uses and to identify any other environmental issues which may be on record. This consisted of:

- Undertaking a walkover inspection of the site, as well as the immediate surrounding area, to describe current conditions and assess whether any visual or olfactory evidence of contamination is present at the site;
- Interviewing the current residents of the existing dwelling, staff at the existing commercial building and a neighbour who formerly owned the central property, to obtain information relating to potentially contaminating activities that may have been undertaken at the site and surrounding area;
- Review of publicly available data describing the local geology and hydrogeology;
- Review of a letter from Otago Regional Council (ORC) regarding any property specific records of hazardous activities or industries that are held in their database of potentially contaminated sites;
- Reviewing the CODC NES Records Search statement to determine whether any records of contamination at the site are held in their database;
- Reviewing the current and historical Certificates of Title; and
- Reviewing publicly available historical aerial photographs and maps of the site and surrounding area.

3 Site Description

Site information is summarised in Table 1.

Table 1: Site Information

Location	<ol style="list-style-type: none"> 1. 11 Sunderland Street, Clyde 2. 98 Mutton Town Road, Clyde 3. 86 Mutton Town Road, Clyde 4. 74 Mutton Town Road, Clyde
Legal Description	<ol style="list-style-type: none"> 1. Lot 2 DP18990 2. Lot 2 DP525753 3. Lot 1 DP525753 4. Lot 2 DP331535
Property Ownership	<ol style="list-style-type: none"> 1. The Clyde Claim Limited 2. Houlahan Enterprises Limited 3. Ostex Corporation Limited 4. Houlahan Enterprises Limited, Vicki Gillies and Colin Foster
Current Site Use	<ol style="list-style-type: none"> 1. Not used 2. Commercial (Downer yard and Scaffolding storage) 3. Rural Residential 4. Rural residential with agricultural use (grazing)
Proposed Site Use	Residential
Property Areas	<ol style="list-style-type: none"> 1. 61,405 m² (6.1405 ha) 2. 25,573 m² (2.5573 ha) 3. 13,503 m² (1.3503 ha) 4. 24,760 m² (2.4760 ha)

Site Area	Approximately 125,241 m ² (12.5241 ha)
Territorial Authority	Central Otago District Council (CODC)
Zoning	RU (RR): Rural Resource Area and Rural Residential

The site setting is summarised in Table 2.

Table 2: Site Setting

Topography	<p>The site generally slopes gently towards the south west.</p> <p>An earth bund has been created by scraping near surface soil into an elongated stockpile north of the shed on the central property.</p>
Local Setting	<p>The site is located on the south eastern fringe of Clyde. The surrounding area consists generally of rural residential (south, east and north east), horticultural (viticulture) towards the south, standard residential (north west) and commercial (west).</p>
Nearest Surface Water & Use	<p>Waikerikeri Creek discharges to the Clutha River / <i>Mata-Au</i> approximately 800 m south of the site. The Clutha River / <i>Mata-Au</i> is used as a source of potable water as well as for recreational, electricity generation and irrigation purposes.</p>
Geology	<p>The GNS New Zealand Geology Webmap³ indicates that the site straddles two geological units along a north west to south east axis: The north eastern half of the site is located within the Late Pleistocene outwash deposits unit, described as “<i>unweathered to slightly weathered, loose, sandy to silty, well rounded gravel usually on large outwash plains</i>”. The south western half of the site is located within the Late Pleistocene river deposits unit, described as “<i>generally unweathered, well sorted, loose, sandy to bouldery gravel forming large terraces and outwash plains</i>”.</p> <p>The surface material observed during the site visit is broadly described as light brown sandy gravelly silt.</p>
Hydrogeology	<p>According to a report completed by ORC⁴, the site is located within the unconfined Dunstan Flats Aquifer which consists of highly permeable sandy gravel. Under ‘normal’ conditions, groundwater is considered likely to flow towards the south west, but flow can be affected by high river levels which would result in groundwater flowing towards the east or south east for a relatively short time.</p>
Groundwater Abstractions ⁵	<p>Although groundwater abstraction consents are not known to be active, the following permits, all located within 250 m of the site boundaries, were issued for the owners to construct bores for domestic and / or stock water abstraction:</p> <ul style="list-style-type: none"> Consent number RM18.198.01 was issued on 5 June 2018 for Hunter Alexander Clarke to construct a bore for the purpose of accessing groundwater approximately 420 metres south east of the intersection of Mutton Town Road and Sunderland Street. Consent number 2007.384 was issued on 10 July 2007 for A.D. and C.D. Wagstaff to construct a bore for the purpose of taking groundwater located approximately 470 metres north of the intersection of Young Lane and Alexandra - Clyde Road (State Highway 6). Consent number 2004.760 was issued on 9 September 2004 for

	<p>N. A. and C. A. Nicolson to construct a bore for the purpose of single domestic supply and irrigation. Location: Approximately 1 kilometre east of Clyde and 155 metres from Springvale Road.</p> <ul style="list-style-type: none"> • Consent number 2004.475 was issued on 9 July 2004 for Mark Allan Weatherall to construct a bore for single domestic supply on a property at Rapid Number 83, Mutton Town Road, Clyde. • Consent number 2004.378 was issued on 3 June 2004 for A.R. J. and C.A. Herbert to construct a bore for single domestic supply and landscape irrigation adjacent to State Highway 8 (Clyde-Alexandra Road), approximately 390 metres south east of the intersection of Sutherland Street and State Highway 8, Clyde. • Consent number 2002.684.V1 was issued on 29 November 2002 for J M Davie Private Trust and L H Davie Private Trust to take and use up to 7,000 cubic metres per month of groundwater at the maximum rate of 2.8 litres per second for the purpose of irrigation. • Consent number 2000.515 was issued on 14 November 2000 for John Weatherall to construct a bore at Muttontown Road, Clyde for the purpose of single domestic supply. • Consent number 99102 was issued on 31 August 1999 for W and I Tohill to construct a bore at Young Lane, Clyde for the purpose of single domestic and stockwater supply. • Consent number 98486 was issued on 24 December 1998 for Barry Eames to a bore along Muttontown Gully Road, Clyde for the purpose of single domestic supply. • Consent number 93228 was issued on 7 July 1993 for the Electricity Corporation - Clyde Power Project to replace and transfer an existing installation for domestic and irrigation purposes. • Consent number 93112 was issued on 5 April 1993 for the Electricity Corporation - Clyde Power Project to construct a bore for the purpose of domestic supply. • Consent number 93111 was issued on 5 April 1993 for the Electricity Corporation - Clyde Power Project to replace and transfer an existing installation for domestic use. • Consent number 93110 was issued on 5 April 1993 for the Electricity Corporation - Clyde Power Project to replace and transfer an existing installation for domestic use. • Consent number 93109 was issued on 5 April 1993 for the Electricity Corporation - Clyde Power Project to replace and transfer an existing installation for domestic supply. • Consent number 93075 was issued on 12 March 1993 for the Electricity Corporation - Clyde Power Project to replace and transfer an existing installation for domestic and irrigation purposes. • Consent number PU100144 was issued on 30 November 1992 for William Graham Roberts to construct a bore at No 1 R D, Alexandra for domestic supply.
Discharge Consents ⁵	There are no current or historical discharge consents issued for properties located within 250 m of the site.

3.1 Current Site Conditions

Claude Midgley of IE completed a site walkover inspection on 15 January 2020 and on . Observations made at that time are summarised in Table 3 and photographs are presented in Appendix 3.

Table 3: Current Site Conditions

Visible signs of contamination	Remnants of burned tree stumps, in the form of small amounts of charcoal, were observed in several locations along the north western site boundary and along the boundary between the northern and central properties. A small stockpile of treated timber fence posts was observed adjacent to the driveway on the southern property. Stockpiles of imported gravel, containing a few asphalt pieces, were observed in the Downer yard on the northern central property. No other indicators of contamination were evident within the site boundaries.
Surface water appearance	No surface water was present at the time of the site walkover inspection.
Current surrounding land use	Mixed rural residential, standard residential, horticultural and commercial land surrounds the property.
Local sensitive environments	No sensitive environments are located within 200 m of the site.
Visible signs of plant stress	Apart from evidence of dry, summer conditions, no visible signs of plant stress were noted.
Additional Observations	An above-ground fuel storage tank, waste engine oil containers, an antique car and an antique pesticide sprayer were observed on the southern central property.

3.2 Interview with Current Residents, Owners and Neighbours

Lew Davie (*pers. comm.*), a resident and former owner of the southern property, provided the following information:

- Mr Davie purchased the land in 2010 and recently sold it to Pat Houlahan. The previous owner, Dave Harvey, moved to the property from Balclutha upon his retirement.
- Mr Davie indicated that the dwelling was constructed in 1991.
- An underground water storage tank, for livestock supply, is located south of the dwelling.
- The paddocks surrounding the dwelling were irrigated with bore water and low numbers of horses, cattle had been raised on the property. Alpacas had been the preferred livestock kept on the property during the last 6 years.
- Mr Davie confirmed that approximately 20 to 25 truck loads of topsoil had been shifted to the property from another property owned by Mr Davie (Lot 6, Padgets Lane, Earnsclough) because the topsoil in Clyde was of poor quality. Mr Davie also indicated that fertilisers had been applied to the paddocks 3 or 4 times since he has owned the land.
- Mr Davie used to control rabbits by shooting. As the surrounding area has become more developed, he has opted to use Magtoxin which is dropped into rabbit warrens.

- Mr Davie confirmed that trees which had been visible in aerial photographs prior to 2011 were not an orchard but were fir trees. Two rows of the trees remain along that property boundary, but the remainder were cleared to provide additional paddock space.
- The shipping container on the south western side of the property belongs to Pat Houlahan. Mr Davie indicated that spare building materials are stored in the shipping container.
- The only hazardous substances kept on the property are small volumes of petrol and diesel (no more than 40 L total at any given time).

Hunter Clarke (*pers. comm.*), former owner of the two central properties, provided the following information:

- Mr Clarke had owned the central property for approximately 15 years (since approximately 2005) and had established a coffee equipment refurbishing business in the shed that he constructed (now used by Downer). The shed was extended in 2008 / 2009.
- Mr Clarke used a biodegradable detergent and a product named Lime Away, which is a phosphoric acid descaling agent, to service commercial coffee making equipment. The wastewater was discharged to ground via a septic tank system.
- A waste incineration pit, used to burn green waste and minor amounts of other domestic waste, had been located near to the boundary between the northern and central properties. The waste was excavated by Ray Harvey of Clyde Cartage and Excavation Limited in 2018. Mr Clarke was not aware of the location where the waste had then been disposed of, but the pit was backfilled with uncompacted soil that had been excavated from the building footprint of the shed at the time of its extension.
- Mr Clarke had used fencing to control rabbits, but has more recently switched to using Pindone as recommended by ORC.
- Mr Clarke works on antique cars in the workshop that he constructed adjacent to his dwelling. Waste engine oil is collected and disposed of off-site.
- Stockpiles of soil, located towards the north west of the workshop consist of excess spoil generated during the foundation excavations when constructing the new workshop building.

Mark Laing (*pers. comm.*) current owner of the northern property, provided the following information:

- Mr Laing stored building materials (timber, stone, etc.) in a shed that had been located in the northern corner of the property. The building materials were used during the construction of several commercial buildings on Holloway Street in the centre of Clyde township. Stockpiles of gravel and concrete had also been stored in the area surrounding the shed.
- The shed was demolished in 2018.
- Rabbits are not currently controlled on the property.
- A shipping container, located near to the northern corner of the property, is used to store fencing gear.

Pat Houlahan (*pers. comm.*) current owner of the central and southern properties, provided the following information:

- Mr Houlahans family had owned the northern property and land located north west of that property. The northern property had been used for poultry farming purposes until approximately 1987.
- Chickens were raised using free-range techniques and small shelters had been constructed in rows using waratahs and concrete.

3.3 Certificates of Title

Historical Certificates of Title (Appendix 4), provided by PPG, indicate the following:

The northern property consisted of two separate lots, labelled as '9' and '10', prior to 1983 when Sunderland Street was extended towards the north east along its current path. That action resulted in a small portion of the property labelled '9' being merged with the property labelled '10' to create the extents of the current northern property. Furthermore, the central and southern properties were one large property, labelled '46'. Ownership records indicate the following:

1963: Frederick William Holdom, a farmer from Clyde, owned the northern property.

1964: The central and southern properties were owned by Thomas James Young, a farmer from Clyde.

