

14 October 2022

Kāinga Ora – Homes and Communities  
Te Kaporeihana ā Whare o Aotearoa  
205 Great South Road  
Greenlane  
Auckland 1051

Ref: Ltr-H0198f/DSI/Oct22

Attention: Andrew Rose  
Decontamination Innovation lead, Infrastructure and Civil Construction,  
Urban Development and Delivery

Dear Andrew,

**RE: DETAILED SITE INVESTIGATION OF A PORTION OF 6 TEITEI DRIVE, OHAKUNE.**

GSL has prepared the following detailed site investigation report for the property located at 6 Teitei Drive, Ohakune (hereafter referred to as 'the site').

**EXECUTIVE SUMMARY**

Kāinga Ora Homes and Communities (Kāinga Ora) propose to redevelop a 3.073Ha portion of 6 Teitei Drive, Ohakune into a high-density residential development. To assess actual and potential contamination issues on site, Geosciences Ltd (Geosciences) has undertaken a Detailed Site Investigation (DSI), the findings of which are summarised as follows:

- the site has been maintained predominantly under pastoral grazing for its discernible history, with a short period of rotational cropping;
- conceptual model for potential soil contamination identified the site may have been subject bulk phosphate fertiliser and persistent pesticide application;
- intrusive investigation of the site based on the conceptual site model confirmed soil quality has not been adversely impacted by contaminants, and is consistent with the expected soil background ranges;
- There is no identified human health or environmental discharge risk identified;
- The NES-CS regulations and contaminated land provisions of the Horizons Regional Council One Plan are not applicable to the proposed development;
- Standard earthworks health and safety procedures are sufficient to manage soil disturbance risks;
- Soil onsite may be disposed of as cleanfill; and
- No additional work regarding actual or potential soil contamination is required.

## 1 INTRODUCTION AND BACKGROUND

Geosciences Ltd (GSL) has prepared the following report for Kāinga Ora in accordance with the GSL proposal, Ref: *Por-2816/Aug22/Rev1*, dated 26 August 2022.

This report has been prepared in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG): No. 1 - "*Guidelines for Reporting on Contaminated Sites in New Zealand*", and No. 5 – "*Site Investigation and Analysis of Soils*" (References 1 and 2).

### 1.1 OBJECTIVES AND PROJECT DESIGN

The primary objective of this investigation is to provide an assessment of whether any actual or potential soil contamination exists within the piece of land for the purposes of regulatory assessment under the Resource Management Act 1991.

In competing the primary objective GSL has:

- undertaken a desktop study of publicly available historical information to ascertain current and historic landuse activities;
- conducted a visual inspection of the site extent;
- developed a preliminary conceptual site model for potential soil contamination;
- determined what, if any, contaminated land rules of the AUP(OP) apply to the proposed subdivision and development and any further work that may be required; and
- prepared this Preliminary Site Investigation report in accordance with CLMG No.1 detailing the findings of this investigation and the recommendations, if any, for further work.

A copy of the limitations associated with this site investigation are set out in Section 13 at the end of this report.

## 2 SITE DESCRIPTION

**TABLE 1. SITE DETAILS**

Address	Legal Description	Property Area	Zoning
6 Teitei Drive, Ohakune	Lot 2 DP 54909	9.4536 Ha	Residential
<b>Total Investigation Area</b>		<b>3.073 Ha</b>	

The site is located on the southern extent of the Ohakune township, approximately 420m south of the town centre (Figure 1). It currently comprises vacant pasture, which also bounds the southern and western site boundaries while the Ohakune Adventure Park is located along the northern boundary. Residential dwellings in single lot residential format and holiday homes are located adjoin the eastern boundary.

## 2.1 ENVIRONMENTAL SETTING

### 2.1.1 GEOLOGY AND GEOHYDROLOGY

The GNS New Zealand Geology Web Map shows the site at the intersection of two geological units. The primary geological unit is described as moderately weathered undifferentiated poorly sorted gravel, sand, clay and loess Middle Pleistocene - Late Pleistocene river deposits, with the second being described as lahar deposits (Waimarino Formation) of Tongariro Volcanic Centre.

### 2.1.2 TOPOGRAPHY AND DRAINAGE

The site comprises a west facing gradual slope, situated between 595m and 585m above mean sea level. Two shallow gully features are present onsite, one crossing the centre site east to west, and a second striking north to south from the northern boundary linking to the larger gully feature.

Drainage occurs via soil infiltration and overland flow process, with overland flow directed by topography into the shallow gully features onsite. These features direct overland flow west offsite, flowing through open channels before eventually entering the Mangawhero River.

## 3 SITE HISTORY

A desktop study of publicly available files and photographs was undertaken to determine the history of the site with respect to any current or historic potentially contaminating landuses.

### 3.1 HISTORICAL AERIAL PHOTOGRAPHS

Historic aerial photographs from 1943, 1950, 1967, 2010, 2016, & 2022 are available for the site on the Retrolens and LINZ websites. The findings of the historic aerial photograph review are summarised below, while copies of these aerial photographs have been attached in Appendix A.

- 1943** This is the earliest aerial image available and shows the site maintained under pasture, with several small shelter belts and piles of leftover vegetation from clearance. There are no structures or other features evident within the confines of the site boundaries. All site boundaries are bound by pasture, bush or scrub.
- 1950 – 1967** – There is little significant change to the site across these images, aside from the gradual change higher quality pasture cover. Grazing stock can be seen in the 1967 aerial image, with a stream crossing the southern extent of the site.
- 2010** Pasture cover has been removed from the majority of the site in this image, with the soil surface exposed. Furrows in the soil surface infer that the site is soon to be maintained under crop cover. The land to the east of the site has been subdivided and developed into residential housing,
- 2016 – 2022** – The site has been placed back under pasture cover in this image, with no other notable changes or development.

### 3.1.1 SUMMARY OF AERIAL IMAGERY

The site has been maintained under pasture for the majority of its discernible history, except for a short period of rotational cropping around 2010. The limited aerial image coverage for site limits distinct observations between 1967 and 2010, however it is likely the site was maintained and a pastoral and / or cropping land use during this time.

No evidence of structures or other development features were observed during the aerial image review.

### 3.2 PROPERTY FILE

GSL requested the property file from Ruapehu District Council (RDC) for review of historic activities. No building consents or permits were held for the property by RDC.

## 4 RE-DEVELOPMENT PROPOSAL

GSL understands it is proposed to develop the site into a high-density residential configuration in accordance with Kāinga Ora standard development processes. The development of the site is currently at a high-level planning stage, with finalised development plans not available at the time of writing.

## 5 SITE INSPECTION AND OBSERVATIONS

GSL undertook a visual inspection of the site on 29 September 2022, during which time all external areas of the site were made available for inspection. Weather at the time of inspection was overcast with passing light showers. The majority of the site was maintained under grazing pasture, with two notable features.

The first feature was a shallow stockpile of emplaced fill material encompassing approximately 200m<sup>2</sup> and some 500mm high. A hand auger borehole was advanced to 1m at the SS2 soil sample location (Figure 2) within the stockpile, which noted topsoil fill between 0-300mm, loam soil fill between 300mm - 500mm, and underlying natural sandy silt loam encountered at depths greater than 500mm. No olfactory or visual indicators of gross contamination were evident during inspection of the stockpile. As the soil is consistent with what was encountered on site and clear-cut activities have been undertaken on the walkway adjacent, it is likely the emplaced soil was excess spoil from the construction of the adjacent walkway.

