

## Soil Contamination Risk Preliminary Site Investigation Report

## 126 Lehmans Road, Rangiora, Canterbury

July 2023



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Specialist soil contamination experts, keeping your project moving.

#### **QUALITY CONTROL AND CERTIFICATION SHEET**

**Client:** Miranda Hales

Date of issue: 21 July 2023

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## **CONTENTS**

1	Execu	tive Summarytive Summary	4
2	Object	tives of the Investigation	5
3	Scope	of Work Undertaken	5
4	Site Id	lentification	6
5	Propo	sed Site Use	7
6	Site D	escription	7
	6.1	Environmental Setting	7
	6.2	Site Layout and Current Site Uses	7
	6.3	Surrounding Land Uses	7
	6.4	Geotechnical Investigations	7
7	Histori	ical Site Use Assessment	7
	7.1	Previous Site Ownership and Use	7
	7.2	District Council Records	8
	7.3	Regional Council Records	8
	7.4	LINZ Records	8
	7.5	Review of Historical Aerial Photographs	8
8	Site In	spection	9
9	Risk A	ssessment	10
	9.1	Potential HAIL Uses Identified	10
	9.2	NESCS Regulation 6(3) Probability Assessment	11
	9.3	Conceptual Site Model	11
10	Concl	usion	12
11	Limita	tions	12

## **APPENDICES**

- A Historical Certificates of Title
- B LLUR Statement
- C Historical Aerial Photographs
- D Site Inspection Plan

## 1 Executive Summary

The site is located at 126 Lehmans Road in Rangiora, Canterbury. A plan change application is proposed for the site. A development plan has not been provided for the site but is likely to involve higher density residential development. As such, the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) require an assessment of the likelihood of soil contamination being present. It is also noted that Momentum Environmental Ltd is obligated to consider the requirements of Section 10 (4) of the Health and Safety at Work (Asbestos) Regulations 2016. This report details the work undertaken to assess the risks.

This Preliminary Site Investigation has shown that the site has been used for pastoral farming activities for its known history until becoming a rural residential lifestyle lot in the early 1990's. The normal use of fertilisers and pastoral weed controls associated with this use is unlikely to have caused soil contamination that would pose a risk to human health.

A dwelling, garage and shed were constructed at the site in the early 1990's therefore the risk of soil contamination from lead-based paint products and asbestos containing materials is very low. A burn area is visible in the latest aerial photograph. The site inspection and XRF screening confirmed the burn area has been used for green waste only and therefore does not constitute an intentional or accidental release of hazardous substances in sufficient quantity to pose a risk to human health.

This Preliminary Site Investigation has found no evidence of any activities or industries as listed in the Hazardous Activities and Industries List (HAIL) having occurred on the site, now or in the past. The site is considered suitable for its proposed future use with no further investigations required.

In terms of planning status at the time of writing of this report, the NESCS does not apply to the site.

## 2 Objectives of the Investigation

This report has been prepared in general accordance with the Ministry for the Environment's "Contaminated Land Management Guidelines No 1: Reporting on Contaminated Sites in New Zealand, revised 2021". This report includes all requirements for a Preliminary Site Investigation report.

The objective of this report is to:

- Collect and assess information from multiple sources to understand previous and current land uses.
- To describe the subject site's physical and environmental features to understand potential pathways and receptors.
- To establish under the NESCS whether it is more likely than not that an activity or industry described in the Hazardous Activities and Industries List (HAIL) is being, or has been, undertaken on the site.
- To assess whether there is any risk to potential receptors that would warrant further investigation.

## 3 Scope of Work Undertaken

The scope of the work undertaken has included:

- Obtaining and review of Environment Canterbury (ECan) GIS data including the Listed Land Use Register (LLUR).
- Search of Land Information New Zealand (LINZ) orchard database.
- Review of relevant historical aerial photographs.
- Review of relevant historical certificates of title (CTs).
- Review of Waimakariri District Council (WDC) property files.
- Site inspection and XRF screening.
- Preparation of this report in accordance with MfE guidelines.