1967: The central and southern properties were sold to Thomas Andrew Brown and Joan Mary Brown, farmers from Clyde.

1970: Michael James Houlahan and Nuala Margaret Ann Houlahan purchased the northern property.

1972: The central property was subdivided from the southern property and was sold to James Henderson McGill, a Clyde Hospital Board employee.

1975: Christopher William Clements, a depot manager from Alexandra and his wife Felicia Maria Clements, purchased the central property.

1989: Stephen Ronald Gregory, a builder from Queenstown and his wife Angela Dawn Gregory, purchased the central property.

1998: Hunter Alexander Clarke and Elaine May Clarke purchased the central properties.

3.4 ORC Property Database

Jessie Callaghan, Environmental Officer of the ORC, searched the property database on 16 December 2019. The search confirmed that property is not currently on the ORC database, however, rural properties / farms can be associated with activities such as use, storage, formulation, and disposal of pesticides, offal pits, landfills, animal dips, and fuel tanks, which have the potential to contaminate land. The absence of information within the ORC database is stated to not necessarily mean that no contamination impacts are present at the property (Appendix 5).

The ORC Hazardous Activities, Industries and Bores search website⁶ contained no records of hazardous activities or industries at 86 Mutton Town Road when the database was accessed on 2 March 2020.

3.5 CODC NES Records Search

The NES Records Search (Appendix 5) completed by Adam Vincent, Planning Officer - Consents, on 12 and 13 December 2019 as well as on 28 February 2020. The following information was provided:

Northern property

A Building Consent was issued in 2006 for the construction of a new storage and implement shed.

A Resource Consent for an eight-lot subdivision was processed in 2012. Information provided in support of the application indicated that a shed was located on the site and that materials were stored outdoors. Those activities can be associated with the storage of fuel in drums, bulk storage of treated timber outside or landfills, which may trigger NES requirements.

The NES Records Search also confirms that no preliminary or detailed site investigations could be found on the property file.

Aerial photos reviewed by Council confirm the location of the former shed in the northern corner of the property. Outdoor storage of materials was visible in the photographs.

Northern Central Property

Relevant Resource Consents include a retrospective land use consent to operate a commercial storage and distribution company in 2008, and a 2019 land use consent for commercial activity in the Rural Residential Resource Area.

Building consents indicate that a new storage building was approved in 2001 and additions to an existing shed were approved in 2008.

The NES Records Search also confirms that no preliminary or detailed site investigations could be found on the property file.

Aerial photos reviewed by Council did not include evidence of potentially contaminating activities.

Southern Central Property

Building consents indicate that an implement shed was constructed in 1994. The shed could be associated with storage tanks or drums of fuel or chemicals, or landfill.

Southern Property

Relevant Resource Consents include a two lot subdivision in 1986, planning consent to construct a dwelling in 1990 and a two lot non-complying subdivision in 2018. Evidence provided in support of the subdivision application indicates that the site has been used for the disposal and treatment of wastewater in a septic system, which may trigger NES requirements.

Other relevant consents / permits include a building permit to construct a new garage / workshop in 1986 and a dwelling in 1990. These activities are associated with storage of chemicals, fuel or chemical tanks, landfill and wastewater disposal / treatment.

The NES Records Search also confirms that no preliminary or detailed site investigations could be found on the property file.

Aerial photos reviewed by Council did not include evidence of potentially contaminating activities.

3.6 Review of Historical Aerial Photographs and Maps

Photographs in the Crown Collection⁷ and Google Earth⁸, as well as topomaps on the MapsPast⁹ website, have been reviewed to obtain information on the past uses of the site. Aerial photographs taken between 1958 and 2019, as well as maps created between 1929 and 2009, have been reviewed. Table 4 summarises the features visible in each image.

Table 4: Historical Aerial Photographs

1929 ⁹	The site straddles the town belt, which is indicated by a dark black line broken intermittently by single black dots. The central and southern properties are one lot, labelled '46' and '17,0,3'. A railway line is located adjacent to the north eastern site boundary. A creek towards the south east is labelled "Mutton Town Gully". No significant features are visible at the site or in the surrounding area.
1939 ⁹	Apart from the property labelled as '46' now being labelled with '21,3,38' instead of

	'17,0,3', no significant changes are apparent at the site or in the surrounding area.
1949 ⁹	The railway line, that had extended further south east from the southern property's north eastern corner, now terminates at the north eastern corner of the southern property. The property on the opposite side of the railway appears to have been incorporated into the property labelled as '46', which is now also labelled with '27,2,03'. No significant features are visible at the site or in the surrounding area.
1958 ⁷	<p>The site is undeveloped and appears to be vegetated with turf. A trench, which is considered likely to be a water race, is visible in the northern and northern central properties. The trench extends along a north west / south east axis through the centre of the northern property and then arcs towards the east through the northern central property. Relatively evenly spaced linear features extend towards the south west from the trench to the boundary of the northern property. The features may represent border dykes for irrigation purposes.</p> <p>In the surrounding land, an orchard is visible towards the north west approximately 200 m beyond the north western corner of the site. Another orchard is visible approximately 130 m east of the south eastern corner of the site. A road is visible along the south western site boundary and the railway line is visible as a narrow light-coloured track extending along the north eastern site boundary.</p> <p>The remainder of the surrounding area appears to be used for large scale agricultural purposes (grazing). With the exception of a large complex of buildings in the location of the Clyde Hospital, approximately 240 m south west of the north western site boundary, only a few other small buildings are visible in the surrounding land and they are relatively widely distributed. There are no other significant features at the site or in the surrounding area.</p>
1962 ⁷	There are no significant changes at the site or in the surrounding area.
1966 ⁷	<p>Only the north western edge of the site is visible and no changes are apparent in that area. However, new features are visible in the paddocks further towards the north west. Two rows of light coloured squares are considered likely to represent shelters for birds on the poultry farm known to have operated in that area.</p> <p>No other significant features are visible at the site or in the surrounding area.</p>
1968 ⁷	<p>A row of poultry shelters and a narrow trench measuring approximately 55 m is visible near to the northern corner of the site. A light-coloured line extends from beyond the northern corner of the site, along the site boundary towards the south east. The line turns 90 degrees and extends towards the south west along the boundary between the northern and central properties. The line turns 90 degrees again near to the boundary of the central properties and the southern corner of the northern property, where it extends towards the north west and terminates approximately 60 m from the north western corner of the site. Another similar line extends through the centre of the northern property and into the paddocks beyond towards the north west. A roughly circular area of disturbed ground is visible on the northern central property, just south of the intersection of the central north west / south east line and the north east / south west line.</p> <p>No other significant features are visible at the site or in the surrounding area.</p>
1969 ⁹	<p>The railway line is marked along the north eastern site boundary and it extends towards the south east again, which is in contrast to the 1949 map. A water race, which extends through the site from the north west towards the south east, is marked as a blue line with intermittent arrowheads pointing towards the south east.</p> <p>No other significant features are visible at the site or in the surrounding area.</p>
1973 ⁷	The row of poultry shelters has been shifted to an area near to the north western

	<p>corner of the northern property. The lines extending along the property boundaries and through the centre of the northern property appear to have been planted with trees to create shelter belts.</p> <p>Three new buildings are visible on properties south of the site. No other significant changes are apparent at the site or in the surrounding area.</p>
1974 ⁷	The row of poultry shelters has been removed from the site. No other significant changes are apparent at the site or in the surrounding area.
1976 ⁷	No significant changes are apparent at the site or in the surrounding area.
1977 ⁷	<p>A row of poultry shelters is visible on the central property.</p> <p>A building has been constructed on the southern central property and the surface has been stripped over a large area surrounding the building. A track extends from the building towards the shelter belt along the southern boundary of the northern property. Another square shaped object which appears to be similar to the poultry shelters, as well as several other unidentifiable objects and what appears to be a residential vegetable garden, is visible adjacent to the shelter belt.</p> <p>No other significant changes are apparent at the site or in the surrounding area.</p>
1978 ⁷	<p>The row of poultry shelters has been shifted towards the south west and now straddles the boundary between the northern property and the southern central property.</p> <p>No other significant changes are apparent at the site or in the surrounding area.</p>
1979 ⁷	No significant changes are apparent at the site or in the surrounding area.
1979 ⁹	Apart from the realignment of Sunderland Street towards the north east, along the north western site boundary and a new road between the site boundary and the railway line, there only other significant change is a black square which indicates the presence of a building on the southern property.
1981 ⁷	<p>The poultry shelters are no longer visible on the site. The small vegetable garden, with several narrow linear features has been extended towards the building on the southern central property. Square objects that could represent garden sheds are visible at the southern extent of the vegetable garden.</p> <p>In the surrounding land, Sunderland Street is visible on its realigned path along the north western site boundary. State Highway 8 appears to be under construction along the north eastern site boundary. No other significant changes are apparent at the site or in the surrounding area.</p>
1982 ⁷	The image resolution is relatively poor, but the site and surrounding area appears to have remained unchanged.
1984 ⁷	No significant changes are apparent at the site or in the surrounding area.
1985 ⁷	No significant changes are apparent at the site or in the surrounding area.
1989 ⁹	There are no significant changes compared with the 1979 map.
1999 ⁹	There are no black squares on the site but three green lines, indicating shelter belts, are visible along a north west / south east axis on the northern property. No other significant changes are apparent at the site or in the surrounding area.
2005 ⁸	The northern property remains relatively unchanged, apart from the shelter belts being significantly taller than in the previous photographs. A new building is visible on the northern central property. The building is surrounded by a gravel paved area and a track leads towards Mutton Town Road, along the boundary with the southern property. The southern property has also been developed with a dwelling and a shed near to the southern corner. Several rows of trees, resembling an orchard, are visible

	<p>along the north western boundary of the southern property and onto the neighbouring property towards the north east, where a new dwelling has also been constructed.</p> <p>In the surrounding land, a new subdivision is visible beyond the north western site boundary, as new roads have been constructed north of Sunderland Street. A vineyard has been established south of the site and new lifestyle properties (medium / low density residential) are visible on the opposite side of State Highway 8, towards the north east. No other significant changes are apparent at the site or in the surrounding area.</p>
2007 ⁸	<p>A shed has been constructed near to the northern corner of the site. A few unidentifiable objects are visible east of the shed, adjacent to the shelter belt. A stockpile of unidentifiable material, measuring approximately 12 m x 8 m, is also visible in that area. The central shelter belt has been removed and a track extends in an arc from the new shed, past the shelter belt along the south eastern boundary of the northern property to a strip of lighter coloured ground, which may have been mowed, east of the western shelter belt.</p> <p>New dwellings are visible in the land north west of the site. No other significant changes are apparent at the site or in the surrounding area.</p>
2009 ⁹	<p>Apart from two additional shelter belts, orientated along a north east / south west axis on the northern and southern properties, there are no significant changes compared with the 1999 map.</p>
2010 ⁸	<p>Several unidentifiable objects are visible on the south eastern and north eastern sides of the shed at the northern corner of the site. The stockpile of unidentifiable material, now measuring approximately 64 m x 18 m, is significantly larger than in the previous photograph. The shelter belt along the western edge of the northern property has been removed and regularly spaced circular areas are visible adjacent to where the shelter belt had been present. The building on the northern central property has been extended towards the north east and a bund appears to have been constructed in an arc bordering the gravel yard adjacent to the building. A triangular area of lighter ground is visible between the building and the shelter belt towards the north west.</p> <p>Apart from additional new dwellings in the land north west of the site, no other significant changes are apparent at the site or in the surrounding area.</p>
2011 ⁸	<p>Apart from the removal of several rows of trees from the north western boundary of the southern property, no significant changes are apparent at the site or in the surrounding area.</p>
2012 ⁸	<p>No significant changes are apparent at the site or in the surrounding area.</p>
2015 ⁸	<p>The stockpile near to the shed in the northern corner of the site has been removed. No other significant changes are apparent at the site or in the surrounding area.</p>
2017 ⁸	<p>The remaining shelter belts have been removed from the northern property and an earth bund has been constructed along the north eastern boundary of that property. Remnants of the shelter belt that separated the northern and central properties are visible and appear to be being prepared for burning in several stockpiles near to the property boundary. Four other stockpiles appear to have been burnt in the land towards the shed in the northern corner of the site. A possible waste pit containing light-coloured objects and green waste is visible near to the centre of the south eastern boundary of the northern property.</p> <p>Apart from additional new dwellings in the land north west of the site, no other significant changes are apparent at the site or in the surrounding area.</p>
2019 ⁸	<p>The shed in the northern corner of the site has been removed and several</p>

unidentifiable objects are visible on and around the former building footprint. A yellowy-orange, irregular shaped area measuring approximately 20 m x 10 m is visible south west of the former shed. A new gravel track has been formed from the southern corner of the northern property to the building on the central property. The yard surrounding that building has been extended towards the west and a yellow rectangular shaped object resembling a shipping container, as well as several other unidentifiable objects, is visible in that area. An earth bund appears to have been constructed in an arc surrounding the yard. An area of bare land, measuring approximately 25 m x 10 m, is visible north west of the yellow object adjacent to the northern side of the access track. A new building has been constructed in the location of the workshop on the southern central property.