The second feature was the southernmost 5,500m<sup>2</sup> portion of the site, which was comprised overgrown pasture grass, large amounts of established blackberry, several established trees and a stream entering the site from the eastern boundary and exiting through the southern boundary. Due to the extensive blackberry cover, access was restricted to the southern 2,500m<sup>2</sup> portion of the site.

Hand auger boreholes were advanced to a minimum of 500mm at each soil sample location, along with five testpits excavated to a depth of 500mm. Borehole logs from each location were typical of the natural described geology and indicate that both described geologies are present near surface onsite. The eastern two thirds of the site comprised a sandy silt volcanic loam, with a variable

organic rich topsoil cover of 150mm – 400mm. The balance of the site comprises silt sand alluvial deposits, with some fine gravels, with 150mm – 500mm of topsoil cover.

Site photographs are attached as Appendix B.

## **6 SAMPLING AND ANALYSIS PLAN**

### **6.1 CONCEPTUAL SITE MODEL FOR POTENTIAL CONTAMINATION**

Evidence reviewed during the desktop study and visual inspection indicates that the site has generally been maintained as pasture for its discernible history, with a limited period of rotational cropping. Based on this history, the site does not meet the standard Kāinga Ora Conceptual Site Model.

Instead, the uniform bulk fertiliser and agrichemical application to pasture and crops, particularly phosphate fertilisers (HAIL Item I) and persistent pesticides (HAIL Item A.10), can lead to the accumulation of contaminants within soil. Contaminants are expected to be uniformly distributed as per the application method and concentrated to the topsoil profile and dissipating with depth.

The contaminants of concern associated with these activities are heavy metals, particularly arsenic, cadmium, copper, and lead, and organochlorine pesticides (OCPs). Heavy metals are considered the indicators of gross soil contamination, with OCPs likely present at trace concentrations unlikely to pose a human health or environmental discharge risk.

While a stockpile of fill material was emplaced onsite, this appeared locally derived and visually absent of gross contamination indicators. Any potential contaminants within this material are likely the same as described above.

GSL developed a grid-based soil sampling strategy in general accordance with the Kāinga Ora Sampling and Analysis Plan (SAP), targeting the 0-75mm soil profile, with additional soil samples collected at 300mm and 500mm depths.

### **6.2 SOIL SAMPLING**

Utilizing the Kāinga Ora SAP, the GSL soil sampling strategy initially comprised of eighteen discrete locations, which was reduced to seventeen due to accessibility constraints. The rate of sampling is slightly less than recommended by the Kāinga Ora SAP, however permissible due to the anticipated uniform distribution of contaminants and no indicators of potential hotspot locations (i.e. mixing sheds, buildings).

Soil samples were collected from the surficial 0-75 mm topsoil horizon using a stainless-steel hand auger while soil samples were collected from depths of 300 mm and 500 mm through the use of a stainless-steel hand auger by progressing the auger to the desired depth in the soil profile. Depths were marked on the auger stem using fluorescent paint prior to soil sampling.

### **6.3 QUALITY ASSURANCE / QUALITY CONTROL**

GSL field staff are appropriately qualified, suitably trained and experienced in undertaking contaminated land assessments. Personnel are cognisant of the requirements for sample handling

and storage, and equipment decontamination procedures alongside completion of field assessments, notes and record keeping and documentation.

During this assessment, appropriate sample handling and storage protocols were followed to ensure sample integrity was maintained during sampling and transport while laboratory analysis has been undertaken at an IANZ accredited laboratory.

Soil samples were placed in resealable plastic zipper bags with the date, sample identification number, GSL job reference, sample depth, and initials of the sampler noted on the label.

Soil sampling equipment was decontaminated between samples using a soft soap solution in accordance with GSL internal quality control procedures. Sample bags were placed in a box with a chain of custody document (COC) indicating the analysis to be performed and were dispatched to Eurofins Environment Testing in Auckland for the analysis for the contaminants of concern as defined in Section 6.1 above.

Consequently, it is considered that appropriate QA/QC has been met for this investigation.

#### **6.4 ACCEPTANCE CRITERIA AND RELEVANT GUIDELINES**

The NES mandates fourteen soil contaminants standards (SCS) for the protection of human health for inorganic elements and organic compounds for various land use scenarios. The NES human health SCS for high density residential landuse have been applied as a suitable risk assessment threshold in the context of the proposed development.

Horizons Regional Council do not define soil contaminant guideline values for the protection of environment, instead to give an indication of potential risk to environmental health from inorganic elements and persistent pesticides, the any analytical results have been compared to the Draft Eco-SGVs defined by Landcare Research in their Contract Report LC2595 *User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation Draft* (2016).

Results are also compared to the background concentration ranges of inorganic elements in soils detailed by the Landcare Research LRIS Portal.

#### **6.5 ANALYTICAL RESULTS**

All analytical results returned analyte concentrations which were compliant with the applicable NES soil contaminant standards and adopted environmental protection criteria set under the ECO-SGV framework.

Eight soil samples returned cadmium concentrations exceeding the background range described for Middle Pleistocene - Late Pleistocene river deposits by the LINZ website, however are compliant with the background concentrations for lahar deposits (Waimarino Formation) of Tongariro Volcanic Centre.

##### **6.5.1 CADMIUM CONCENTRATIONS**

As set out in Section 2.1.1, the site lies over intersecting to geological boundaries, which was observed during hand auger boreholes and testpits advanced during the site inspection. Borehole

and testpit observations indicate that volcanic loam soils derived from lahar deposits are dominant across the majority of the site surface.

The volcanic loam soils have been spread across the site through cropping and pasture regeneration processes (i.e. tilling/ploughing), interacting with the both observed geological units onsite. Consequently, the application of the background ranges of the lahar deposits to any analytical results is appropriate in this instance.

The LINZ website is data deficient for most analytes for this geological unit, however does contain a sufficiently reliable cadmium dataset. The LINZ website provides an 95% upper confidence limit (UCL) for cadmium background concentrations of 0.6mg/kg. All analytical results obtained are compliant with the expected background concentrations for this geological unit. Given that tilling / ploughing has homogenised surface soils, GSL considers that this upper limit should be applied to cadmium concentrations.

## **7 SITE INVESTIGATION RESULTS**

Desktop study and visual inspection identified the site has been maintained under pastoral grazing for the majority of its history, with a short period of rotational cropping. Based on this discernible history, two potential soil contaminating activities were identified, the bulk use and application of phosphate fertilisers (HAIL Item I) and persistent pesticides (HAIL Item A.10).

GSL developed an intrusive soil sampling strategy and investigation which identified:

- Surficial soil onsite is compliant with the applied NES high-density residential soil contaminant standards, and is also compliant with the more sensitive land use standards;
- Soil onsite is compliant with the adopted environmental protection values;
- Cadmium concentrations may be marginally elevated, however are indistinguishable from the soil background ranges of the geological units expected on site;
- No evidence of gross soil contamination (i.e. hazardous materials, burn areas) were identified during the visual inspection.