## 4 Site Identification

The subject of this investigation is located at 126 Lehmans Road in Rangiora, Canterbury, from herein referred to as 'the site'. The site is legally described as Part RS 1275 and Part RS 937 and is 5.57ha, as shown in **Figure 1** below.

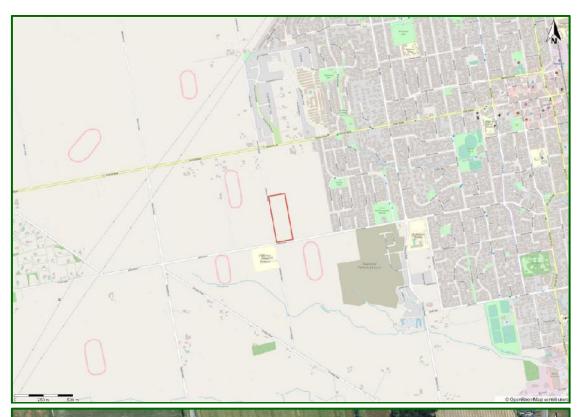




Figure 1 – Location Plan

## 5 Proposed Site Use

This Preliminary Site Investigation (PSI) has been prepared to support a plan change application. The future development of the site is currently unknown but is likely to involve higher density residential development.

### 6 Site Description

#### 6.1 Environmental Setting

Table 1 - Environmental Setting

Table I - LIIVII OII		
Topography	The topography of the site is generally flat.	
Geology	The ECan GIS database describes the soils at the site as a combination of	
	the Temuka deep silt over clay and the Pahau deep silt. Information obtained	
	from surrounding bore logs describe surrounding soils as topsoils underlain	
	by yellow/brown clays, followed by gravels.	
Soil trace	According to the ECan GIS database, natural concentrations of trace	
elements	elements for the site are a combination of those of the 'Regional, Gley' and	
	the 'Regional, Yellow Grey Earth' soil group.	
Groundwater	The site lies over the unconfined and semiconfined gravel aquifer system. Groundwater levels recorded on nearby bore logs are between 1.68-5.72m deep. The direction of groundwater flow is generally in a south-easterly direction.	
Surface Water	An unnamed drain runs parallel with the western boundary of the site. South	
	Brook is located approximately 380m south of the site.	

#### 6.2 Site Layout and Current Site Uses

The site is rural residential land and currently contains a dwelling, sheds and paddocks used for pastoral purposes.

#### 6.3 Surrounding Land Uses

The surrounding land is used for similar rural residential and rural purposes. The Rangiora One School Global campus is located to the south-west of the site.

#### 6.4 Geotechnical Investigations

At the time of writing no geotechnical investigations were available to Momentum Environmental Ltd (MEL).

#### 7 Historical Site Use Assessment

#### 7.1 Previous Site Ownership and Use

Historical Certificates of Title (CTs) were reviewed with the following relevant ownership information outlined below:

17 October 1893	James Bevan, a Rangiora farmer
25 July 1909	Diedrich Schluter, a Rangiora farmer
27 August 1965	Norman Lester Schluter, a Rangiora farmer
13 November 1980	Richard Herbert Schluter and Michael Patrick Schluter, Rangiora farmers
02 February 1988	Keith George Hales, solicitor and Miranda Louise Hales, his wife

Note that some of the older information was of poor quality and difficult to follow, therefore the accuracy of the spelling of names and dates is not guaranteed. Copies of the historical CTs are included in **Appendix A.** 

#### 7.2 District Council Records

The site is currently zoned Rural in the operative Waimakariri District Plan and Rural Lifestyle in the proposed Waimakariri District Plan.

The property files were requested from Waimakariri District Council and reviewed on 20 July 2023, with the following relevant information summarised below:

- A building permit application for a dwelling and garage, dated .July 1990. The construction material is noted as being timber and concrete block.
- A development programme noting use of the land for deer farming, including the construction of deer yards.
- A building permit application to erect deer yards and a hay barn, dated June 1990.
- A compliance monitoring report for the discharge of contaminants to land associated with domestic wastewater.

