Detailed Site Investigation- Supplementary

531 and 535 Mill Road, Ohoka

To: Rolleston Industrial Developments Ltd

From: EHS Support New Zealand Ltd

Date: 9 April 2026

Job No.: NZL.07676

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1 Introduction

EHS Support New Zealand Ltd (EHS Support) was engaged by Rolleston Industrial Developments Ltd to undertake a supplementary Detailed Site Investigation (DSI) over areas within 531 and 535 Mill Road, Ohoka (the "site"). This investigation was conducted in accordance with our short form agreement dated 24 February 2026. This report is subject to the limitations set out in **Appendix A**.

1.1 Background

The site currently comprises farmland with a single dwelling and numerous farm buildings. It is proposed to subdivide and develop the site for a mix of residential, commercial and recreational land use, with the development resource consent being processed as a Fast Track application and having the ECan consent reference RMA252504. The overall site extent is indicated on **Environmental Sampling Location Plan 1, Appendix B.**

An initial DSI was conducted over the site by Tetra Tech Coffey Ltd late 2024 and is reported in a Tetra Tech Coffey Ltd report dated 16 June 2025, *Ohoka Development Detailed Site Investigation - Fast-track Application*, Reference 73-CHCGE288040AB (June 2025 DSI). This DSI is supplementary to and should be read in conjunction with the June 2025 DSI, which is attached as **Appendix E**.

The June 2025 DSI includes a detailed description of the site and review of site history (refer **Appendix E)**. The DSI identified a number of potential HAIL activities, the primary HAILs being as follows:

- HAIL G3 - An observed farm dump, burn piles and also a potential landfill site identified on Environment Canterbury's (ECan) Listed Land Use Register (LLUR).
- HAIL A17 - An above ground diesel tank present in the central area of buildings.
- HAIL I - Contamination associated with lead containing paint on pre 1950's buildings.
- HAIL I - Potential contamination associated with a historic railway and siding located in the northeast corner of the site.
- HAIL E1 - Potential asbestos containing material associated with the dwelling in the central area of the site.

Soil samples were collected from 78 locations targeted on the identified HAIL activities and across the wider site area. June 2025 DSI soil sample results indicate the following:

- The wider site area is generally free of significant contamination (analysed contaminant of concern concentrations meets background).
- Heavy metals and polycyclic aromatic hydrocarbon (PAH) concentrations in excess of background were variously detected in soils associated with the northern and central buildings, the former railyard, the farm dump area, and a burn pile in the northern portion of the site.
- No evidence of filling was observed in the area of the suspected landfill identified on the LLUR.
- One or more of arsenic, cadmium and lead were detected at concentrations exceeding Soil Contaminant Standards for residential land use in a number of samples collected around the northern and central buildings, and in a sample collected from the historic railway.
- Asbestos was detected at a concentration in excess of guideline values for residential land use in a single sample collected beside the dwelling in the central area of the site.

Environment Canterbury (ECan) undertook a review of the June 2025 DSI as part of a development pre-application review. ECan comments and questions are set out in an ECan advice letter dated 8 August 2025, *Pre-Application Advice for Ōhoka Residential Development, Carter Group – RMA252504*. Specific to the DSI and contaminated land the following key questions / comments were raised:

- The DSI did not include an assessment of potential risks to ecological receptors, particularly surface water.
- The DSI had not delineated detected areas of contamination and suggested large potential remediation areas.
- Asbestos was detected at concentrations in excess of human health guidelines, but no clear source was observed.
- Concerns regarding possible infilling of historic water courses.

This supplementary DSI details works undertaken to address some of ECan's questions, in particular additional sampling undertaken to further delineate areas of the site, and includes comparison of the initial DSI data to guideline criteria for the protection of freshwater ecology.

1.2 Scope of Work

The scope of works for this supplementary DSI supervised by an EHS Support suitably qualified and experienced practitioner (SQEP) was:

- Review of the June 2025 DSI report and ECan review.
- Collection of additional soil samples from selected areas of the site to further delineate contamination detected in the 2025 DSI.
- Analysis of selected collected samples for potential contaminants of concern (COCs).
- Comparison of June 2025 DSI and supplementary DSI data to relevant guideline criteria.
- Preparation of a Supplementary DSI report.