## **8 RISK ASSESSMENT AND REGULATORY COMPLIANCE**

GSL has undertaken a detailed site investigation of a 3.073Ha portion of 6 Teitei Drive to assess soil quality at the site with respect to human health and environmental discharge risks, and to inform on offsite soil disposal requirements for any surplus spoil generated by any site development. The following sections present the conclusions based on the findings of this investigation.

### **8.1 THE NATIONAL ENVIRONMENTAL STANDARDS (NES)**

It has been assessed that heavy metal soil concentrations are indistinguishable from the expected naturally occurring soil background. Consequently, the site does not meet the definition of land covered by the NES under Regulation 5(9), and therefore the regulations of the NES will not apply to the proposed development.

## 8.2 HORIZONS REGIONAL COUNCIL ONE PLAN

The site does not meet the Horizons Regional Council One Plan definition of contaminated land, therefore the contaminated land provisions of the One Plan will not apply to any proposed development.

## 9 MATERIAL HANDLING REQUIREMENTS

Soil quality has been assessed as consistent with cleanfill material, therefore standard earthwork contractor soil handling requirements are sufficient to mitigate any risks. In the event materials not consistent with natural soils are encountered, works should cease in this location and a Contaminated Land Advisor (CLA) engaged to assess any contamination risks.

Excess spoil generated during development may be disposed of as cleanfill material.

## 10 CONCLUDING COMMENT

This report has characterised site history and the soil contamination status of soil onsite. No further actions pertaining to contaminated land management are required based on the findings and conclusions of this investigation.

Thank you for the opportunity to carry out this investigation. Should you have any queries regarding this report please do not hesitate to contact us on (09) 475 0222 or (06) 281 2454.

Report prepared on behalf of GSL  
by:



Brodie Rowse  
Senior Environmental Scientist  
Geosciences Ltd

Report reviewed and authorised  
on behalf of GSL by:



Carl O'Brien  
General Manager  
Geosciences Ltd



## 11 SQEP CERTIFICATION

I, Carl O'Brien, of Geosciences Ltd certify that:

1. this preliminary and detailed site investigation meets the requirements of the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011 because it has been:
  - a. done by a suitably qualified and experienced practitioner, and
  - b. reported on in accordance with the current edition of Contaminated Land Management Guidelines No. 1 – *Reporting on Contaminated Sites in New Zealand*, and
  - c. the report is certified by a suitably qualified and experienced practitioner.

That the piece of land covered by this report does not meet the criteria outlined in regulation 5(7) (a) through to (c) and that it is more likely than not that a HAIL activity has not taken place on the piece of land. Therefore, as per regulation 5(1)b, the NES-CS does not apply to the piece of land.



Signed and dated: 14 October 2022

Carl O'Brien

Director

Geosciences Ltd

## 12 REFERENCES

1. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.1: Reporting on contaminated Sites in New Zealand*. Ministry for the Environment, Wellington, New Zealand.
2. Ministry for the Environment (2003) — *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils*. Ministry for the Environment, Wellington, New Zealand.
3. Ministry for the Environment (2012) - Users Guide National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. Ministry for the Environment, Wellington, New Zealand.
4. Landcare Research (2016) – *User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultant Draft*. Landcare Research. Gerald Street, Lincoln, New Zealand.
5. Horizons Regional Council (2018) – *One Plan - The Consolidated Regional Policy Statement, Regional Plan and Regional Coastal Plan for the Manawatu-Wanganui Region*. Horizons Regional Council, Palmerston North, ISBN: 978-1-927250-41-9
6. GNS Science – Geology Web Map Client – <https://data.gns.cri.nz/geology/>
7. Retrolens Historical Image Resource - [www.retrolens.co.nz](http://www.retrolens.co.nz)
8. AS4482.1 2005. Australian Standard. Guide to the investigation and sampling of sites with potentially contaminated soil. 2005.

## 13 LIMITATIONS

The conclusions and all information in this Report are given strictly in accordance with and subject to the following limitations and recommendations:

1. The assessment undertaken to form this conclusion is limited to the scope of work agreed between GSL and the client, or the client's agent as outlined in this Report. This report has been prepared for the sole benefit of the client and neither the whole nor any part of this report may be used or relied upon by any other party except for Regional and Territorial authorities in their duties under the Resource Management Act 1991.
2. The investigations carried out for the purposes of the report have been undertaken, and the report has been prepared, in accordance with normal prudent practice and by reference to applicable environmental regulatory authority and industry standards, guidelines and assessment criteria in existence at the date of this report.
3. This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by GSL for use of any part of this report in any other context.
4. This Report was prepared on the dates and times as referenced in the report and is based on the conditions encountered on the site and information reviewed during the time of preparation. GSL accepts no responsibility for any changes in site conditions or in the information reviewed that have occurred after this period of time.
5. Where this report indicates that information has been provided to GSL by third parties, GSL has made no independent verification of this information except as expressly stated in the report. GSL assumes no liability for any inaccuracies in or omissions to that information.
6. Given the limited Scope of Works, GSL has only assessed the potential for contamination resulting from past and current known uses of the site.
7. Environmental studies identify actual sub-surface conditions only at those points where samples are taken and when they are taken. Actual conditions between sampling locations or differ from those inferred. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated and GSL does not guarantee that contamination does not exist at the site.
8. Except as otherwise specifically stated in this report, GSL makes no warranty or representation as to the presence or otherwise of asbestos and/or asbestos containing materials ("ACM") on the site. If fill has been imported on to the site at any time, or if any buildings constructed prior to 1 January 2000 have been demolished on the site or materials from such buildings disposed of on the site, the site may contain asbestos or ACM .
9. No investigations have been undertaken into any off-site conditions, or whether any adjoining sites may have been impacted by contamination or other conditions originating from this site. The conclusion set out above is based solely on the information and findings contained in this report.
10. Except as specifically stated above, GSL makes no warranty, statement or representation of any kind concerning the suitability of the site for any purpose or the permissibility of any use, development or re-development of the site.
11. The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.
12. Use, development or re-development of the site for any purpose may require planning and other approvals and, in some cases, environmental regulatory authority and accredited site auditor approvals. GSL offers no opinion as to whether the current use has any or all approvals required, is operating in accordance with any approvals, the likelihood of obtaining any approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environmental works.
13. GSL makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site. The on-going use of the site and/or use of the site for any different purpose may require the owner/user to manage and/or remediate site conditions, such as contamination and other conditions, including but not limited to conditions referred to in this report.
14. Except as required by law or for the purposes of Regional & Territorial Authorities discharging their duties under the Resource Management Act 1991, no third party may use, or rely on, this report unless otherwise agreed by GSL in writing. Where such agreement is provided, GSL will provide a letter of reliance to the agreed third party in the form required by GSL.
15. To the extent permitted by law, GSL expressly disclaims and excludes liability for any loss, damage, cost or expenses suffered by any third party relating to or resulting from the use of, or reliance on, any information contained in this Report. GSL does not admit that any action, liability or claim may exist or be available to any third party.
16. Except as specifically stated in this section regarding Regional and Territorial Authorities, GSL does not authorise the use of this report by any other third party.