#### 7.3 Regional Council Records

The ECan GIS database shows the site is not listed on the Listed Land Use Register (LLUR) as per the Hazardous Activities and Industries List (HAIL). There are no properties within a 100m radius of the site listed on the ECan LLUR.

A PSI is available for the Rangiora One School Global campus (255 Johns Road) which is located directly south-west of the site. The investigation did not identify any potentially contaminating activities at 255 Johns Road.

A full copy of the LLUR Statement is attached in **Appendix B**.

The ECan GIS database shows one active bore (M35/6080) located at the site. The bore is used for irrigation purposes. There are multiple surrounding bores, used for a combination of irrigation, stock water and domestic water supply.

The ECan GIS database show one active resource consent for the site, which permits the discharge of wastewater onto land. There are no resource consents for land located within a 100m radius of the site.

#### 7.4 LINZ Records

The LINZ Orchard layer does not show the site, or any nearby properties as having listed orchards.

#### 7.5 Review of Historical Aerial Photographs

A total of eight aerial photographs have been sourced from the ECan GIS database. Copies of the aerial photographs used are included in **Appendix C**.

- The earliest available aerial photograph is from 1942 and shows the site and surrounding area is vacant pastoral land.
- The next available aerial photograph is from 1963 and shows no significant changes to the site
  or surrounding area.

- The 1973 aerial photograph shows no significant changes to the site or surrounding area.
- The **1980** aerial photograph shows no significant changes to the site or surrounding area.
- The 1994 aerial photograph shows a dwelling, garage and shed now present at the site. The surrounding land remains vacant and in pasture.
- The **2000** aerial photograph shows no significant changes to the site. A dwelling is now present on land to the west of the site.
- The 2013 aerial photograph shows a dense shelterbelt now surrounds the dwelling and driveway at the site. Some vegetation is also present north-west corner of the site. There are no significant changes to the surrounding area.
- The 2021 aerial photograph shows a domestic vegetable garden present to the south of the shed. Some patches of limited grass coverage are present along the western boundary of the site, these appear to be related to stock movement. A potential burn area is present is the northern paddock of the site. There are no significant changes to the surrounding area.

## 8 Site Inspection

An inspection was undertaken on 19 July 2023 to assess the likelihood of soil contamination on the site. A Site Inspection Plan is included in **Appendix D**.

The site contains a two-storey concrete block dwelling with attached garage. A patio entertainment area is present on the north side of the dwelling. The surrounding curtilage area is a grassed lawn and landscaped area. A timber and corrugated iron shed is present to the south-east of the dwelling. The shed has a concrete base and is used for firewood storage and storage of a lawn mower and quad bike.

The paddocks are currently used for cow grazing. The client who was present at the time of the site inspection stated that since the 1990's the site was used for deer grazing. Deer yards and a haybarn are present in the paddock to the south of the dwelling. The deer yards and haybarn are a timber structure. A small domestic vegetable garden and water tank are present in a small, fenced pen to the south of the deer yards.

The burn area, identified in the 2021 aerial photograph, present in the paddock to the north of the dwelling was visible during the site inspection. The burn area contained green waste only. As the portable XRF was available at the time of the site inspection, it was used as a screening tool to test the soils at the base of the burn area. The XRF readings show arsenic and lead concentrations below the device limit of detection. The XRF readings are shown in **Table 2** below.