Apart from additional new dwellings in the land north west of the site, no other significant changes are apparent at the site or in the surrounding area.

3.7 Summary of Identified Hazardous Activities and Industries

The following activities noted on the MfE Hazardous Activities and Industries List ¹⁰ (HAIL) have been identified at the site during review of the site history:

Category A11 – Pest control including the premises of commercial pest control operators or any authorities that carry out pest control where bulk storage or preparation of pesticide occurs, including preparation of poisoned baits or filling or washing of tanks for pesticide application.

- This category is represented by the use of pesticides to control rabbits on various parts of the site. The risk to health from this source is considered to be very low because only ORC approved formulations have been used.
- This category is also represented by the presence of an antique pesticide sprayer on the southern central property. Given the age of the unit and the likelihood that it has not been used at the property, the risk to health from this source is considered to be very low.

Category A17 – Storage tanks or drums for fuel, chemicals or liquid waste.

- This category is represented by the presence of small (~20L) containers of fuel, as well as an above-ground fuel storage tank. The risk to health from these sources is considered to be low.

Category A18 – Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside.

- This category is represented by the presence of small stockpile of treated timber posts on the southern property. The risk to health from this source is considered to be low because of the limited scale of the potentially impacted area.

Category F3 – Engine reconditioning workshops and Category F4 – Motor vehicle workshops.

- These categories are represented by the vehicle workshop on the southern central property. Given the fact that waste engine oil is disposed of off-site and the building is constructed with a concrete floor showing no evidence of chemical spills, the risk to health from this source is considered to be very low.

Category G3 – Landfill Sites.

- This category is represented by a former waste disposal and incineration area near to the centre of the south eastern boundary of the northern property. The risk to health from this source is considered to be low as the waste was excavated and removed from the site.

Category G5 – Waste disposal to land.

- This category is represented by the importation of 20 to 25 truckloads of soil from a property in Earnscleugh to the southern property. The risk to health from this source is unknown because, when IE reviewed historical aerial photographs of the source site for the soil, it was evident that it had been used as a commercial orchard between at least the 1950s and 1980s.

According to Regulation 5 of the NES, the Regulations apply if a HAIL activity has been undertaken, or currently is being undertaken on the property.

4 Conceptual Site Model

A contamination conceptual site model, presented in Table 5, consists of three primary components to allow the potential for risk to be determined. These are:

- Source of contamination;
- Pathway to allow the contamination to mobilise; and
- Sensitive receptors which may be impacted by the contamination.

Table 5: Conceptual Site Model

Source	Pathway	Receptor
Heavy metals	Inhalation of dust Dermal absorption (direct contact)	Maintenance / Excavation workers Site workers
Pesticides	Ingestion of soil and / or produce grown in the soil	Current and future residents
Acceptable risk to human health?	<p>Residential Use and Earthworks Associated with Land Development in the Northern and Central Properties Yes: The potential risk to health in that area (a former landfill) was excavated and disposed of by Clyde Cartage and Excavation Limited in 2018.</p> <p>Residential Use and Earthworks Associated with Land Development in the Southern Property Unknown: The potential risk to health in that area (imported soil from a former commercial orchard site) has not been quantified.</p>	

5 Conclusions

Information obtained as part of this investigation (refer to Section 3) indicates that the site has undergone minor development throughout the known history. A former shed in the northern corner was used to store construction equipment and materials. Another shed on the northern central

property was used to recondition commercial coffee making equipment, but is now used as office space for Downer who store miscellaneous equipment in the gravel-paved yard surrounding the shed. Although small amounts of asphalt were observed in a few small gravel stockpiles in that area, the materials are considered to be relatively inert and are unlikely to result in significant contamination impacts in that part of the site. A recently constructed vehicle workshop building and an above-ground fuel storage tank on the southern central property showed no evidence of contamination impacts.

A former landfill was recently (2018) excavated and the waste disposed of off-site by Clyde Cartage and excavation. The area was backfilled with uncompacted soil that had been excavated from the building footprint of the new vehicle workshop building.

The southern property has been used for residential and small-scale agricultural (grazing) purposes. A considerable volume of soil was imported to that property and review of historical aerial photographs of the source site confirm that the land had been used as a commercial orchard between at least the 1950s and 1980s. It is therefore possible that residual heavy metals and / or persistent pesticides are present in the imported soil. A small stockpile of treated timber posts was also observed on the southern property, but the scale of the potentially impacted area is not considered sufficient to represent a significant risk to human health.

Evidence was found that seven HAIL activities have occurred within the site boundary, but there was no evidence that six of the HAIL activities could have resulted in contamination impacts that would pose a significant risk to human health at the site.

Based on the current contamination status of the site, given the potential sources identified, it is considered highly unlikely that there will be a risk to human health on the northern and central properties, if the following activities are done to the piece of land:

- Developing the site for residential use; and
- Future occupation of the new residential dwellings.

It is not known whether a risk to human health exists on the southern property, in the area where imported soil has been placed.

6 Recommendations

It is recommended that, for the northern and central properties, the proposed change of land use be allowed as a Permitted Activity under the NES¹, because the requirements of Regulation 8(4) have been met. Future applications for subdivision / development / disturbance of those properties should be assessed in terms of activities identified in this investigation and any potential new HAIL activities that could occur at any time after this report was written.

Furthermore, it is recommended that a detailed site investigation (DSI) is undertaken on the southern property, according to Regulation 8(6), because it cannot be concluded that it is highly unlikely that there will be a risk to human health if the proposed plan change is approved for that area. It is recommended that, as part of the DSI, a suitably qualified environmental practitioner collects an appropriate number of soil samples and that an IANZ accredited laboratory measures the concentrations of a suite of heavy metals (As, Cd, Cu, Cr, Pb, Ni and Zn) as well as a suite of organochlorine pesticides (OCPs).

7 References

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4. Otago Regional Council 2012: Alexandra Groundwater Basin Allocation Study.
5. Otago Regional Council 2017: Otago Regional Council Resource Consent Database. Viewed at: <http://data.orc.govt.nz/>
6. Otago Regional Council 2020: Otago Regional Council – Mapping Resource. Hazardous Activities, Industries and Bores Search. Viewed at: <https://maps.orc.govt.nz/portal/apps/MapSeries/index.html?appid=052ba04547d74dc4bf070e8d97fd6819>
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9. Mapspast 2017: Current and Historical Topographic Maps (Topomaps) of New Zealand. Viewed at: <http://www.mapspast.org.nz/>
10. Ministry for the Environment 2011: Ministry for the Environment Hazardous Activities and Industries List

8 Limitations

- i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies, Colin Foster, their professional advisers and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.
- ii. The recommendations in this report are based on the ground conditions indicated from published sources, site assessments and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it should be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the IPENZ/ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on 021 556 549 if you require any further information. The author is a Certified Environmental Practitioners (CEnvP) under the Environment Institute of Australia and New Zealand (EIANZ) accreditation system.

Report prepared by

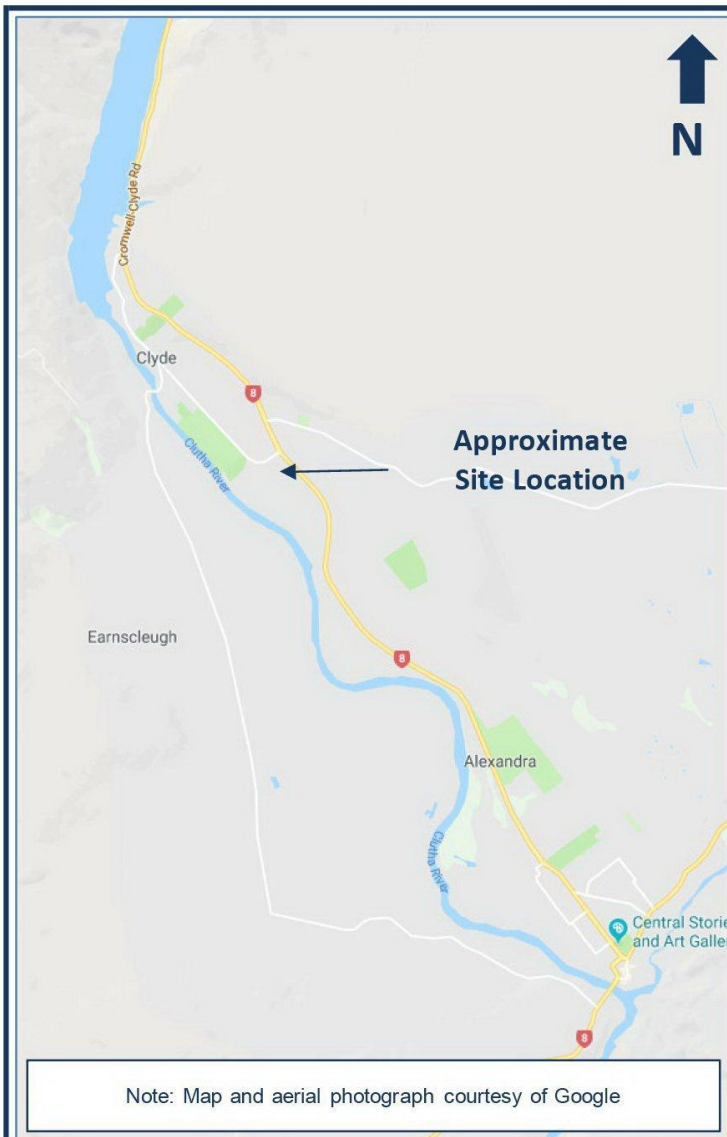
A handwritten signature in black ink, appearing to read 'C Midgley', with a long horizontal stroke extending to the right.