## TABLES

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**TABLE 1: ANALYTICAL RESULTS<sup>1</sup>**

	Arsenic	Cadmium	Copper	Chromium	Lead	Nickel	Zinc
<b>SS1 (0-75mm)</b>	3.0	0.29	17	23	6.6	4.7	38
<b>SS2 (0-75mm)</b>	3.4	0.33	21	26	7.5	5.6	31
<b>SS3 (0-75mm)</b>	3.3	0.19	23	27	6.8	6.6	29
<b>SS4 (0-75mm)</b>	3.6	0.42	20	29	7.5	6.1	40
<b>SS5 (0-75mm)</b>	3.3	0.33	20	24	7.0	5.1	31
<b>SS6 (0-75mm)</b>	3.8	0.39	23	27	8.1	5.1	34
<b>SS7 (0-75mm)</b>	3.6	0.37	21	29	7.6	5.6	35
<b>SS8 (0-75mm)</b>	3.4	0.37	19	28	7.2	5.7	35
<b>SS9 (0-75mm)</b>	3.5	0.31	23	23	8.0	6.4	32
<b>SS10 (0-75mm)</b>	3.5	0.32	24	24	7.6	5.4	30
<b>SS11 (0-75mm)</b>	3.6	0.39	20	30	7.5	5.3	36
<b>SS12 (0-75mm)</b>	3.7	0.36	22	27	8.1	5.3	33
<b>TP1 (0-75mm)</b>	4.0	0.33	25	30	9.0	6.1	39
<b>TP2 (0-75mm)</b>	3.4	0.39	20	27	7.3	5.3	35
<b>TP3 (0-75mm)</b>	3.8	0.36	22	27	7.7	5.4	33
<b>TP4 (0-75mm)</b>	1.2	0.16	12	17	6.5	4.8	31
<b>TP5 (0-75mm)</b>	1.9	0.10	12	16	7.2	4.6	45
<b>NES<sup>2</sup></b>	45	230	>10,000	1,500	500	>5,000	>5,000
<b>Eco-SGV<sup>3</sup></b>	60	17	270	390	1,300	60 <sup>5</sup>	240
<b>Non-volcanic/Volcanic Background<sup>4</sup></b>	12.06 / -	0.34 / 0.6	42.85 / -	80.15 / 83.15	44.34 / 54.39	44.96 / 22.49	182.8 / 147.7

**Notes:**

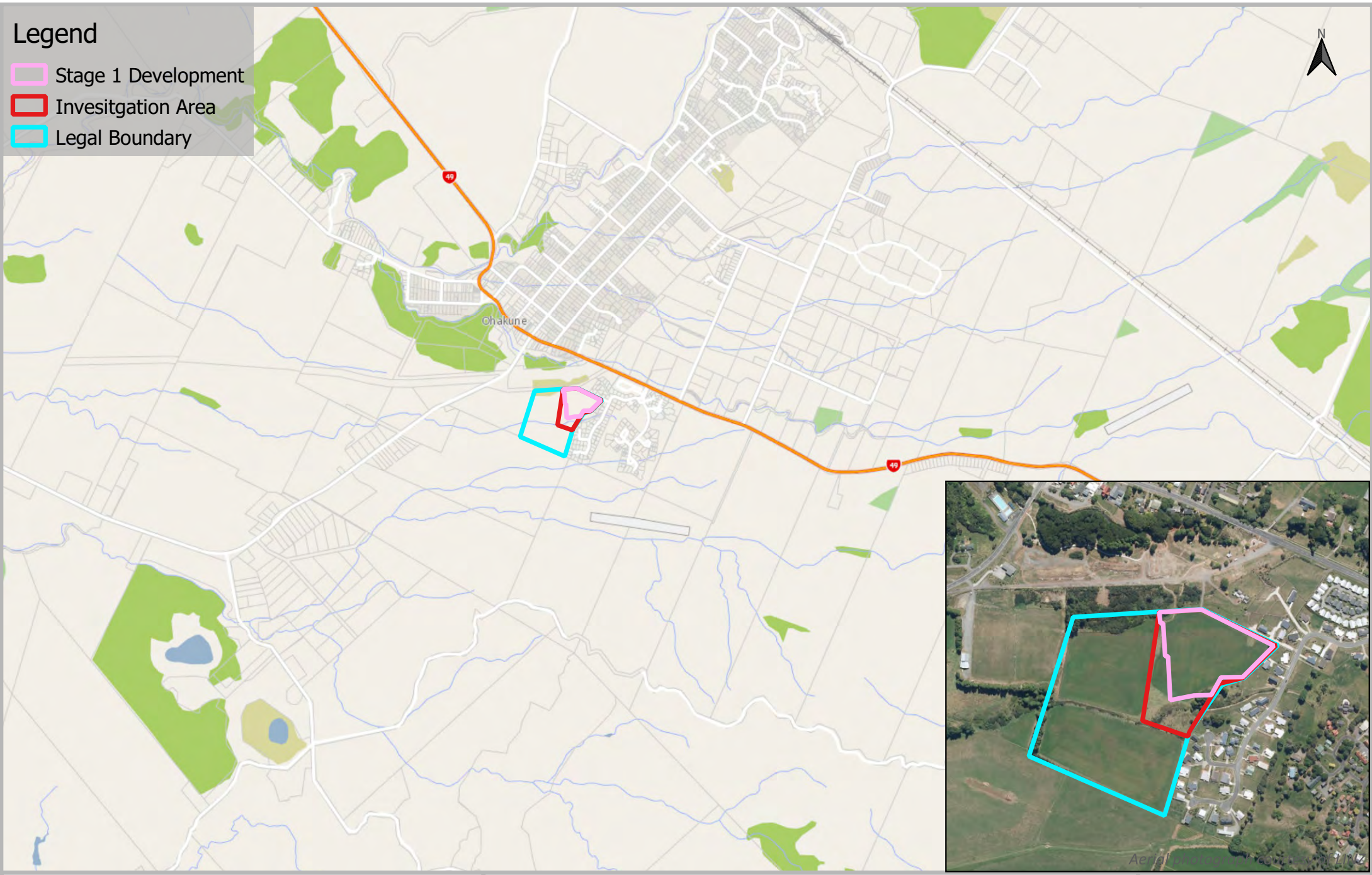
1. All concentrations measured in mg/kg;
2. *National Environmental Standards (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health – High-Density Residential*
3. Landcare Research Contract Report LC2595 (2016) User Guide: Background soil concentrations and soil guideline values for the protection of ecological receptors (Eco-SGVs) – Consultation Draft;
4. Landcare Research – *Predicted Background Soil Concentrations, New Zealand*, <https://iris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/data/>. Non-volcanic background = gravel, sand, clay and loess Middle Pleistocene - Late Pleistocene river deposits, volcanic background = lahar deposits (Waimarino Formation) of Tongariro Volcanic Centre.
5. Eco-SGV omits a guideline value for nickel. Instead GSL has adopted the permitted activity acceptance criteria of the Auckland Unitary Plan (Operative In Part) Chapter E.30.
6. Values in **BOLD** exceed the NES criteria, Values in **BOLD** exceed the Eco-SGV criteria, values in **BOLD** exceed the Volcanic Background Ranges, *ITALIC* exceeds non-volcanic Background Ranges, - = No Value recorded