Table 2 - XRF Screening Readings of Burn Area

Reading	Time	Duration	Units	As	As Error	Pb	Pb Error
Number							
661	19/07/2023						
	12:19	30.07	ppm	<lod< td=""><td>3.37</td><td><lod< td=""><td>4.88</td></lod<></td></lod<>	3.37	<lod< td=""><td>4.88</td></lod<>	4.88
662	19/07/2023						
	12:20	30.07	ppm	<lod< td=""><td>3.09</td><td><lod< td=""><td>4.61</td></lod<></td></lod<>	3.09	<lod< td=""><td>4.61</td></lod<>	4.61
663	19/07/2023						
	12:20	31.36	ppm	<lod< td=""><td>3.26</td><td><lod< td=""><td>4.75</td></lod<></td></lod<>	3.26	<lod< td=""><td>4.75</td></lod<>	4.75
664	19/07/2023						
	12:22	30.07	ppm	<lod< td=""><td>2.75</td><td><lod< td=""><td>4.16</td></lod<></td></lod<>	2.75	<lod< td=""><td>4.16</td></lod<>	4.16





Photos 1 & 2 - Dwelling and curtilage area





Photo 3 - Shed



Photo 4 – Deer yards and haybarn



Photo 5 – Domestic vegetable garden and water tank Photo 6 – Burn area

#### 9 Risk Assessment

#### 9.1 Potential HAIL Uses Identified

The Hazardous Activities and Industries List (HAIL) compiled by The Ministry for the Environment include the following categories (*in italics*) that could be associated with the historical uses of the site with a summary of the risk of these activities having been carried out on the site.

#### A - Chemical manufacture, application and bulk storage

10. Persistent pesticide bulk storage or use, including sport turfs, market gardens, orchards, glasshouses or spray sheds

For its known history, the site has been used for pastoral farming activities. The normal use of fertilisers and pastoral weed controls associated with these farming activities is unlikely to have caused soil contamination that would pose a risk to human health.

## I - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

The site remained vacant of structures until the early 1990's therefore the risk of soil contamination from lead-based paint products and asbestos containing materials is very low.

A burn area is visible in the latest aerial photograph. The site inspection and XRF screening confirmed the burn area has been used for green waste only and therefore does not constitute an intentional or accidental release of hazardous substances in sufficient quantity to pose a risk to human health.

#### 9.2 NESCS Regulation 6(3) Probability Assessment

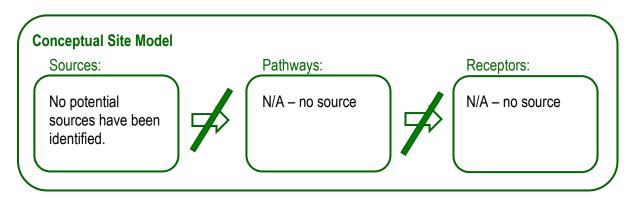
In terms of the NESCS, Regulation 5(7) states that land is considered to be covered if an activity or industry described in the HAIL is being undertaken; has been undertaken; or is more likely than not to have been undertaken on it. Regulation 6 describes the methods for determining this. Method 6(3) is to rely on a Preliminary Site Investigation. The NESCS Users Guide indicates the test for 'more likely than not' is that there is more than a 50 percent likelihood of the HAIL having occurred. The table below states the likelihood of each HAIL identified:

Table 3 - NESCS Probability Assessment

HAIL Category	6(3)a – Is being undertaken	6(3)b – has been undertaken	6(3)c – likelihood of having been undertaken (if not confirmed)
HAIL A10 – persistent pesticide bulk storage or use	-	-	Highly unlikely
HAIL Class I – any other land	-	-	Highly unlikely

### 9.3 Conceptual Site Model

The following conceptual site model indicates an incomplete exposure pathway, therefore, there is a very low risk to human health and no further investigations are required.



#### 10 Conclusion

This Preliminary Site Investigation has shown that the site has been used for pastoral farming activities for its known history. The normal use of fertilisers and pastoral weed controls associated with this use is unlikely to have caused soil contamination that would pose a risk to human health.

A dwelling, garage and shed were constructed at the site in the early 1990's therefore the risk of soil contamination from lead-based paint products and asbestos containing materials is very low. A burn area is visible in the latest aerial photograph. The site inspection and XRF screening confirmed the burn area has been used for green waste only.

There is no evidence of HAIL activities or industries having occurred on the site, now or in the past. The site is considered suitable for future residential use with no further investigations required.