The soil sampling works described in this report were conducted in general accordance with the processes set out in Ministry for the Environment (MfE, 2021) Contaminated Land Management Guidelines No. 5: *Site Investigation and Analysis of Soils*, and this report prepared in general

accordance with MfE (2021) Contaminated Land Management Guideline No.1: *Reporting on Contaminated Sites in New Zealand*.

2 Supplementary Soil Sampling

2.1 Sampling Objectives

The primary objective of the supplementary DSI was to further assess / delineate identified areas of soil contamination.

Review of the June 2025 DSI indicated the greatest need for additional delineation was associated with the buildings in the north and the central area of the site, including the detected asbestos contamination associated with the dwelling in the central area of the site.

The farm dump area is considered well defined. Similarly, the former railway area is well defined by historic aerial photographs. Given this, complete delineation / validation of these areas during development earthworks was considered more appropriate. Additionally, additional investigation in these areas would require use of machine excavators, the mobilisation of which was not preferred for the supplementary DSI.

With regards to potential infilled waterways, additional review of the historic aerial photograph record suggests that surface water courses across the site were channelised (primarily between the 1950's and 1960's) rather than infilled. As such, the potential for contamination to be present in these areas is considered low with the area associated with surface water channels able to be further assessed during the development works program.

2.2 Soil Sampling

The supplementary DSI soil sampling was undertaken by EHS Support on 5 and 6 March 2026. Samples were collected from 45 locations, 14 locations (S1 – S14) around the northern buildings and a burnpile in the area, and 31 locations (S15 – S45) around the central buildings including the dwelling. A sample of cement board fragments (ACM1) and two soil samples (ASB 1 and 2) collected beside the dwelling were analysed for asbestos (presence / absence for bulk sample, semi-quantitative for soils).

Sampling areas (north and central buildings) and June 2025 DSI sample locations are indicated on **Environmental Sampling Location Plans 1 to 4, Appendix B**. Supplementary DSI sample locations around the northern buildings (S1 to S14) are indicated on **Environmental Sampling Location Plan 4**. Supplementary DSI sample locations around the central buildings area including the dwelling (S15 – S45, asbestos samples) are indicated in **Environmental Sampling Location Plan 2**.

Samples were collected from surface soils (0.0 – 0.15 m depth) at all sample locations using a hand auger, which was cleaned between samples. Areal delineation was the primary objective of the sampling works and as such collection of deeper samples was generally not undertaken. In addition, ground conditions (the presence of gravel) often prevented the collection of deeper samples.

All collected samples were submitted to Hill Laboratories Ltd and analysed for seven heavy metals or asbestos, the primary contaminants of concern (based on June 2025 DSI results).

2.3 Quality Assurance and Quality Control

Field works undertaken by EHS Support has been managed by a Suitably Qualified and Experienced Practitioner (SQEP) and this report was reviewed by a SQEP. With regards to laboratory analysis, Hill

Laboratories is a recognised laboratory endorsed by International Accreditation New Zealand (IANZ). The analyses undertaken were performed in accordance with the terms of accreditation. No issues that effected the quality of the reported results was noted. The laboratory QA reports are included in **Appendix D**.

3 Results and Discussion

3.1 Observations

Supplementary DSI site observations were limited to the areas associated with the north and central buildings and included the following:

- A number of cement board fragments appearing to result from broken barge boards were present on soils / within gardens along the east and south edges of the dwelling in the central area of the site (sample locations ASB 1 and 2).
- The remnants of a burn pile, including the presence of treated timber fragments, was present directly east of the northernmost building (open bay shed) on the site (sample location S4, June 2025 DSI sample locations S206, S207).
- Sawdust was present in sample S1 collected adjacent to June 2025 DSI sample location S201 around the northern most shed.
- Most buildings in the northern and central area of the site are corrugated iron clad. The dwelling is weatherboard clad.
- Aside from the observations mentioned above, no visual evidence of significant HAIL activities or ground contamination was observed during the supplementary DSI.