## FIGURES

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# Legend

- Stage 1 Development
- Investigation Area
- Legal Boundary



**Figure 1 - Site Location**  
6 Teitei Drive, Ohakune

Legend

- Stage 1 Development
- Investigation Area
- Legal Boundary
- Soil Sample Locations

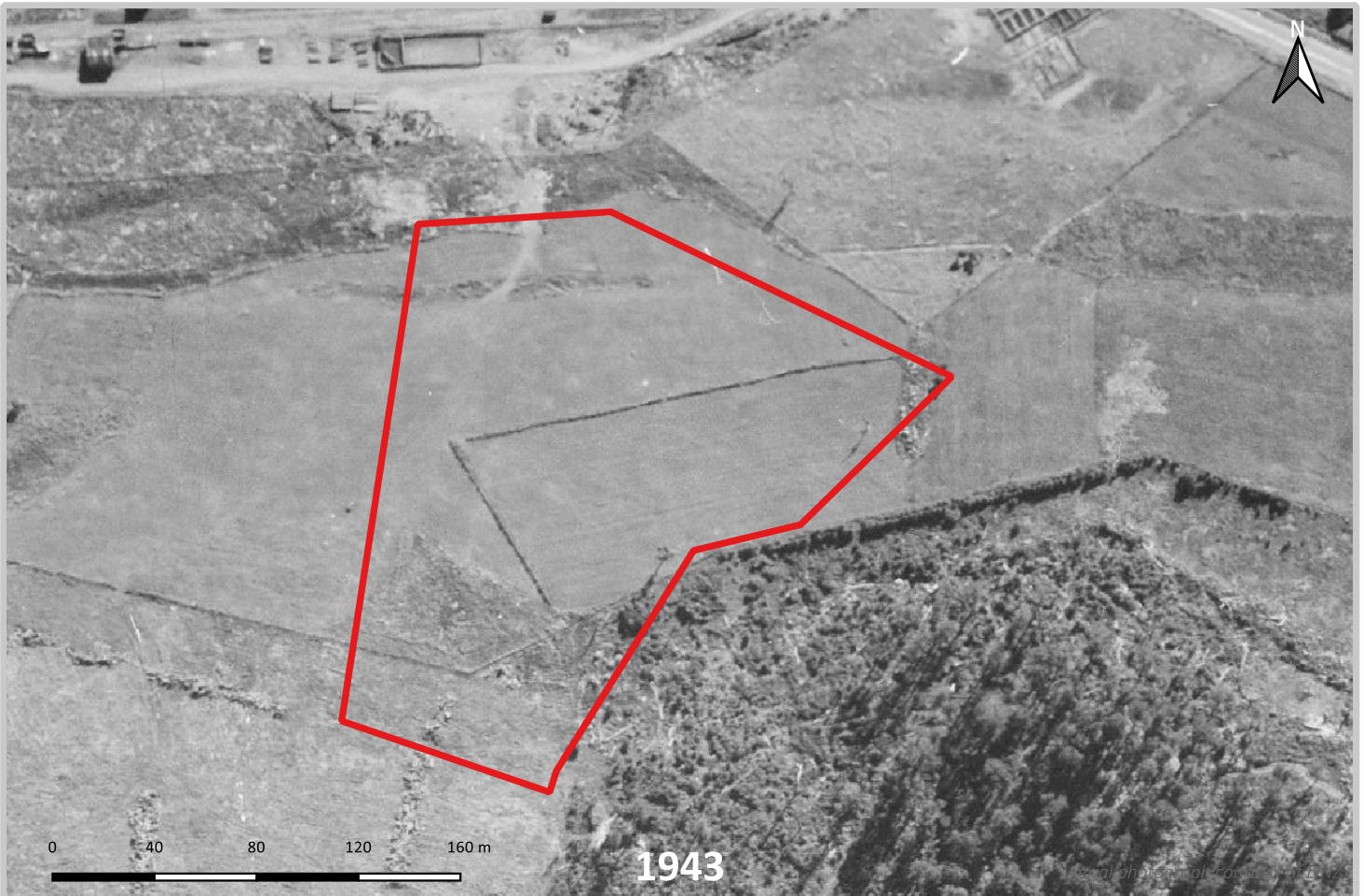


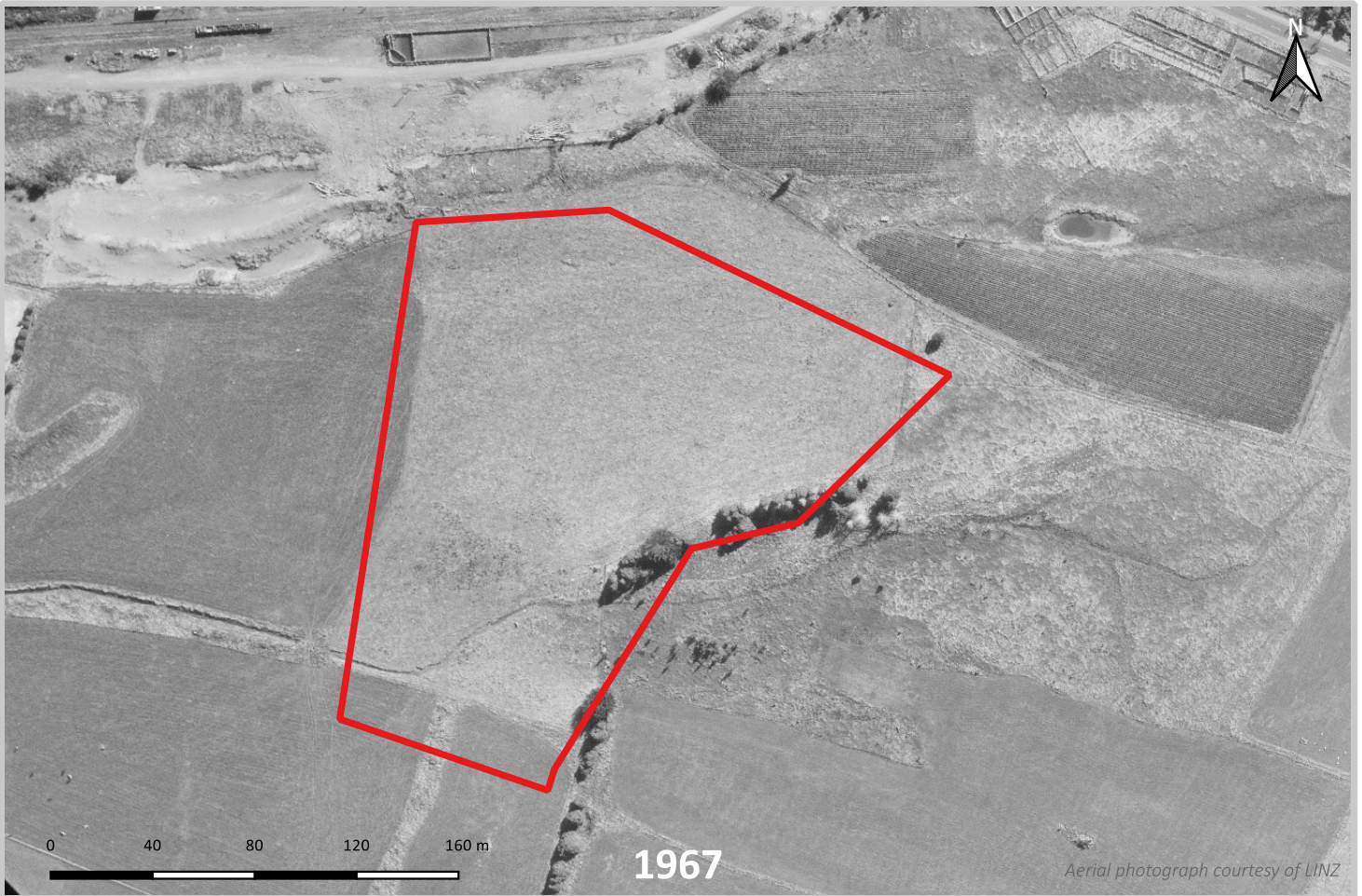
Figure 2 - Soil Sample Locations  
6 Teitei Drive, Ohakune