### 11 Limitations

Momentum Environmental Limited has performed services for this project in accordance with current professional standards for environmental site assessments, and in terms of the client's financial and technical brief for the work. Any reliance on this report by other parties shall be at such party's own risk. It does not purport to completely describe all the site characteristics and properties. Where data is supplied by the client or any third party, it has been assumed that the information is correct, unless otherwise stated. Momentum Environmental Limited accepts no responsibility for errors or omissions in the information provided. Should further information become available regarding the conditions at the site, Momentum Environmental Limited reserves the right to review the report in the context of the additional information.

Opinions and judgments expressed in this report are based on an understanding and interpretation of regulatory standards at the time of writing and should not be construed as legal opinions. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become subject to different regulatory standards which cause them to become unacceptable. This may require further assessment and/or remediation of the site to be suitable for the existing or proposed land use activities. There is no investigation that is thorough enough to preclude the presence of materials at the site that presently or in the future may be considered hazardous.

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Appendix A – Historical Certificates of Title



# RECORD OF TITLE UNDER LAND TRANSFER ACT 2017 FREEHOLD

## **Historical Search Copy**



Constituted as a Record of Title pursuant to Sections 7 and 12 of the Land Transfer Act 2017 - 12 November 2018

Identifier CB5A/1025

Land Registration District Canterbury

Date Issued 27 August 1965

**Prior References** 

CB252/51

**Estate** Fee Simple

**Area** 5.5745 hectares more or less

**Legal Description** Part Rural Section 937 and Part Rural

Section 1275

**Original Registered Owners** 

Keith George Hales and Miranda Louise Hales

#### **Interests**

766141.4 Mortgage to Countrywide Banking Corporation Limited - 27.9.1988 at 11.37 am

6392851.1 Discharge of Mortgage 766141.4 - 21.4.2005 at 9:27 am

6392851.2 Mortgage to ANZ National Bank Limited - 21.4.2005 at 9:27 am

6392915.1 Mortgage to Keith George Hales, Miranda Louise Hales and John Louis Woodward - 21.4.2005 at 9:54 am

7620396.1 Transfer to Keith George Hales (1/2 share) and Miranda Louise Hales (1/2 share) - 11.12.2007 at 3:10 pm

8185624.1 Departmental Dealing correcting the data supporting Instrument Number 6392915.1 - 4.6.2009 at 2:25 pm

10250049.2 Transfer of Mortgage 6392915.1 to Miranda Louise Hales, John Louis Woodward and Dorothy Mary Stewart - 19.11.2015 at 4:24 pm

10333110.1 Discharge of Mortgage 6392851.2 - 17.2.2016 at 2:51 pm

10333110.3 Transmission of a 1/2 share/interest Keith George Hales to Miranda Louise Hales as Executor, Dorothy Mary Stewart as Executor and John Louis Woodward as Executor - 17.2.2016 at 2:51 pm

References Prior C/T. 252/51

Transfer No. N/C. Order No. 661680



Land and Doods 69

#### REGISTER

#### CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

Tijis Certificate dated the 27th day of August one thousand nine hundred and sixty five under the seal of the District Land Registrar of the Land Registration District of Canterbury

WITNESSETH that NORMAN LESTER SCHLUTER of Rangiora Farmer

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 that parcel of land containing 13 acres 3

roods 4 perches or thereabouts situated in Block VI of the Rangiora Survey
District being part of Rural Sections 937 and 1275



Mortgage 656692 to Thomas Frederick May and William Ronald Thomas James, to Mary Ellen Ruby Treames, to Mary Ellen Ruby Treames, to Evelyr Amelia Duthis, to Starley Charles Brosh to Gyril Butters and to Agnes Jane Robinson in shares 1/7/1965 at 3 p.m.

Transfer 680210 of her share in Mortgage 656692 Catherine Emma Jean Wallie to Mabel Jane Wood and Frna Jane Banks -29.4.1960 at 12.25p.m.