Claude Midgley, CEnvP

Associate Environmental Scientist

APPENDIX 1

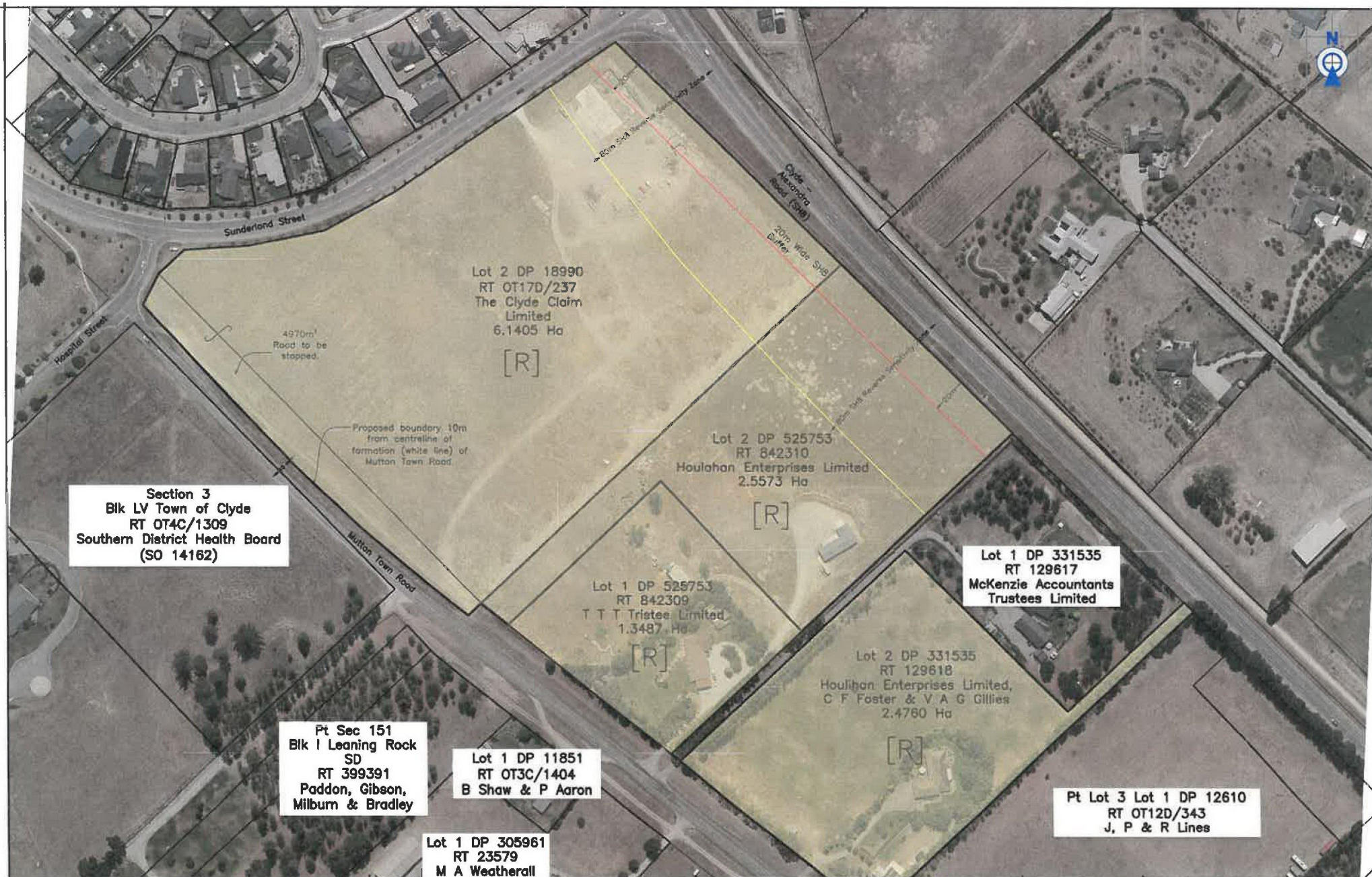
Figures



Description	Site Location Plan	Figure Number	1	
Project	Mutton Town Road, Clyde	Date	Mar-20	
Client	Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies and Colin Foster	Drawn by	CM	
Project Number	19057	Approved by	JK	

APPENDIX 2

Proposed Private Plan Change Area



PATERSONPITTSGROUP
Surveying • Planning • Engineering
Your Land Professionals
www.ppgroup.co.nz
0800 PPGROUP

CROMWELL BRANCH
30 The Mall,
or
PO Box 84,
Cromwell 9342.
T 03 445 1826
E cromwell@ppgroup.co.nz

Client location:

Mutton Town Road

Purpose/Drawing Title

Proposed Private Plan Change
Lot 2 DP 18990, Lot 2 DP 525753,
Lot 2 DP 331535 & Road To Be Stopped.

© COPYRIGHT: This drawing, content and design remains the property of Paterson Pitts Partners Limited and may not be reproduced in part or full or altered without the written permission of Paterson Pitts Partners Limited. This drawing and its content shall only be used for the purpose for which it is intended. No liability shall be accepted by Paterson Pitts Partners Limited for its unauthorized use.

Surveyed by:	DP	Original Size:	A3	Scale:	1:2,000
Designed by:	DP				
Drawn by:	GPW/GW				
Checked by:	DP				
Approved by:	DP				
Job Ref:	A4702 / A4723	Sheet No:	1	Revision No:	C
				Date Created:	26/02/2020
					DO NOT SCALE

APPENDIX 3

Site Photographs



Photo 1: View towards the north west, from the earth bund near to the centre of the site.



Photo 2: View towards the north, from the earth bund near to the centre of the site.

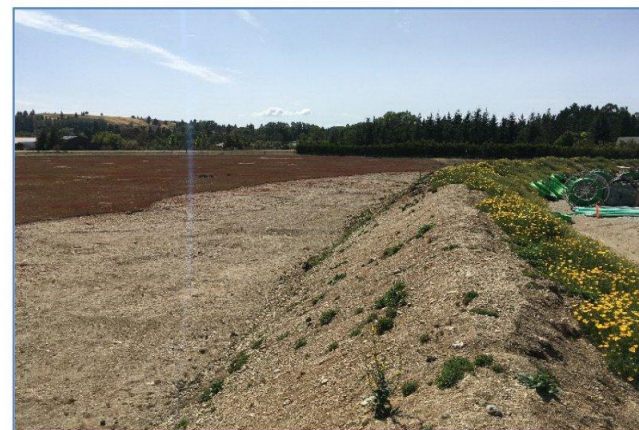


Photo 3: View towards the north east, from the earth bund near to the centre of the site.



Photo 4: Miscellaneous stockpiles of gravel and asphalt south west of the Downer shed.



Photo 5: Scaffolding equipment and a shipping container in the Downer yard.



Photo 6: Assorted metal and plastic objects adjacent to the shipping container.

Description	Site Photographs	Photos	1 to 6
Project	Mutton Town Road, Clyde	Date Taken	15/01/20
Client	Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies and Colin Foster	Taken by	CM
Project Number	19057	Approved by	JK





Photo 7: Former waste pit / incineration area near to the centre of the site.



Photo 8: Small amounts of residual charcoal in former green waste incineration areas.



Photo 9: Former builders yard in the northern corner of the site.



Photo 10: Miscellaneous objects and equipment stored north east of the Downer shed.



Photo 11: Miscellaneous objects and equipment stored in the Downer yard.



Photo 12: Building materials stored along the property boundary east of the Downer shed.

Description	Site Photographs	Photos	7 to 12
Project	Mutton Town Road, Clyde	Date Taken	15/01/20
Client	Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies and Colin Foster	Taken by	CM
Project Number	19057	Approved by	JK





Photo 13: Vehicle workshop building on the southern central property.



Photo 14: Waste oil containers on the southern central property.



Photo 15: Antique vehicle on the southern central property.



Photo 16: Above-ground fuel storage tank on the southern central property.



Photo 17: Antique pesticide sprayer on the southern central property.



Photo 18: Signwriting on the antique pesticide sprayer reading "Turbo-Mist" and "Fruitgrowers Chemical Co Ltd Nelson N.Z.".

Description	Site Photographs	Photos	13 to 18
Project	Mutton Town Road, Clyde	Date Taken	28/02/20
Client	Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies and Colin Foster	Taken by	CM
Project Number	19057	Approved by	JK





Photo 19: Northern paddock of the southern property, viewed from the south facing north.



Photo 20: Northern paddock of the southern property, viewed from the south facing north east.



Photo 21: Underground water storage tank, south of the dwelling on the southern property.




Photo 22: Stockpile of treated timber fence posts adjacent to the driveway on the southern property.



Photo 23: Paddocks west of the dwelling on the southern property.



Photo 24: South western paddock of the southern property.

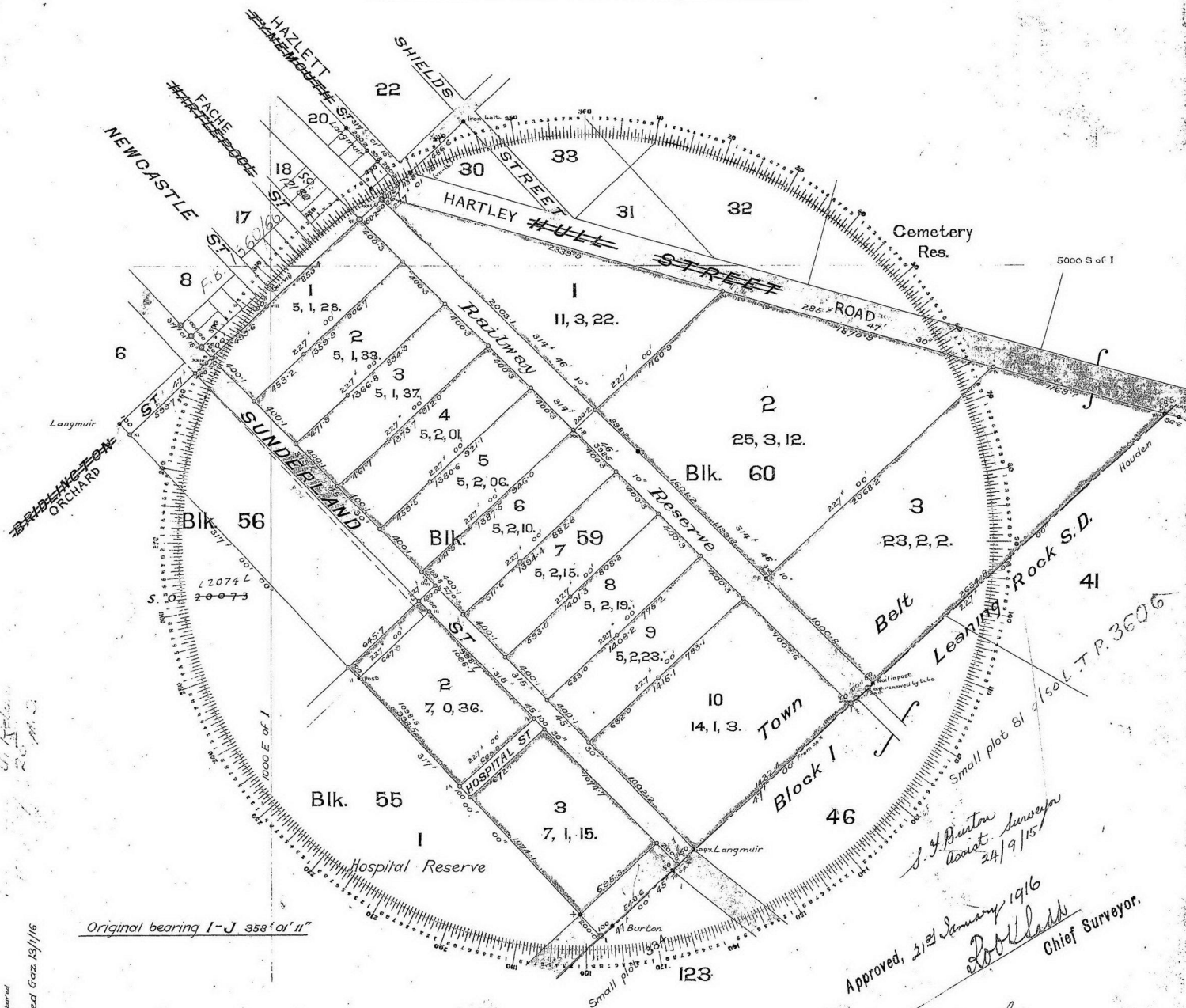
Description	Site Photographs	Photos	19 to 24	
Project	Mutton Town Road, Clyde	Date Taken	15/01/20	
Client	Clyde Claim Limited, Houlahan Enterprises Limited, Ostex Corporation Limited, Vicki Gillies and Colin Foster	Taken by	CM	
Project Number	19057	Approved by	JK	

APPENDIX 4

Historical Certificates of Title

DEPARTMENT OF LANDS AND SURVEY, NEW ZEALAND.

Lands 227.



Original bearing I-J 358° 01' 11"

Instructions No.:	Date:
Field-book No. 748, 749, Pages 17-24, 13-9	
Traverse Reduction-book: 38	Page: 24-26
Map received: 26/9/15	Examined: 28.5.1915
33A, Riv. Pl. 134, 135, Langmuir's Blk. LIX, LV Clyde,	
Block Plan	
Index No 5579	File 11230

CERTIFICATE.

I hereby certify that this plan has been made from surveys executed by me (or under my own personal supervision, inspection, and field check); that both plan and survey of Crown or Native lands have been strictly complied with.

Dated at this day of

Plan of Subdiv. Blks. 55, 59, 60. TOWN OF CLYDE

Surveyed for Settlement

By J. Y. Burton, Assist. Surveyor.
Licensed Surveyor.

Date: April 1915.