# APPENDIX A      HISTORICAL AERIAL PHOTOGRAPHS

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## APPENDIX B      SITE PHOTOGRAPHS



**PLATE 1: TESPIT EXCAVATION ONSITE**



**PLATE 2: TYPICAL TOPSOIL PROFILE**



**PLATE 3: EMPLACED FILL MATERIAL**



**PLATE 4: PASTURE COVER ONSITE**

# APPENDIX C      TEST PIT LOGS

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Sample Name	Sample Location	Depth (m bgl <sup>1</sup> )	Soil Description	ACM <sup>2</sup>
TP2	113m south of northern boundary, 11m east of western boundary	0 - 0.5m	Organic rich loamy topsoil	No
		0.5m	Dark brown/orange sandy silt loam (volcanic)	
TP4	165m south of northern boundary, 15m east of western boundary	0 - 0.15m	Topsoil	No
		0.15 - 0.5m	Grey silty sand (alluvial)	
TP5	63m east of western boundary, 33m north of southern boundary	0 - 0.2m	Topsoil	No
		0.2 - 0.5m	Grey sandy silt, transitioning to yellow grey near bas of testpit	
SS2	11m south of north-eastern boundary, 42m west of eastern corner. Location of stockpile	0 - 0.3m	Topsoil (fill)	No
		0.3m - 0.5m	Sandy silt loam (fill)	
		0.5 - 1m	Sandy silt loam (natural)	
SS6	46m south of northern boundary, 100m east of western boundary	0 - 0.3m	Organic rich topsoil	No
		0.3 - 0.5m	Sandy silt loam	
SS8	105m east of western boundary, 37m north of southern boundary	0 - 0.45m	Organic rich topsoil	No
		0.45 - 0.5m	Sandy silt loam	

**Notes:**

1. Metres below ground level
2. Asbestos Containing Material



# APPENDIX D      ANALYTICAL TRANSCRIPTS

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**Geosciences Ltd**  
**First Floor, 47 Clyde Road**  
**Browns Bay**  
**Auckland NZ 0630**



All tests reported herein  
 have been performed in  
 accordance with the  
 laboratory's scope of  
 accreditation

**Attention:** Brodie Rowse

**Report** 928056-S  
 Project name TEITEI DRIVE OHAKUNE  
 Project ID JH0198F  
 Received Date Oct 03, 2022

Client Sample ID			SS1(0-75MM)	SS2(0-75MM)	SS3(0-75MM)	SS4(0-75MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K22- Oc0000579	K22- Oc0000580	K22- Oc0000581	K22- Oc0000582
Date Sampled			Sep 29, 2022	Sep 29, 2022	Sep 29, 2022	Sep 29, 2022
Test/Reference	LOR	Unit				
<b>Metals M7 (NZ MfE)</b>						
Arsenic	0.1	mg/kg	3.0	3.4	3.3	3.6
Cadmium	0.01	mg/kg	0.29	0.33	0.19	0.42
Chromium	0.1	mg/kg	17	21	23	20
Copper	0.1	mg/kg	23	26	27	29
Lead	0.1	mg/kg	6.6	7.5	6.8	7.5
Nickel	0.1	mg/kg	4.7	5.6	6.6	6.1
Zinc	5	mg/kg	38	31	29	40
<b>% Moisture</b>						
	1	%	40	41	36	40

Client Sample ID			SS5(0-75MM)	SS6(0-75MM)	SS7(0-75MM)	SS8(0-75MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K22- Oc0000583	K22- Oc0000584	K22- Oc0000585	K22- Oc0000586
Date Sampled			Sep 29, 2022	Sep 29, 2022	Sep 29, 2022	Sep 29, 2022
Test/Reference	LOR	Unit				
<b>Metals M7 (NZ MfE)</b>						
Arsenic	0.1	mg/kg	3.3	3.8	3.6	3.4
Cadmium	0.01	mg/kg	0.33	0.39	0.37	0.37
Chromium	0.1	mg/kg	20	23	21	19
Copper	0.1	mg/kg	24	27	29	28
Lead	0.1	mg/kg	7.0	8.1	7.6	7.2
Nickel	0.1	mg/kg	5.1	5.1	5.6	5.7
Zinc	5	mg/kg	31	34	35	35
<b>% Moisture</b>						
	1	%	34	47	40	38

Client Sample ID			SS9(0-75MM)	SS10(0-75MM)	SS11(0-75MM)	SS12(0-75MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K22-Oc0000587	K22-Oc0000588	K22-Oc0000589	K22-Oc0000590
Date Sampled			Sep 29, 2022	Sep 29, 2022	Sep 29, 2022	Sep 29, 2022
Test/Reference	LOR	Unit				
<b>Metals M7 (NZ MfE)</b>						
Arsenic	0.1	mg/kg	3.5	3.5	3.6	3.7
Cadmium	0.01	mg/kg	0.31	0.32	0.39	0.36
Chromium	0.1	mg/kg	23	24	20	22
Copper	0.1	mg/kg	23	24	30	27
Lead	0.1	mg/kg	8.0	7.6	7.5	8.1
Nickel	0.1	mg/kg	6.4	5.4	5.3	5.3
Zinc	5	mg/kg	32	30	36	33
<b>% Moisture</b>						
	1	%	42	39	38	40

Client Sample ID			TP1(0-75MM)	TP2(0-75MM)	TP3(0-75MM)	TP4(0-75MM)
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			K22-Oc0000591	K22-Oc0000592	K22-Oc0000593	K22-Oc0000594
Date Sampled			Sep 29, 2022	Sep 29, 2022	Sep 29, 2022	Sep 29, 2022
Test/Reference	LOR	Unit				
<b>Metals M7 (NZ MfE)</b>						
Arsenic	0.1	mg/kg	4.0	3.4	3.8	1.2
Cadmium	0.01	mg/kg	0.33	0.39	0.36	0.16
Chromium	0.1	mg/kg	25	20	22	12
Copper	0.1	mg/kg	30	27	27	17
Lead	0.1	mg/kg	9.0	7.3	7.7	6.5
Nickel	0.1	mg/kg	6.1	5.3	5.4	4.8
Zinc	5	mg/kg	39	35	33	31
<b>% Moisture</b>						
	1	%	37	39	40	51