Variation of Mortgage 656692 24/9/970 10.25 2 m

Mortgage 809483 coathe State Advances Corporation 24/9/1970 at 10/25 a.m

Total Area: 13-3-04/9/1970

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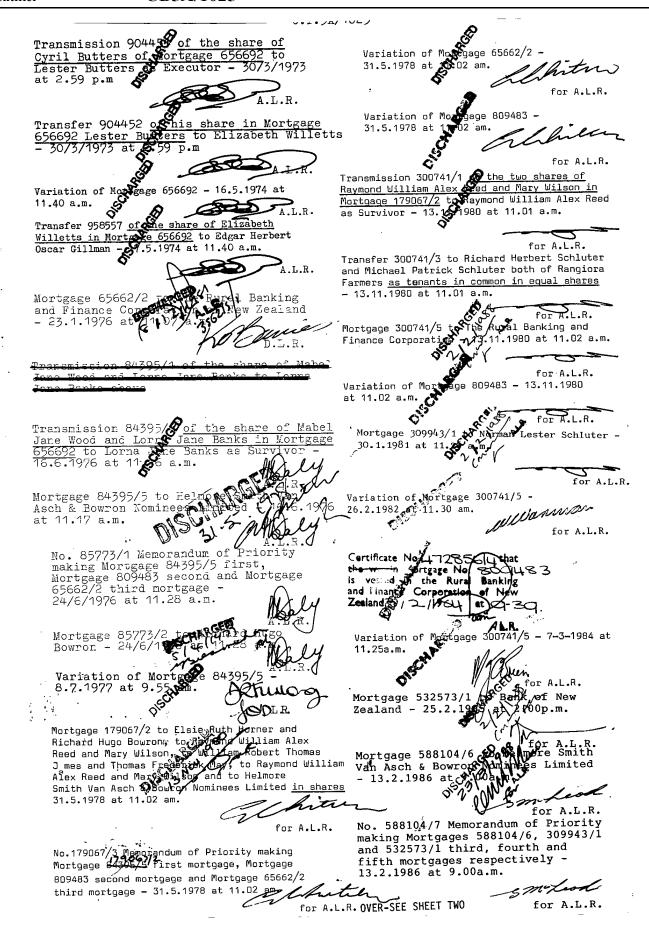
HMANS

ROA

JOHNS ROAD

Scale: 1 inch = 10 chains

Transaction ID 1328177 Client Reference 126 Lehmans Rd - 779



5A/1025

3.4.1988

#### SHEET TWO

Transfer 723805/5 to Keith George Hales, Solicitor and Miranda Louise Hales, Married Woman both of Rangiora - Produced 2.2.1988 at 10.56am and Entered 23.3.1988 at 9.50am

Mortgage 735852/1 to Finance Corporation at 11.22am /

I Chaim

Mortgage 766141/4 to Countrywide Banking Corporation Limited - 27.9/1988 at 11.37am

for A.L.R.

REGISTER

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



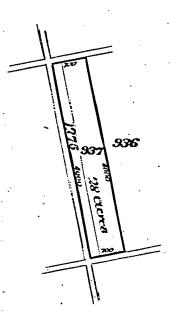


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CERTIFICATE OF TITLE UNDER LAND TRANSFERANGELLED

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This Certificate, dated the seventeenth day of (clother), one thousand eight bundred and ninety the , and
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is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, Eens, and interests as are notified by memorial underwriting
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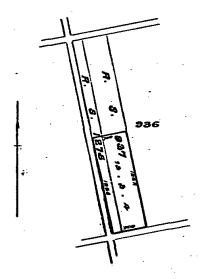
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This Certificate, dated the hand and the day of strateg one thousand nine !	bunded and
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Biedrich Schlieber of Ranging James	

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or indorsed hereon, subject also to any existing right of the Crown to take and by cff mads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is defineated by the plan hereon hordered assembly the several admensionments a little more or less, that is to say: All that parcel of land containing to Market and Containing