3.2 Applicable Soil Guideline Values

To evaluate the soil analytical data results have been compared to the following guideline values for the protection of human health, and for assessing potential risks to surface and / or groundwater. Adopted Soil Contaminant Standards (SCS) and guideline values are presented in the results table.

- Background concentrations for heavy metals have been adopted from Environment Canterbury Report R07/1/2: Background Concentrations of Selected Trace Elements in Canterbury Soils. Addendum 1: Additional Samples and Timaru Specific Background Levels. A number of soil types are present in the wider area of the site. Regional Recent soil values, being the soil type used for acceptance at most Christchurch area cleanfill facilities, have been adopted.
- The MfE (2012) *User's Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* details SCS for selected contaminants. The contaminants analysed at this site for which SCSs are available are arsenic, cadmium, chromium, copper and lead. The planned site redevelopment will result in residential land use of the site. Accordingly, SCS for residential land use (10 % home grown produce consumption) have been adopted.
- For the two heavy metals analysed for which SCSs are not available; nickel and zinc, the National Environment Protection Council (NEPC) (2013). Australian National Environmental Protection (Assessment of Site Contamination) Measure (NEPM) Health Investigation Levels for a Residential A scenario have been adopted.
- To assess potential ecological risks to waterways results (from both the June 2025 DSI and this supplementary DSI) have been compared to Toxicant Default Guideline Values for Sediment from ANZECC & ARMCANZ (2018), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. GV-High values (ANZG GV-High) have been adopted as

waterways on the site are generally modified, and additionally EHS Support understand that ECan consider stormwater discharge from soils with residual concentrations less than GV-High to present low risk.

- Given very shallow groundwater underlying the site, a preliminary evaluation of potential risks to groundwater has also been undertaken. This evaluation was conducted by comparing soil sample analytical results to Leaching to Water values for Class 4 fill scenarios, obtained from Waste Management Institute New Zealand (WasteMINZ), September 2013, *Technical Guidelines for Disposal to Land, Revision 3.1* (Table C3).

3.3 Soil Analytical Results

Heavy metals analytical results (June 2025 DSI and Supplementary DSI) are summarised in **Tables 1 and 2, Appendix C.** The Laboratory Report is included in **Appendix D**. June 2025 DSI and Supplementary DSI soil analytical results can be summarised as follows:

- Soil analytical results indicate results indicate the wider site is generally free of significant contamination (meets background).
- Concentrations of arsenic, cadmium or lead in excess of SCS for residential land use were detected at 10 sampling locations as follows:
    - S104, S105 (northern buildings) – cadmium. Considered likely to reflect potential storage of fertiliser at this location.
    - S201 (northern buildings) – arsenic. Considered likely to result from sawing of treated timber (sawdust observed in supplementary DSI soil sample S1).
    - S206, S207 (northern buildings) – arsenic. Burn pile.
    - TP105 (former railyard in northwest portion of the site) – lead. Slightly exceeds SCS only, other samples in the area returned lead less than SCS.
    - S111 (central buildings) – lead. Also elevated zinc. Likely lead paint related.
    - S121 (central buildings) – arsenic. Elevated copper and chromium also detected and as such, it is considered that the elevated arsenic results from storage or cutting of treated timber at this location.
    - S39, S44 (central buildings) – arsenic. Treated timber related (likely outdoor storage).
- Asbestos was detected at a concentration in excess of human health guideline criteria in a single June 2025 DSI sample (S126) collected on the south side of the dwelling in the central area of the site. Supplementary DSI bulk (cement board fragments) and soil samples in the immediate vicinity of sample S126 did not detect asbestos.
- The June 2025 DSI and Supplementary results indicate soils exceeding SCS for residential land use are likely to be isolated areas of limited extent and volume.
- One or more of arsenic, cadmium, chromium, copper, lead and zinc were detected at concentrations in excess of ANZG GV-High sediment guideline values and/or the WMINZ leaching to water criteria in 17 locations.
- With the exception of zinc, results exceeding ANZG GV-High or WMINZ leaching to water criteria are generally associated with soils that also exceed SCS for residential land use (e.g. arsenic, chromium, copper and zinc in soils associated with the burnpile in the northern buildings area (samples S206 and S207)). The elevated zinc concentrations detected were typically from samples collected adjacent to corrugated iron clad buildings.