Client Sample ID			TP5(0-75MM)
Sample Matrix			Soil
Eurofins Sample No.			K22-Oc0000595
Date Sampled			Sep 29, 2022
Test/Reference	LOR	Unit	
<b>Metals M7 (NZ MfE)</b>			
Arsenic	0.1	mg/kg	1.9
Cadmium	0.01	mg/kg	0.10
Chromium	0.1	mg/kg	12
Copper	0.1	mg/kg	16
Lead	0.1	mg/kg	7.2
Nickel	0.1	mg/kg	4.6
Zinc	5	mg/kg	45
<b>% Moisture</b>			
	1	%	45

**Sample History**

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

**Description**

Metals M7 (NZ MfE)

- Method: LTM-MET-3040 Metals in Waters Soils Sediments by ICP-MS

% Moisture

- Method: LTM-GEN-7080 Moisture Content in Soil by Gravimetry

**Testing Site**

Auckland

Auckland

**Extracted**

Oct 03, 2022

Oct 03, 2022

**Holding Time**

6 Months

14 Days

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ABN: 50 005 085 521

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NATA# 2377 Site# 2370

**Company Name:** Geosciences Ltd  
**Address:** First Floor, 47 Clyde Road  
Browns Bay  
Auckland NZ 0630  
**Project Name:** TEITEI DRIVE OHAKUNE  
**Project ID:** JH0198F

**Order No.:**  
**Report #:** 928056  
**Phone:** 0011 64 9 4760 454  
**Fax:**

**Received:** Oct 3, 2022 9:15 AM  
**Due:** Oct 10, 2022  
**Priority:** 5 Day  
**Contact Name:** Brodie Rowse

**Eurofins Analytical Services Manager : Karishma Patel**

Sample Detail						Moisture Set	Metals M7 (NZ MFE)
Auckland Laboratory - IANZ# 1327						X	X
Christchurch Laboratory - IANZ# 1290							
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	SS1(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000579	X	X
2	SS2(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000580	X	X
3	SS3(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000581	X	X
4	SS4(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000582	X	X
5	SS5(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000583	X	X
6	SS6(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000584	X	X
7	SS7(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000585	X	X
8	SS8(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000586	X	X
9	SS9(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000587	X	X
10	SS10(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000588	X	X
11	SS11(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000589	X	X

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<b>Company Name:</b>	Geosciences Ltd	<b>Order No.:</b>		<b>Received:</b>	Oct 3, 2022 9:15 AM
<b>Address:</b>	First Floor, 47 Clyde Road Browns Bay Auckland NZ 0630	<b>Report #:</b>	928056	<b>Due:</b>	Oct 10, 2022
<b>Project Name:</b>	TEITEI DRIVE OHAKUNE	<b>Phone:</b>	0011 64 9 4760 454	<b>Priority:</b>	5 Day
<b>Project ID:</b>	JH0198F	<b>Fax:</b>		<b>Contact Name:</b>	Brodie Rowse

**Eurofins Analytical Services Manager : Karishma Patel**

Sample Detail						Moisture Set	Metals M7 (NZ MFE)
<b>Auckland Laboratory - IANZ# 1327</b>						X	X
<b>Christchurch Laboratory - IANZ# 1290</b>							
<b>External Laboratory</b>							
12	SS12(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000590	X	X
13	TP1(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000591	X	X
14	TP2(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000592	X	X
15	TP3(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000593	X	X
16	TP4(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000594	X	X
17	TP5(0-75MM)	Sep 29, 2022		Soil	K22-Oc0000595	X	X
<b>Test Counts</b>						17	17

## Internal Quality Control Review and Glossary

### General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
3. All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
4. Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
5. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
6. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
7. Samples were analysed on an 'as received' basis.
8. Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
9. This report replaces any interim results previously issued.

### Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

### Units

<b>mg/kg:</b> milligrams per kilogram	<b>mg/L:</b> milligrams per litre	<b>µg/L:</b> micrograms per litre
<b>ppm:</b> parts per million	<b>ppb:</b> parts per billion	<b>%:</b> Percentage
<b>org/100 mL:</b> Organisms per 100 millilitres	<b>NTU:</b> Nephelometric Turbidity Units	<b>MPN/100 mL:</b> Most Probable Number of organisms per 100 millilitres

### Terms

<b>APHA</b>	American Public Health Association
<b>COC</b>	Chain of Custody
<b>CP</b>	Client Parent - QC was performed on samples pertaining to this report
<b>CRM</b>	Certified Reference Material (ISO17034) - reported as percent recovery.
<b>Dry</b>	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
<b>Duplicate</b>	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
<b>LOR</b>	Limit of Reporting.
<b>LCS</b>	Laboratory Control Sample - reported as percent recovery.
<b>Method Blank</b>	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
<b>NCP</b>	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
<b>RPD</b>	Relative Percent Difference between two Duplicate pieces of analysis.
<b>SPIKE</b>	Addition of the analyte to the sample and reported as percentage recovery.
<b>SRA</b>	Sample Receipt Advice
<b>Surr - Surrogate</b>	The addition of a like compound to the analyte target and reported as percentage recovery.
<b>TBTO</b>	Tributyltin oxide ( <i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
<b>TCLP</b>	Toxicity Characteristic Leaching Procedure
<b>TEQ</b>	Toxic Equivalency Quotient or Total Equivalence
<b>QSM</b>	US Department of Defense Quality Systems Manual Version 5.4
<b>US EPA</b>	United States Environmental Protection Agency
<b>WA DWER</b>	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

### QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

### QC Data General Comments

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

**Quality Control Results**

Test				Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
<b>Method Blank</b>											
<b>Metals M7 (NZ MfE)</b>											
Arsenic				mg/kg	< 0.1		0.1	Pass			
Cadmium				mg/kg	< 0.01		0.01	Pass			
Chromium				mg/kg	< 0.1		0.1	Pass			
Copper				mg/kg	0.1		0.1	Pass			
Lead				mg/kg	< 0.1		0.1	Pass			
Nickel				mg/kg	< 0.1		0.1	Pass			
Zinc				mg/kg	< 5		5	Pass			
<b>LCS - % Recovery</b>											
<b>Metals M7 (NZ MfE)</b>											
Arsenic				%	104		80-120	Pass			
Cadmium				%	91		80-120	Pass			
Chromium				%	94		80-120	Pass			
Copper				%	90		80-120	Pass			
Lead				%	93		80-120	Pass			
Nickel				%	96		80-120	Pass			
Zinc				%	95		80-120	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
<b>Spike - % Recovery</b>											
<b>Metals M7 (NZ MfE)</b>											
Arsenic				K22-Oc0000886	NCP	%	95	75-125	Pass		
Cadmium				K22-Oc0000886	NCP	%	86	75-125	Pass		
Chromium				K22-Oc0000886	NCP	%	81	75-125	Pass		
Copper				K22-Oc0000886	NCP	%	81	75-125	Pass		
Lead				K22-Oc0000886	NCP	%	91	75-125	Pass		
Nickel				K22-Oc0000886	NCP	%	88	75-125	Pass		
Zinc				K22-Oc0000886	NCP	%	84	75-125	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
<b>Duplicate</b>											
<b>Metals M7 (NZ MfE)</b>											
Arsenic				K22-Oc0000579	CP	mg/kg	3.0	3.0	2.5	30%	Pass
Cadmium				K22-Oc0000579	CP	mg/kg	0.29	0.30	2.4	30%	Pass
Chromium				K22-Oc0000579	CP	mg/kg	17	18	5.9	30%	Pass
Copper				K22-Oc0000579	CP	mg/kg	23	23	2.9	30%	Pass
Lead				K22-Oc0000579	CP	mg/kg	6.6	6.9	4.3	30%	Pass
Nickel				K22-Oc0000579	CP	mg/kg	4.7	4.9	3.7	30%	Pass
Zinc				K22-Oc0000579	CP	mg/kg	38	40	3.2	30%	Pass
<b>Duplicate</b>											
					Result 1	Result 2	RPD				
% Moisture				K22-Oc0000579	CP	%	40	40	1.5	30%	Pass
<b>Duplicate</b>											
<b>Metals M7 (NZ MfE)</b>											
Arsenic				K22-Oc0000580	CP	mg/kg	3.4	3.4	1.3	30%	Pass
Cadmium				K22-Oc0000580	CP	mg/kg	0.33	0.33	<1	30%	Pass
Chromium				K22-Oc0000580	CP	mg/kg	21	22	1.4	30%	Pass
Copper				K22-Oc0000580	CP	mg/kg	26	26	<1	30%	Pass
Lead				K22-Oc0000580	CP	mg/kg	7.5	7.4	1.0	30%	Pass
Nickel				K22-Oc0000580	CP	mg/kg	5.6	5.6	<1	30%	Pass
Zinc				K22-Oc0000580	CP	mg/kg	31	31	1.2	30%	Pass



Duplicate								
Metals M7 (NZ MfE)				Result 1	Result 2	RPD		
Arsenic	K22-Oc0000589	CP	mg/kg	3.6	3.5	3.9	30%	Pass
Cadmium	K22-Oc0000589	CP	mg/kg	0.39	0.38	2.2	30%	Pass
Chromium	K22-Oc0000589	CP	mg/kg	20	19	4.4	30%	Pass
Copper	K22-Oc0000589	CP	mg/kg	30	29	2.3	30%	Pass
Lead	K22-Oc0000589	CP	mg/kg	7.5	7.1	5.0	30%	Pass
Nickel	K22-Oc0000589	CP	mg/kg	5.3	5.1	3.6	30%	Pass
Zinc	K22-Oc0000589	CP	mg/kg	36	36	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	K22-Oc0000589	CP	%	38	38	<1	30%	Pass
Duplicate								
Metals M7 (NZ MfE)				Result 1	Result 2	RPD		
Arsenic	K22-Oc0000590	CP	mg/kg	3.7	3.4	9.3	30%	Pass
Cadmium	K22-Oc0000590	CP	mg/kg	0.36	0.31	15	30%	Pass
Chromium	K22-Oc0000590	CP	mg/kg	22	20	9.3	30%	Pass
Copper	K22-Oc0000590	CP	mg/kg	27	25	8.2	30%	Pass
Lead	K22-Oc0000590	CP	mg/kg	8.1	7.4	9.9	30%	Pass
Nickel	K22-Oc0000590	CP	mg/kg	5.3	4.7	12	30%	Pass
Zinc	K22-Oc0000590	CP	mg/kg	33	30	11	30%	Pass

**Comments**
**Sample Integrity**

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	No
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

**Authorised by:**

Karishma Patel	Analytical Services Manager
Michael Ritchie	Senior Analyst-Metal
Xiaoxue (Snow) Tang	Senior Analyst-Sample Properties



**Michael Ritchie**  
**Head of Semi Volatiles (Key Technical Personnel)**

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

\* Indicates IANZ accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Company		Geosciences Ltd			Purchase Order			Project Manager			Brodie Rowse			Project Name		Teitei Drive, Ohakune	
Address		PO Box 35366, Browns Bay, Auckland, 0753			Eurofins   mgt Quote No			Project No			JH0198f			Electronic Results Format		PDF	
Contact Name		Carl O'brien			(Note: Where metals are requested, please specify ("Cobalt" or "Fluores") Analysis MT - NZ									Email for Results		<a href="mailto:carl@geosciences.co.nz">carl@geosciences.co.nz</a> <a href="mailto:brodie@geosciences.co.nz">brodie@geosciences.co.nz</a>	
Contact Phone No		(06) 281 2454															
Special Direction																	
Relinquished by		Carl O'Brien															
(Signature)					Turn Around Requirements		<input type="checkbox"/> 1 DAY* <input type="checkbox"/> 2 DAY* <input type="checkbox"/> 3 DAY* <input checked="" type="checkbox"/> 5 DAY (Std.) <input type="checkbox"/> Other ( )		* Surcharges apply		Containers		Method of Shipment				
(Time / Date)		30/09/2022			<input type="checkbox"/> 1L Plastic <input type="checkbox"/> 250mL Plastic <input type="checkbox"/> 125mL Plastic <input type="checkbox"/> 200mL Amber Glass <input type="checkbox"/> 40mL vial <input type="checkbox"/> 125mL Amber Glass <input type="checkbox"/> Jar		<input checked="" type="checkbox"/> Courier (# ) <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Postal		Sample Comments / DG Hazard Warning								
No	Client Sample ID	Date	Matrix														
1	SS1 (0-75mm)	29/09/2022	Soil	X										X			
2	SS2 (0-75mm)	29/09/2022	Soil	X										X			
3	SS3 (0-75mm)	29/09/2022	Soil	X										X			
4	SS4 (0-75mm)	29/09/2022	Soil	X										X			
5	SS5 (0-75mm)	29/09/2022	Soil	X										X			
6	SS6 (0-75m)	29/09/2022	Soil	X										X			
7	S7 (0-75mm)	29/09/2022	Soil	X										X			
8	SS8 (0-75mm)	29/09/2022	Soil	X										X			
9	SS9 (0-75mm)	29/09/2022	Soil	X										X			
10	SS10 (0-75mm)	29/09/2022	Soil	X										X			
11	SS11 (0-75mm)	29/09/2022	Soil	X										X			
12	SS12 (0-75mm)	29/09/2022	Soil	X										X			
13	TP1 (0-75mm)	29/09/2022	Soil	X										X			
14	TP2 (0-75mm)	29/09/2022	Soil	X										X			
15	TP3 (0-75mm)	29/09/2022	Soil	X										X			
16	TP4 (0-75mm)	29/09/2022	Soil	X										X			
17	TP5 (0-75mm)	29/09/2022	Soil	X										X			
Laboratory Use Only		Received By				AUCK   WELL   MELB			Date	30/09/2022	Time	9:00am	Signature			Temperature	18.5
		Received By				AUCK   WELL   MELB			Date	_/_/	Time	_:	Signature			Report No	928056