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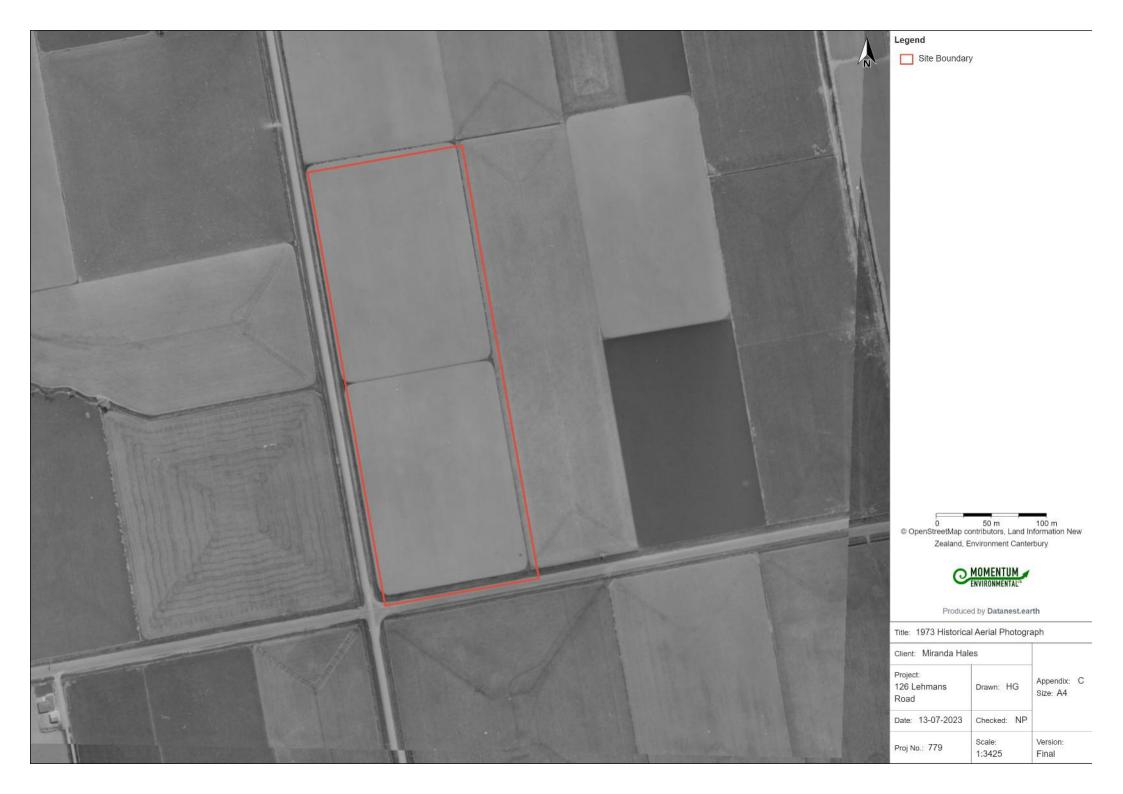
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Appendix B – LLUR Statement

Appendix C – Historical Aerial Photographs















Site Boundary

0 50 m 100 m © OpenStreetMap contributors, Environment Canterbury



Produced by Datanest.earth

Title: 2013 Historical Aerial Photograph

Client: Miranda Hal		
Project: 126 Lehmans Road	Drawn: HG	Appendix: C Size: A4
Date: 13-07-2023	Checked: NP	
Proj No.: 779	Scale: 1:2940	Version: Final



Site Boundary

0 50 m 100 m LINZ CC BY 4.0 © Imagery Basemap contributors



Produced by Datanest.earth

Title: 2021 Aerial Photograph

	(2) (I)	
Client: Miranda Hales		
Project: 126 Lehmans Road	Drawn: HG	Appendix: C Size: A4
Date: 13-07-2023	Checked: NP	
Proj No.: 779	Scale: 1:2940	Version: Final

Appendix D – Site Inspection Plan		