- The June 2025 DSI and Supplementary DSI results indicate soils exceeding ANZG GV-High or WMINZ leaching to water criteria are of limited extent. Accordingly, it is considered unlikely these soils are likely to present a significant risk to surface water ecological or groundwater receptors. Additionally, given the extent of impacted soils is limited, these soils should be able to easily managed (e.g. via removal) during the site development program.

4 Conclusions

June 2025 DSI and Supplementary DSI findings can be summarised as follows:

- While one or more of arsenic, cadmium and lead were detected at concentrations in excess of SCS for residential land use in a number of locations around the site, the DSI / Supplementary DSI results indicate that these exceedances are likely to be isolated areas of limited extent and volume. These areas will be able to be managed during development works.
- A number of heavy metals were detected at concentrations in excess of ANZG GV-High sediment guideline values and/or the WMINZ leaching to water criteria. However, the results also indicate that these exceedances are isolated and likely to be of limited extent. Given this, it is considered that the detected contamination is unlikely to currently present a significant risk to surface water receptors (including via leaching to groundwater). Any risk present will be able to be further reduced via soil management during development works (e.g. to remove or relocate and contain soils that exceed SCS for residential land use).
- Additional review of historical aerial photographs suggest historic waterways across the site were channelised rather than infilled. This will be able to be confirmed during development works.

5 Closure

EHS Support thanks you for the opportunity to prepare this DSI Report. Should you have any questions or require additional information, please feel free to contact me at 027 700 7603.

This DSI has been undertaken by a SQEP in accordance with MfE Contaminated Land Management Guidelines No. 5, and reported on in accordance with MfE Contaminated Land Management Guidelines No.1. This report has been reviewed by Warren Sharp, a contaminated land specialist with over 28 years' experience and who holds CEnvP-SCS certification.

Sincerely,

Warren Sharp
Principal, CEnvP-SCS (SC41092)
EHS Support New Zealand Ltd

Appendix A - Limitations Statement

EHS Support New Zealand Limited ("EHS Support") has prepared this document in accordance with the usual care and thoroughness of the consulting profession for the use of Ashburton Contracting Ltd and only those third parties who have been authorised in writing by EHS Support to rely on this document. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this document. It is prepared in accordance with the scope of work and for the purpose outlined in the Short Form Agreement for Consultant Engagement dated 24 February 2026.

The methodology adopted and sources of information used by EHS Support are outlined in this document. EHS Support has made no independent verification of this information beyond the agreed scope of works and EHS Support assumes no responsibility for any inaccuracies or omissions. No indications were found during the preparation of this document that information contained in this document as provided to EHS Support was false.

This document was prepared on the issue date and is based on the information available at the time of preparation. EHS Support disclaims responsibility for any changes that may have occurred after this time.

This document should be read in full. No responsibility is accepted for use of any part of this document in any other context or for any other purpose or by third parties. This document does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Where conditions encountered at the subject site are subsequently found to differ significantly from those anticipated in this document, EHS Support must be notified of any such findings and be provided with an opportunity to review the recommendations of this document.

Whilst to the best of our knowledge information contained in this document is accurate at the date of issue, subsurface conditions, including groundwater levels and flow direction can change in a limited time, as well as natural processes or works of man at the subject site or on adjacent properties. Changes in applicable standards may also occur as a result of legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or in part, by changes beyond our control. Therefore, this document and the information contained herein should only be regarded as valid at the time of writing, unless otherwise explicitly stated in this document.