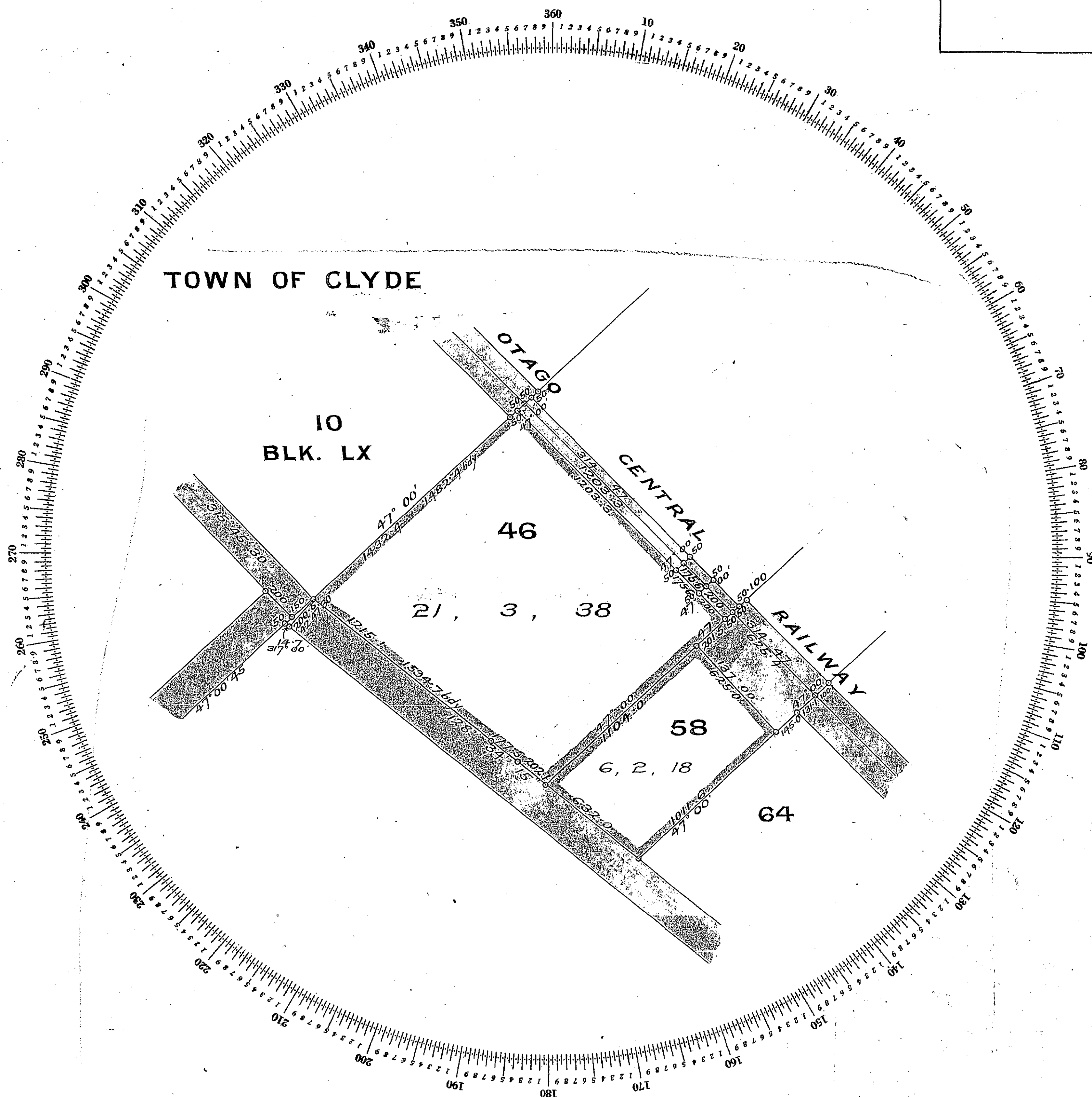
SCALE — 5 Chains to an Inch.

14162



Approved, 21/1 January 1916
J. Y. Burton, Chief Surveyor.

LAND DISTRICT
N.L.C. DISTRICT



Tracing sent with Return
for November, 1929
M.D.

FILE: R.L. 147°

AUTHORITY:

PARENT PLAN: A

L.T. 3606
REF. PLANS: S.P. 81, 334, 1627, Rly 134

Received: 17-12-29 No. 10550

Fieldbook:

Traverse-book: Folio:

Examined: 17/12/29

Recorded: 16-7-30 M.B.

Plan in order and
ready for approval:

PLAN OF Secs 46, 58, Bk. I, Leaning Rock S.D.

Surveyed for Compiled in Office

M. V. Wilkinson, applicant

Date: December 1929

SCALE: 5 CHAINS TO AN INCH.

I, _____ of _____
Licensed Surveyor, hereby certify that this plan has been made from surveys executed by me; that both plan and survey are correct, and have been made in accordance with the regulations of the Surveyor's Board, dated the 20th day of March, 1923.

Dated at _____, this _____ day of _____, 19

Licensed Surveyor.

Approved:

H. C. Kensington
Chief Surveyor.
18/12/29

Plan No.

LAND AND SURVY
17 DEC. 1929
DUNEDIN.

300

5355

Reference:
Certificate No. 265811

P.R. Vol. Folio
Transfer No.



CANCELLED

Land and Deeds 72

REGISTER

No. B2 / 1382

DUPLICATE DESTROYED
17/3/1971

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 27th day of November one thousand nine hundred and sixtythree under the seal of the District Land Registrar of the Land Registration District of O T A G O being a Certificate in lieu of Grant, **WITNESSETH** that FREDERICK WILLIAM HOLDOM, the younger of Clyde Farmer

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorials underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, which said land was originally acquired by the said Frederick William Holdom the younger

as from the 1st day of January one thousand nine hundred and sixtytwo under Section 122 of the Land Act 1948 that is to say: All that parcel of land containing 86 acres 3 roods 1 perch more or less being Sections 8, 9 and 10 Block LIX and Sections 1, 2 and 3 Block LX TOWN OF CLYDE

This Certificate is affected by the following interests at the date of issue:

Subject to the reservations and conditions imposed by Section 59 of the Land Act 1948.

[Signature]
DISTRICT LAND REGISTRAR



X.14090 Irrigation Agreement under part XI of the Public Works Act 1928 with Her Majesty the Queen.

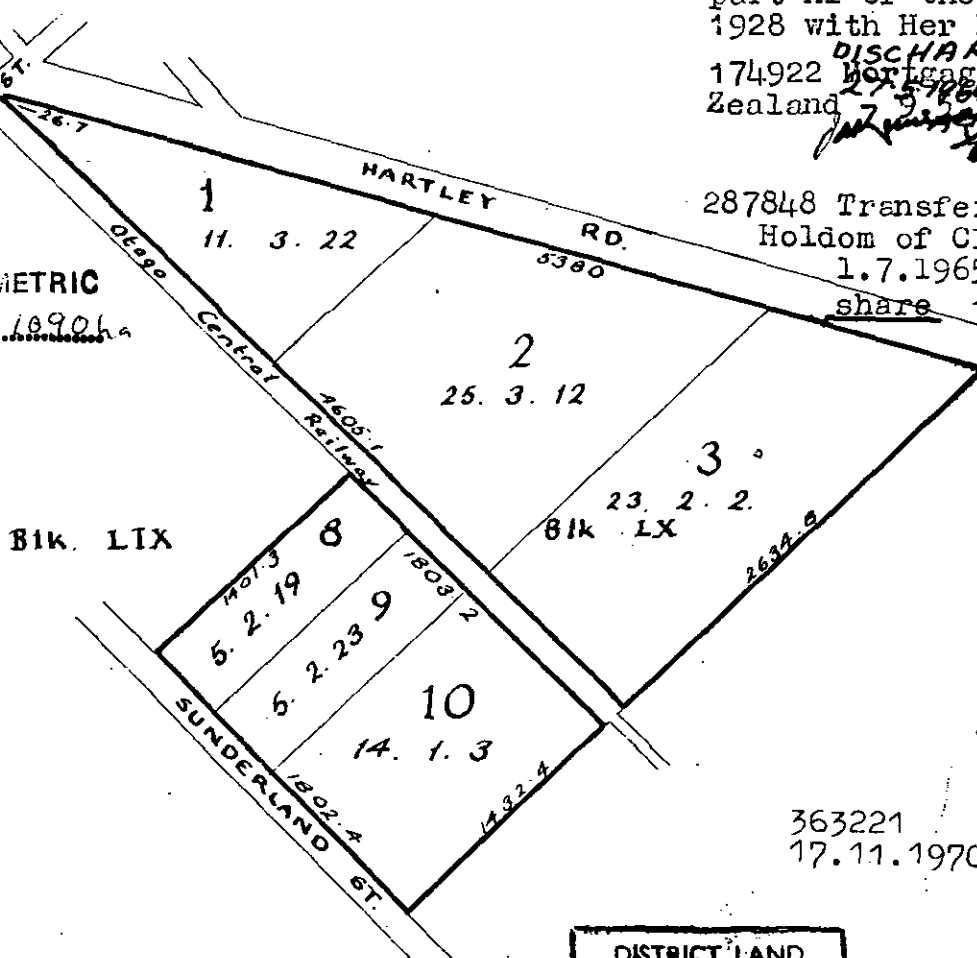
174922 Mortgage to Bank of New Zealand 27.5.1968 2.58 pm.

287848 Transfer to Gwenyth Florence Holdom of Clyde Married Woman - 1.7.1965 at 11.20 am. of one half share *[Signature]* A.L.R.

363221 Transfer of Sections 8, 9 and 10 Block LIX to Michael James Houlahan as to 3rd share and Nuala Margaret Ann Houlahan as to 3rd share as tenants in common in the said shares - 17.11.1970 at 11 am 4C/359 *[Signature]* D.L.R.

363221) Cancelled as to balance
17.11.1970) and new O.T. 4C/360
issued *[Signature]* D.L.R.

EQUIVALENT METRIC
AREA IS 35.1090 ha



Total Area: 86. 3. 01

S.O. 14162

Scale: 1 inch = 10 Chains



Register copy for L & D, 5,060/5,63-69497 W

C.T. 1C/638

383072) Cancelled and new Cs.T.
14.3.1972) issued for Lots 1, 2 and 3
D.P. 12610

Lot 1	4D/1399
Lot 2	4D/1400
Lot 3	4D/1401

W. L. R.
D.L.R.



References
Prior O/T. 171/4

Transfer No. 311185
N/C. Order No.

DUPLICATE DESTROYED
29/6/1972



Land and Deeds 69
CANCELLED
REGISTER

No. 3A/133

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT
LIMITED AS TO PARCELS

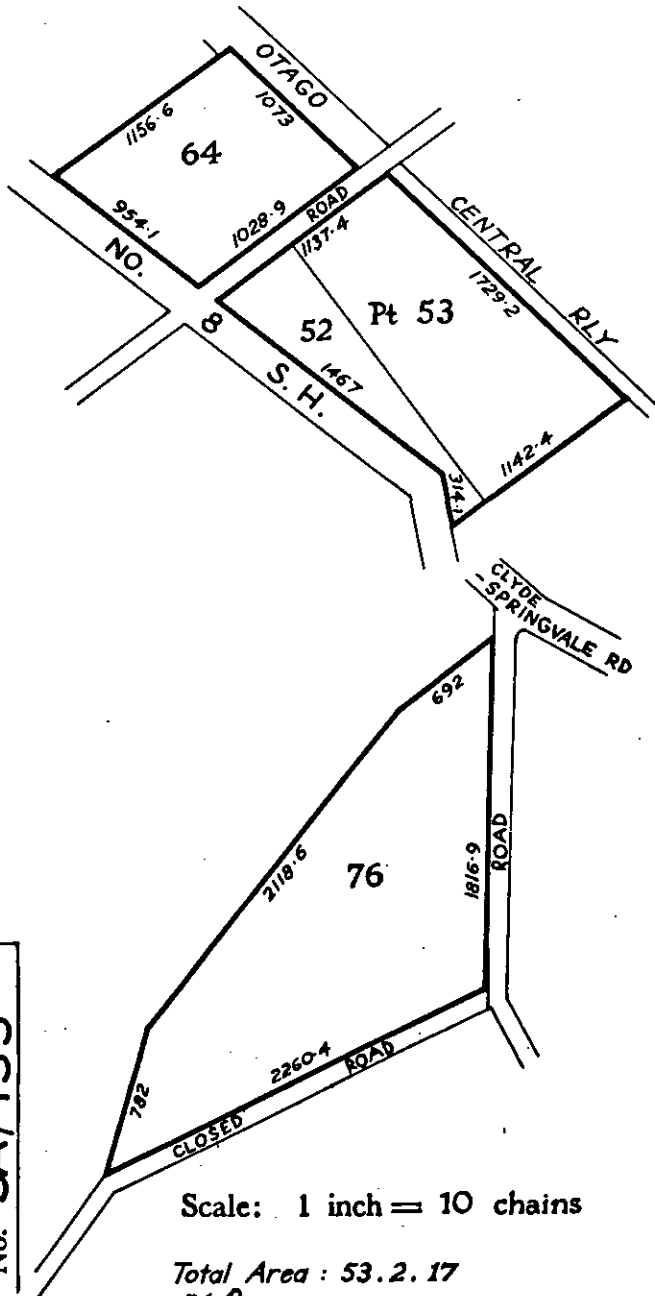
This Certificate dated the 24th day of February one thousand nine hundred and sixty-seven under the seal of the District Land Registrar of the Land Registration District of O T A G O

WITNESSETH that THOMAS ANDREW BROWN and JOAN MARY BROWN both of Clyde, Farmers are as tenants in common in equal shares

New Plan 12610

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All parcels of land containing together 53 Acres 2 Roods 17 Perches more or less being Sections 52, 64 and 76 and part Section 53 Block I LEANING ROCK DISTRICT. Together with such parts of the mines of coal and other minerals (if any) under the surface of another part of Section 53 as are not taken by Proclamation 2004 but are excepted thereout by Law.

EQUIVALENT METRIC
AREA IS 21.6937 ha.



DISTRICT LAND REGISTRAR

X13991 Irrigation Agreement under Part XI of the Public Works Act 1928 with Her Majesty The Queen - 4.3.1952 at 11 am

[Signature]
D.L.R.

311187 Mortgage to The Trustees Executors and Agency Company of New Zealand Limited - 24.2.1967 at 2.29 pm

[Signature]
D.L.R.

383072) New C.S.T. issued for Lots
14.3.1972) 3 and 4 D.P. 12610

Lot 3 4D/1401
Lot 4 4D/1402

[Signature]
D.L.R.

Partially Cancelled.

384191) Cancelled as to balance
11.4.1972) and new C.T. 5A/41 issued

[Signature]
D.L.R.



80,000/8/63-9010 W

Register copy for L. & D. 69, 71, 72

No. 3A/133

References
Prior C/T B2/1382

Land and Deeds 69

Transfer No. 363221
N/C. Order No.

CANCELLED

REGISTER

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 17th day of November one thousand nine hundred and seventy under the seal of the District Land Registrar of the Land Registration District of O T A G O

WITNESSETH that MICHAEL JAMES HOULAHAN of Clyde, Farmer (2/3rds share) and NUALA MARGARET ANN HOULAHAN his wife (1/3rd share) are as tenants in common in the said shares

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 25 Acres 2 Roods 5 Perches more or less being Sections 8, 9 and 10 Block LIX TOWN OF CLYDE.

Interests at date of issue:

Subject to the Reservations and Conditions imposed by Section 59 of the Land Act 1948

X14090 Irrigation Agreement under Part XI of the Public Works Act 1928 with Her Majesty the Queen

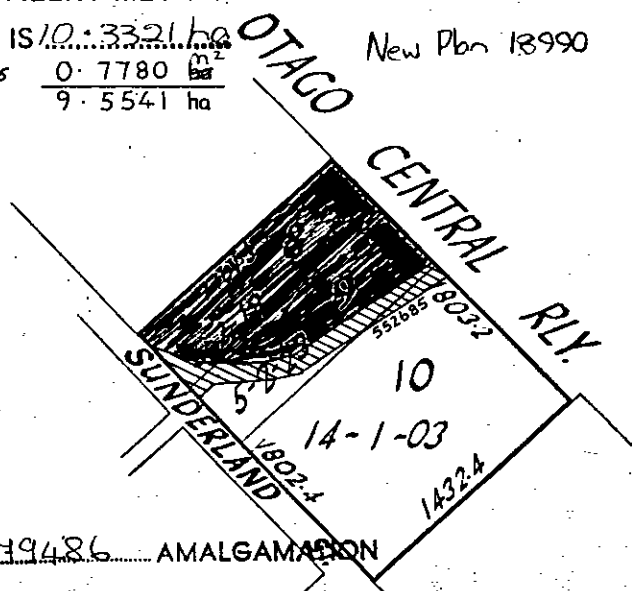
363222 Mortgage to Bank of New Zealand Savings Bank Ltd dated 17.11.1970 at 11.2 am

363223 Mortgage to Frederick William Holdom and Gwenth Florence Holdom in shares - 17.1.1971 at 11.3 am

EQUIVALENT METRIC

AREA IS 10.3321 ha
552685 0.7780 m²
9.5541 ha

New Plan 13990



379478 Mortgage to The State Advances Corporation of New Zealand - 7.12.1974 at 10.7 am

Variation of Mortgage 379478 - 23.8.1974 at 11.40 am.

428461 Mortgage to Her Majesty The Queen pursuant to Subsection (2) of Section 11 of the Post Office Act 1959.

440764 Gazette Notice declaring a portion of No. 8 State Highway (Clyde-Alexandra) fronting the within land to be a limited access road produced 26.5.1975 at 1.53 pm

507964 Mortgage to H. H. Heddon - 12.1978 at 11.3 am

-OVER-

532537 Compensation Certificate pursuant
to Section 17 of the Public Works
Amendment Act 1948 - 3.4.1980 at 10.49am
(affects part - 7500 m²)

[Signature]
A.L.R.

534544/1 Certificate vesting Mortgage 379478
in the Rural Banking and Finance Corporation
of New Zealand - 13.5.1980 at 12.11 pm

[Signature]
A.L.R.

552685 Gazette Notice hereby declaring part of the
within land (7780 m²) shown hatched black on the
diagram hereon, to be taken for road from and
after the 2nd April 1981 - 14.4.1981 at 1.53 pm

[Signature]
A.L.R.

592053/1 Mortgage to Richard Paul La Hood and
Michael Perniske 23.12.1983 at 10.51 am

[Signature]
A.L.R.

592053/2 Mortgage to Bank of New Zealand -
25.3.1985 at 10.51 am

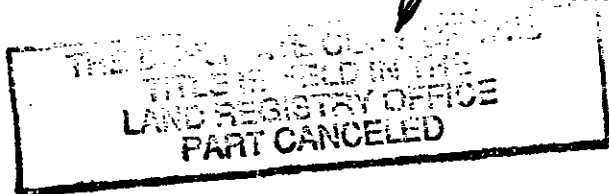
[Signature]
A.L.R.

614040 Gazette Notice declaring a portion of State
Highway No. 8 fronting the within land to be a
limited access road - 4.5.1984 at 10.30 am

[Signature]
A.L.R.

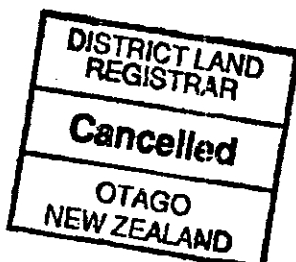
796535/1) New CT 14A/781 issued for Lot
24.1.1992) 1 D.P. 18990 herein

[Signature]
A.L.R.



912781) Cancelled and new CT 17D/237
25.7.1996) issued for Lot 2 DP 18990
herein

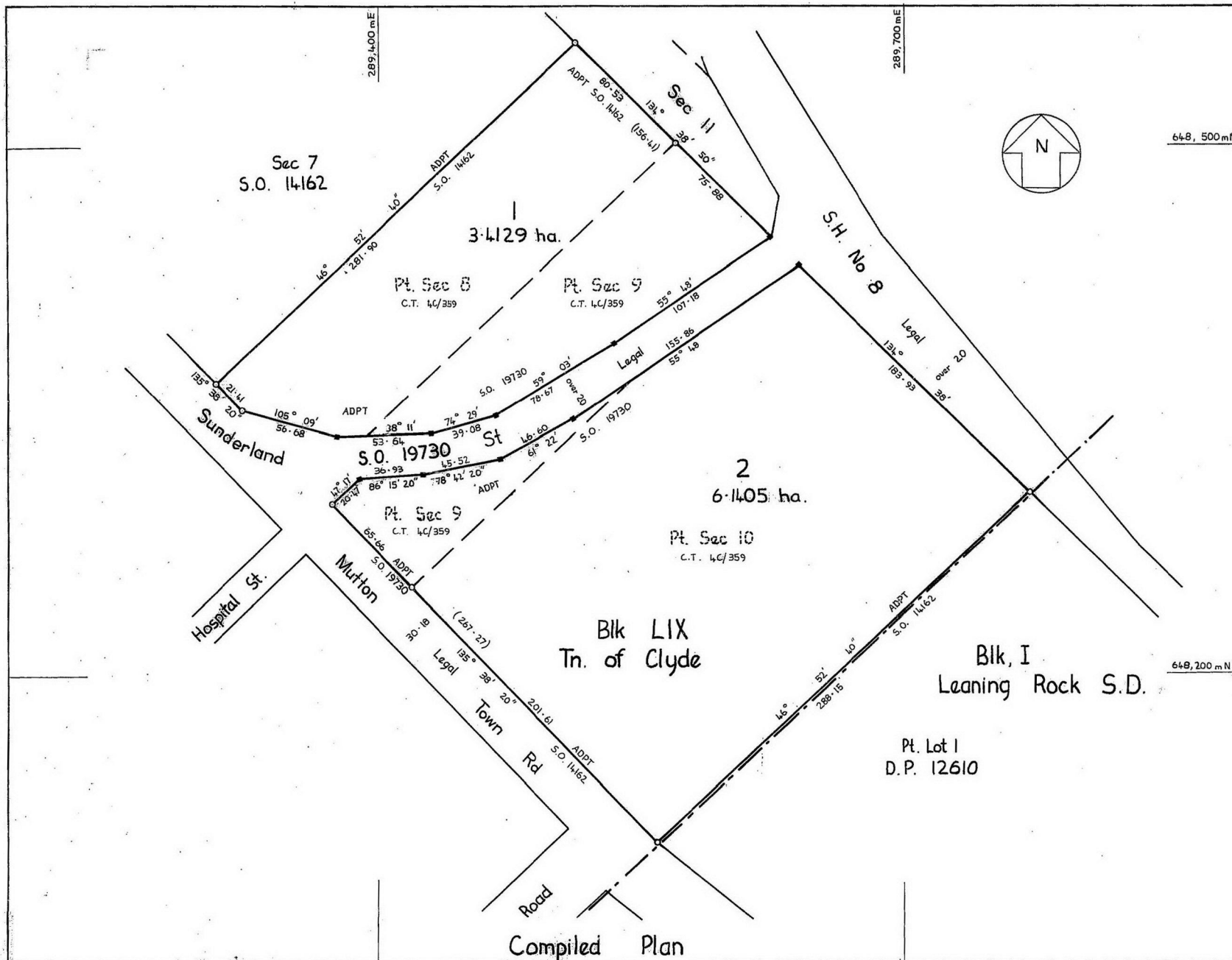
[Signature]
A.L.R.



DUPLICATE DESTROYED

31811996





Approved
M. H. Haulahan
M. H. Haulahan
 Registered Proprietor

The Vincent County Council certifies that:
 (1) This plan of subdivision is approved pursuant to Section 305(1) of the Local Government Act 1974 by a resolution of the said Council passed on the 27th day of SEPTEMBER 1984 subject to such conditions as are set out in paragraph (3) hereof;
 (2) This plan is in accordance with the requirements and provisions of the said Council's operative district planning scheme at that date; and that
 (3) The conditions referred to in paragraph (1) hereof are—

Nil conditions hereon

IN WITNESS whereof the Common Seal of the said Council was hereto affixed in the presence of—
 Chairman *[Signature]*
 County Clerk *[Signature]*

In the matter of Section 270(1)(b) of the Local Government Act 1974

I do hereby certify that all conditions shown on or referred to on the approved scheme plan of the within subdivision have been complied with to the satisfaction of the Vincent County Council.
 Dated this 27th day of SEPTEMBER 1984

Principal Officer of the Vincent County Council.
[Signature]

Datum: Geodetic 1949
 Linds Peak Circuit
 Coordinates from false Origin
 700,000 mN 300,000 mE

Total Area 9.5534 ha.
 Comprised in C.T. 4C/359

I, GEORGE ROBERTSON ELDER of ALEXANDRIA registered surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to the proviso to section 33 (2) of the Surveyors Act 1966) hereby certify that this plan has been made in accordance with the Survey Regulations 1972
 Dated at Alexandria this 12th day of November 1983 Signature *[Signature]*

Field Book p. Traverse Book p.
 Reference Plans D.P.s 12265, 12610
 S.O.s 14162, 19730, 19964
 Examined J.A. Williams Correct *[Signature]*

Approved as to Survey
30/11/84
[Signature] Chief Surveyor

Deposited this 30/11/84
[Signature] District Registrar

File 2305
 Received 30.11.84
 Instructions

D.P. 18990

LAND DISTRICT OTAGO RM. G42/13-07
 SURVEY BLK. & DIST. LIX, Tn. of Clyde
 NZMS 261 SHEET NO. G 42

Plan of Lots 1 & 2 being
 Subdivision of Pt. Sec's 8, 9 & 10

LOCAL AUTHORITY Vincent County
 Surveyed by McGEORGE & ELDER
 Scale 1:1500 Date Nov 1983

Land and Deeds 66

4D/1399

**PART - CANCELLED
PART TAKEN BY GAZETTE
NOTICE**

REGISTER

Image Quality due to Condition of Original

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate is of the 14th day of March one thousand nine hundred and seventytwo under the seal of the District Land Registrar of the Land Registration District of O T A G O

WITNESSETH that THOMAS ANDREW BROWN and JOAN MARY BROWN both of Clyde, Farmers are as tenants in common in equal shares

of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several measurements a little more or less, that is to say: All that parcel of land containing 10 acres more or less being Lot 1 Deposited Plan 12610 and being part Section 46 Block I GRANTING ROCK DISTRICT

Expressed at date of issue:

Subject to the reservation to the Crown of the right at any time, and from time to time without being deemed to commit a trespass and without payment of compensation to enter upon the said land and thereon to take, lay, construct, maintain, inspect, repair or reconstruct watercourses, drains and all other works which the Minister of Work deems necessary for the supply of water to the said land or to any other land and subject also the owner of the said land being required to take water from races provided for irrigation purposes at a price to be fixed by the Crown and excepting the Crown from liability for any damage caused by any overflow or break-away of any race or channel.

Subject to the Reservations and Conditions imposed by Section 59 of the Land Act 1948.

311187 Mortgage to The Trustees Executors and Agency Company of New Zealand Limited 2.1967 at 2.29 pm.

D.L.R.

EQUIVALENT METRIC

AREA IS 4.0469 ha
0.1402 544299
3.9067 ha

OTAGO CENTRAL RLY

10 - 0 - 00

No 8 S.H.100

1 inch = 6 Chains

OVER

C.T. 4D/1399

386934 Transfer to James Henderson
McGill of Clyde Hospital Board
Employee - 8.6.1973 at 1.34 am

OBSELETE
[Signature]
A.L.R.

440764 Gazette Notice declaring a portion
of No: 8 State Highway (Clyde-Alexandra)
fronting the within land to be a limited
access road produced 26.5.1975 at 1.53 pm

[Signature]
A.L.R.

443045 Transfer to Christopher
William Clements of Alexandra,
Depot Manager and Felicia Maria
Clements his wife - 9.7.1975 at
12.09 pm

OBSELETE
[Signature]
for A.L.R.

462301 Mortgage to Bank of New Zealand
Savings Bank - 14.7.1976 at
9.45 am

DISCHARGED
ADDED
[Signature]
A.L.R.

483128 Proclamation defining the middle line
of a portion of State Highway No: 8 (Timaru-
Milton) fronting the within land - 15.8.1977
at 9.39 am

[Signature]
A.L.R.

485428 Compensation Certificate pursuant to
Section 17 Public Works Amendment Act 1948
- 27.9.1977 at 10.49 am

[Signature]
A.L.R.

486818 Mortgage to Bank of New Zealand
21.10.1978

WITHDRAWN FROM REGISTRATION
[Signature]
A.L.R.

544299 Gazette Notice declaring part of the
within land (1402 m²) shown hatched black
on the diagram hereon is taken for road from
and after the 23rd day of October 1980
- 4.11.1980 at 11.41 am

[Signature]
A.L.R.

614040 Gazette Notice declaring a portion
of State Highway No.8 fronting the within land
to be a limited access road - 4.5.1984 at
10.30 am

[Signature]
A.L.R.

649934/3 Mortgage to Boddings Solicitors
Nominee Company Limited - 24.1.1986 at
1.34 pm.

DISCHARGED
ADDED
[Signature]
A.L.R.

649934/4 Mortgage to Bank of New Zealand
- 24.1.1986 at 1.34 pm

DISCHARGED
ADDED
[Signature]
A.L.R.

726258 Variation of Mortgage 649934/3
- 13.4.1989 at 9.58 am

OBSELETE
LSP 13/10/89
[Signature]
A.L.R.

743704/3 Transfer to Stephen Ronald Gregory
of Queenstown Builder and Dawn Gregory
his wife - 4.12.1988 at 9.24 am

OBSELETE
[Signature]

743704/4 Mortgage to Bank Southland
Limited - 4.12.1988 at 9.24 am

DISCHARGE OF MORTGAGE
ADDED
[Signature]
A.L.R.

743704/5 Mortgage to Housing Corporation
of New Zealand - 4.12.1988 at 9.24 am

DISCHARGE OF MORTGAGE
ADDED
[Signature]
A.L.R.

743704/6 Mortgage to Bank of New Zealand
- 4.12.1988 at 9.24 am

DISCHARGE OF MORTGAGE
ADDED
[Signature]
A.L.R.

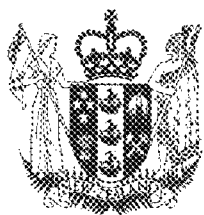
949489.2 Transfer to Hunter Alexander Clarke
and Elaine May Clarke
17.6.1998 at 9.12

[Signature]
for DLR

951844.1 Mortgage to Westpac Banking
Corporation
29.7.1998 at 9.08

[Signature]
for DLR





COMPUTER FREEHOLD REGISTER UNDER LAND TRANSFER ACT 1952

Historical Search Copy



R. W. Muir
Registrar-General
of Land

Identifier
Land Registration District
Date Issued

OT4D/1399
Otago
14 March 1972

Cancelled

Prior References

OT1C/638

Estate	Fee Simple
Area	4.0469 hectares more or less
Legal Description	Lot 1 Deposited Plan 12610

Original Proprietors

Hunter Alexander Clarke and Elaine May Clarke

Interests

Subject to the reservation to the Crown of the right at any time and from time to time without being deemed to commit a trespass and without payment of compensation to enter upon the said land and to take, lay, construct, maintain, inspect, repair or re-construct water-races, drains and all other works which the Minister of Works deems necessary for the supply of water to the said land or to any other land and subject also to the owner of the said land being required to take water from races so provided for irrigation purposes at a price to be fixed by the Crown and excepting the Crown from liability for any damage caused by any overflow or breakaway of any race or channel.

Subject to Section 59 Land Act 1948

440764 Gazette Notice declaring a portion of No: 8 State Highway (Clyde-Alexandra) fronting the within land to be a limited access road - 26.5.1975 at 1.53 pm

483128 Proclamation defining the middle line of a portion of State Highway No: 8 (Timaru-Milton) fronting the within land - 15.8.1977 at 9.39 am

485428 Compensation Certificate pursuant to Section 17 Public Works Amendment Act 1948 - 27.9.1977 at 10.49 am

544299 Gazette Notice declaring part of the within land (1402m²) shown hatched black on the diagram hereon is taken for road from and after the 23rd day of October 1980 - 4.11.1980 at 11.41 am

614040 Gazette Notice declaring a portion of State Highway No. 8 fronting the within land to be a limited access road - 4.5.1984 at 10.30 am

951844.1 Mortgage to Westpac Banking Corporation - 29.7.1998 at 9.08 am

5273732.1 Variation of Mortgage 951844.1 - 5.7.2002 at 9:00 am

7095691.1 Application pursuant to Section 99A Land Transfer Act 1952 vesting Mortgage 951844.1 in Westpac New Zealand Limited - 2.11.2006 at 9:00 am

7700454.1 Variation of Mortgage 951844.1 - 4.2.2008 at 9:00 am

10378268.1 Discharge of Mortgage 951844.1 - 9.8.2016 at 9:27 am

10378268.2 Transfer to Hunter Alexander Clarke, Elaine May Clarke and Clarke Family Trustee Company Limited - 9.8.2016 at 9:27 am

11128009.1 Transfer to Hunter Alexander Clarke, Elaine May Clarke and T T T Trustee Limited - 13.6.2018 at 12:57 pm

Identifier**OT4D/1399**

11120436.1 Certificate pursuant to Section 223 Resource Management Act 1991(affects DP 525753) - 30.8.2018 at 11:07 am

11120436.2 Certificate pursuant to Section 224(c) Resource Management Act 1991 (affects DP 525753) - 30.8.2018 at 11:07 am

11120436.3 CTs issued - 30.8.2018 at 11:07 am

Legal Description**Title**

Lot 1 Deposited Plan 525753

842309

Lot 2 Deposited Plan 525753

842310

CANCELLED

APPENDIX 5

ORC Contaminated Land Enquiry and CODC NES Records Search

16 December 2019

Dear Claude Midgley,

Thank you for your enquiry regarding information that the Otago Regional Council may hold regarding potential soil contamination at the properties indicated below:

Address	Valuation Number / Legal Description
-	
-	28461/40802 Lot 2 DP 18990
-	Lot 2 DP 525753
-	28462/37300 Lot 2 DP 331535

The Otago Regional Council maintains a database of properties where information is held regarding current or past land-uses that have the potential to contaminated land. Land-uses that have the potential to contaminate land are outlined in the Ministry for the Environment's Hazardous Activities and Industries List (HAIL).

Where investigation has been completed, results have been compared to relevant soil guideline values. The database is continually under development, and should not be regarded as a complete record of all properties in Otago. The absence of available information does not necessarily mean that the property is uncontaminated; rather no information exists on the database. You may also wish to examine the property file at the relevant City or District Council to check if there is any evidence that activities occurring on the HAIL have taken place.

I can confirm that:

The above land does not currently appear on the database.

If your enquiry relates to a rural property, please note that many current and past activities undertaken on farms may not be listed on the database, as they can be more difficult to identify. Activities such as use, storage, formulation, and disposal of pesticides, offal pits, landfills, animal dips, and fuel tanks have the potential to contaminated land.

Similarly, the long-term use of lead-based paints on buildings can, in some cases, cases cause soil contamination. The use of lead-based paint is generally not recorded on the database.

Please feel free to contact me if you have any other enquires, or you would like to discuss the matter further,

Regards,



Jessie Callaghan
Environmental Officer

The enclosed/attached information is derived from the Otago Regional contaminated land register and is being disclosed to you pursuant to the Local Government Official Information and Meetings Act 1987. This information reflects the Otago Regional Council's current understanding of this site, which is based solely on the information obtained by the Council and held on record. It is disclosed only as a copy of those records and is not intended to provide a full, complete or entirely accurate assessment of the site. Accordingly, the Otago Regional Council is not in a position to warrant that the information is complete or without error and accepts no liability for any inaccuracy in, or omission from, this information. Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

HAIL Status	
Verified HAIL	Information has been provided confirming, more likely than not, that an activity or industry described in the HAIL is being or has been undertaken on the site.
Unverified HAIL	Information has been provided that suggests an activity or industry described in the HAIL is or has been undertaken on the site; however, this information has not been verified.
Verified non-HAIL – more likely than not	It has been established, more likely than not, that an activity or industry described in the HAIL has not been undertaken on the site at the time of listing.

Contamination Status	
Contaminated for <Context>	The site has been investigated and results demonstrate that there are hazardous substances in or on the land at the site that have, or are reasonably likely to have significant adverse effects on the environment. <Context> refers to the current or proposed site use and/or on/off-site ecological receptors.
Managed for <Context>	The site has been investigated and results demonstrate that there are hazardous substances present at the site that have the potential to pose risks to human health or the environment. However, those risks are considered managed for <context> because <ul style="list-style-type: none"> - The nature of the use of the site prevents human and/or ecological exposure to the hazard; and/or - The land has been altered in some way and/or restrictions have been placed on the way it used to prevent human and/or ecological exposure to the hazard.
Acceptable for <Context>	The site has been investigated and results demonstrate that there are hazardous substances present at the site, but assessment indicates that any adverse effects or risks to human health are considered to be so low as to be acceptable for <context>.
At or Below Background Concentrations	The site has been investigated or remediated. The investigation or post-remediation validation results confirm that there are no hazardous substances above local background concentrations. Local background concentrations are those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed to characterize the site.
Partially investigated	The site has been partially investigated. Investigations have been conducted that – <ul style="list-style-type: none"> - Demonstrate there are hazardous substances present; however, there is insufficient information to quantify any adverse effects or risks to human health or the environment; or,

	<ul style="list-style-type: none"> - Do not adequately verify the presence or absence of contamination associated with all HAIL activities that have been undertaken on the site.
Not Investigated	The soils at the site have not been subject to investigation. Contamination may have occurred but should not be assumed to have occurred.
New Information	New information has been received. This information is currently being assessed prior to assigning a site status.



NES RECORD SEARCH

Application

JKCM Limited
PO Box 456, Cromwell 9342

Number NES190079
Application date 2/12/19
Phone
Mobile 021 202 1747
Email jana@insighteng.co.nz

Property

Valuation No. 2846140802
Location 11 Sunderland Street, Clyde
Legal Description Lot 2 DP 18990
Area (hectares) 6.1493

Resource consents

Resource Area: RURAL RESIDENTIAL RESOURCE AREA

Consents:

30/08/2012 RC 120183: Eight lot subdivision plus one lot to vest as road

THIS RECORD WAS INCOMPLETE ON THE FILE. SOME INFORMATION
PERTAINING TO HAIL ACTIVITIES MAY BE MISSING FROM THIS RECORD

Information provided in support of this application indicates a shed on the site, with associated outdoor storage of materials. Activities on the HAIL associated with these activities can include the storage of fuel or chemicals in drums (Item A17), bulk storage of treated timber outside (Item A18) or landfill (Item G3). The presence of these activities may trigger NES requirements.

Building

Consents/Permits/Compliance Schedules:

09/01/2006 BC 050883: Erect new storage and implement shed

No information in regards to HAIL activity could be found on this record.

Preliminary Site Investigations and Detailed Site Investigations

No information in regards to the above could be found on the property file.

Aerial Photographs

Council's aerial photographs date back to 2003. Aerial photos confirm the location of a previous shed in the northern corner of the site, with associated outdoor storage of materials. Activities on the HAIL associated with these activities can include the storage of fuel or chemicals in drums (Item A17), bulk storage of treated timber outside (Item A18) or landfill (Item G3). The presence of these activities may trigger NES requirements.

Disclaimer: The Council does not hold records directly relating to activities on the Hazardous Activities and Industries List (HAIL). In the event some information is available it cannot be guaranteed as correct or complete and therefore may not satisfy your request. We therefore recommend you undertake further investigation to determine whether any HAIL activities exist on the site.

A handwritten signature in blue ink, appearing to read 'A. Vincent'.

Adam Vincent
Planning Officer - Consents

Date: 13 December 2019



NES RECORD SEARCH

Application

JKCM Limited PO Box 456, Cromwell 9342	Number NES190081 Application date 2/12/19 Phone Mobile 021 202 1747 Email jana@insighteng.co.nz
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Property

Valuation No.	2846237202
Location	98 Mutton Town Road, Clyde
Legal Description	Lot 2 DP 525753
Area (hectares)	2.5605

Resource consents

Resource Area:	RURAL RESIDENTIAL RESOURCE AREA
Consents:	
01/05/2019	RC 190172: Land use consent for commercial activity in the Rural Residential Resource Area No information in regards to HAIL activity could be found on this file.
26/02/2019	RC 190072: Land use consent to convert a shed into a dwelling for workers accommodation Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
20/02/2019	RC 190057: Land use consent to convert existing dwelling into residential activity and workers accommodation Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
05/04/2018	RC 180120: Two lot subdivision with an average allotment size of 1.935 hectares Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
02/12/2008	RC 080427: Retrospective land use consent to operate commercial storage and distribution company No information in regards to HAIL activity could be found on this file.

Building

Consents/Permits/Compliance Schedules:	
15/10/2008	BC 080375: Additions to existing shed Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
21/12/2001	BC 010758: Erect new storage building No information in regards to HAIL activity could be found on this file.

Preliminary Site Investigations and Detailed Site Investigations

No information in regards to the above could be found on the property file.

Aerial Photographs

Council's aerial photographs date back to 2006. No evidence of any HAIL activity was observed on this record.

Disclaimer: The Council does not hold records directly relating to activities on the Hazardous Activities and Industries List (HAIL). In the event some information is available it cannot be guaranteed as correct or complete and therefore may not satisfy your request. We therefore recommend you undertake further investigation to determine whether any HAIL activities exist on the site.



Adam Vincent
Planning Officer - Consents

Date: 12 December 2019

NES RECORD SEARCH

Application

JKCM Limited PO Box 456, Cromwell 9342	Number NES190080 Application date 2/12/19 Phone Mobile 021 202 1747 Email jana@insighteng.co.nz
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Property

Valuation No.	2846237300
Location	74 Mutton Town Road, Clyde
Legal Description	Lot 2 DP 331535
Area (hectares)	2.4760

Resource consents

Resource Area: RURAL RESIDENTIAL RESOURCE AREA

Consents:

19/04/2018	RC 180156: Two lot non-complying subdivision Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
14/01/2003	RC 030004: Two lot subdivision and land use consent for a dwelling on Lot 1 Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
31/10/1990	Planning Consent: Erect a dwelling in the Rural 1 Zone No information in regards to HAIL activity could be found on this record
26/06/1986	Planning Consent 408: Two lot subdivision and land use consent to erect a dwelling on each lot No information in regards to HAIL activity could be found on this record
21/12/1982	Planning Consent 287: Erect a dwelling in a rural zone No information in regards to HAIL activity could be found on this record

Building

Consents/Permits/Compliance Schedules:

09/05/2019	BC 190278: Install a wet-floor shower in existing bathroom Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
06/12/2006	BC 160906: Internal alterations to existing dwelling No information in regards to HAIL activity could be found on this record
30/09/2016	BC 160831: Replace existing shower with wet-floor shower Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
28/01/2016	BC 160035: Install a new Masport built-in fire No information in regards to HAIL activity could be found on this record

30/09/2011	BC 110699: Install an Ecomax pellet boiler
	No information in regards to HAIL activity could be found on this record.
15/11/1994	BC 941261: Erect an implement shed
	Activities associated with rural implement sheds can include the storage of chemicals (Item A2), fuel or chemical tanks (Item A17) and landfill (G3). If any of these activities have been present on the site it may trigger NES requirements.
24/12/1990	BP H044997: Erect a new dwelling
	Information provided in support of this application indicates that the site has been used for the disposal and treatment of wastewater in a septic system. Wastewater disposal and treatment are items G5 and G6 on the HAIL and may trigger NES requirements.
25/07/1986	BP D049735: Erect a new garage/workshop
	Activities associated with rural implement sheds can include the storage of chemicals (Item A2), fuel or chemical tanks (Item A17) and landfill (G3). If any of these activities have been present on the site it may trigger NES requirements.

Preliminary Site Investigations and Detailed Site Investigations

No information in regards to the above could be found on the property file.

Aerial Photographs

Council's aerial photographs date back to 2006. No information in regards to HAIL activity was noted on this record.

Disclaimer: The Council does not hold records directly relating to activities on the Hazardous Activities and Industries List (HAIL). In the event some information is available it cannot be guaranteed as correct or complete and therefore may not satisfy your request. We therefore recommend you undertake further investigation to determine whether any HAIL activities exist on the site.

Adam Vincent
Planning Officer - Consents

Date: 12 December 2019

NES RECORD SEARCH

Application

JKCM Limited PO Box 456, Cromwell 9342	Number Application date Phone Mobile Email	NES200007 27/02/20 021 556 549 claude@insighteng.co.nz
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Property

Valuation No.	2846237201
Location	86 Mutton Town Road, Clyde
Legal Description	Lot 1 DP 525753
Area (hectares)	1.3503

Resource consents

Resource Area: RURAL RESIDENTIAL RESOURCE AREA

Consents:

- 05/04/2018 RC 180210: Two lot subdivision with an average allotment area of 1.935 hectares
No information in respect of HAIL activity could be found on this record
- 14/05/1976 PC 78: Erect a dwelling in a rural zone
No information in respect of HAIL activity could be found on this record
- 01/12/1971 Planning Consent: Four lot rural subdivision
No information in respect of HAIL activity could be found on this record

Building

Consents/Permits/Compliance Schedules:

- 3/12/2014 BC 140747: Additions & alterations to existing dwelling
No information in respect of HAIL activity could be found on this record
- 1/07/2004 BC 040582: Install a new fire appliance
No information in respect of HAIL activity could be found on this record.
- 16/04/1997 BC 970182: Installation of fire appliance
No information in respect of HAIL activity could be found on this record.
- 24/02/1994 BC 940745: Implement shed
Activities associated with rural sheds can include storage tanks or drums for fuel or chemicals (Item A17) or landfill (item G3). If any of these activities have occurred on the site it may trigger NES requirements.
- 12/08/1993 BC 930437: Additions to dwelling
No information in respect of HAIL activity could be found on this record.
- 28/06/1984 BP B88145: Erect shelter shed
No information in respect of HAIL activity could be found on this record.
- 30/12/1983 BP B69060: Erect new swimming pool
No information in respect of HAIL activity could be found on this record.
- 29/07/1976 BP H13373: Erect a new dwelling.
No information in respect of HAIL activity could be found on this record.

29/07/1976 BP 1110: Plumbing and drainage permit

No information in respect of HAIL activity could be found on this record.

Preliminary Site Investigations and Detailed Site Investigations

No information in regards to the above could be found on the property file.

Aerial Photographs

Council's aerial photographs date back to 2006. No information in regards to HAIL activity could be found on this record.

Disclaimer: The Council does not hold records directly relating to activities on the Hazardous Activities and Industries List (HAIL). In the event some information is available it cannot be guaranteed as correct or complete and therefore may not satisfy your request. We therefore recommend you undertake further investigation to determine whether any HAIL activities exist on the site.



Adam Vincent
Planning Officer

Date: 28 February 2020

APPENDIX 4

Laboratory Results Certificate and Chain of Custody Documentation



T 0508 HILL LAB (44 555 22)
T +64 7 858 2000
E mail@hill-labs.co.nz
W www.hill-laboratories.com

Page 1 of 3

Client:	.....	Lab No:	.....
Contact:	.....	Date Received:	.....
	.....	Date Reported:	.....
	.....	Quote No:	.....
	.....	Order No:	.....
	.....	Client Reference:	.....
	.....	Submitted By:	.....

[illegible]

IANZ
ACCREDITED LABORATORY

[illegible]

Summary of Methods

Lab No:

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ENVIRONMENTAL Analysis Request Form

CLIENT

Name **Insight Engineering** [229068]
PO Box 456
Cromwell 9342

Phone: 021 556 549 Fax:

Client Reference: 19057 (Project Code)

Quote Number: Order No: 19057 (Cost Centre)

RESULTS TO

☐ Mail Client ☐ Mail Submitter

☐ Fax Results
☒ Email Results

claude@insighteng.co.nz

Additional Information

Job No: Date Recv: 11-Feb-20 11:14
Hill Lab 232 0065

R J Hill Laboratories Limited

Accre Received by: Jess Phillips

1 Clyde Street,
 Private Bag 3205,



Hill Laboratories office use only.

Date In Job # No. of Samples

Submitted By **Claude Midgley** [228982]

Charge To: **Insight Engineering** [229068]

☒ C.O.C & coversheet to be scanned and emailed back

Chain of Custody Record

Delivered to **Hill Laboratories** Date & Time: 10/02/2020 14:30
 (Depatched by) Name: Claude Midgley
 Signature: *[Signature]*

Received at **Hill Laboratories** Date & Time:
 Name:
 Signature:

Condition ☐ Ambient Temp ☐ Chilled ____ °C

PRIORITY

☐ Normal (up to 10 days) ☒ High (approx 5 days) ☐ Urgent (MUST be pre-arranged)

Results required by:

Sample types

GW Bore/well **TW** Trade waste **S** Saline water **ES** Soil/Solid **PI** Plant
SW Surface water **E** Effluent **O** Oil **Sed** Sediment **BM** Fish/shellfish/Biota
P Potable/DI **L** Leachate **SI** Sludge **BS** Biosolid **M** Misc (Specify)

Site ID	Sample type	Tests required	Comments
MT1	ES	MSHMs + OCPsc	
MT2	ES	MSHMs + OCPsc	
MT3	ES	MSHMs + OCPsc	
MT4	ES	MSHMs + OCPsc	
MT5	ES	MSHMs + OCPsc	
MT6	ES	MSHMs + OCPsc	
MT7	ES	MSHMs + OCPsc	
MT8	ES	MSHMs + OCPsc	