Appendix B – Sampling Location Plans

TETRA TECH COFFEY Christchurch Geotech +64 3 374 9600 1/254 Montreal Street Christchurch 8013 New Zealand		PROJECT Carter Group Limited 535 Mill Road Ohoka Subdivision	
		SHEET Environmental Sampling Location Plan 1	
DRAWN J. Monk	APPROVED C. Thompson		
SHEET NUMBER 1 of 4	SCALE 1:5,500	PROJECT NUMBER 773-CHCGE288040AB	REVISION DATE 15/05/2025
			REVISION R3

Original Sheet Size: A3 [W = 420, H = 297] Plot Date: 2025-05-15 10:01:28 by Monk, Joseph (joseph.monk) File Ref: \\tt.local\cof\S809\F\GENZ\Projects\03 TETRALINX PROJECTS\280000 - 289999\288040 - 535 Mill Road, Ohoka\06 DRAWINGS\QGIS\Ohoka Environmental Sampling.qgz

Supplementary DSI

2025 DSI

TETRA TECH COFFEY
Christchurch Geotech
+64 3 374 9600
1/254 Montreal Street
Christchurch
8013 New Zealand

DRAWN	APPROVED
J. Monk	C. Thompson
SHEET NUMBER	SCALE
2 of 4	1:800

PROJECT
Carter Group Limited
535 Mill Road Ohoka Subdivision

SHEET
Environmental Sampling Location Plan 2

PROJECT NUMBER	REVISION DATE	REVISION
773-CHCGE288040AB	15/05/2025	R3

TETRA TECH COFFEY Christchurch Geotech +64 3 374 9600 1/254 Montreal Street Christchurch 8013 New Zealand		PROJECT Carter Group Limited 535 Mill Road Ohoka Subdivision	
		SHEET Environmental Sampling Location Plan 3	
DRAWN J. Monk	APPROVED C. Thompson		
SHEET NUMBER 3 of 4	SCALE 1:600	PROJECT NUMBER 773-CHCGE288040AB	REVISION DATE 15/05/2025 / REVISION R3

Supplementary DSI

2025 DSI

TETRA TECH COFFEY Christchurch Geotech +64 3 374 9600 1/254 Montreal Street Christchurch 8013 New Zealand		PROJECT Carter Group Limited 535 Mill Road Ohoka Subdivision		
DRAWN J. Monk	APPROVED C. Thompson	SHEET Environmental Sampling Location Plan 4		
SHEET NUMBER 4 of 4	SCALE 1:700	PROJECT NUMBER 773-CHCGE288040AB	REVISION DATE 15/05/2025	REVISION R3

Appendix C – Laboratory Results

Table 1: Soil Analytical Results - 535 Mill Road Ohoka Subdivision									
			Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
SCS Residential Land Use[1]			20	3	460 [2]	>10,000	210	400 [3]	7,400 [3]
ANZG-GV High[5]			70	10	370	270	220	52	410
WMINZ Leaching to Groundwater[6]			140	10	150	280	460	32	1,200
Background[4]			12.58	0.19	22.7	20.3	40.96	20.7	93.94
Sample	**Depth**	**Lab ID**							
Northern Buildings									
S101	*0-0.2*	*3720279.1*	*6*	*0.12*	*11*	*12*	***74***	*3*	*77*
S102	*0-0.2*	*3720279.2*	*8*	***0.2***	*13*	***32***	*17.5*	*8*	***250***
S103	*0-0.2*	*3720279.3*	*4*	***0.4***	*10*	***40***	*11.2*	*4*	***570***
S104	*0-0.2*	*3720279.4*	*< 4*	***12.7***	***125***	*16*	*4.7*	*19*	*163*
S105	*0.0.1*	*3720279.5*	*5*	***19.2***	***210***	*12*	*5.5*	***22***	***220***
S106	*0-0.2*	*3720279.6*	*9*	*0.18*	*10*	***25***	*7*	*6*	*150*
S107	*0-0.2*	*3720279.7*	*8*	***1.4***	*18*	***22***	***97***	*7*	***550***
S201	*0-0.1*	*3861168.1*	***32***	***0.34***	*16*	*27*	*25*	*10*	***167***
S202	*0-0.1*	*3861168.2*	*6*	*0.11*	*17*	*11*	*28*	*11*	*88*
S203	*0-0.1*	*3861168.3*	*6*	***0.38***	*15*	***30***	***84***	*9*	***290***
S204	*0-0.1*	*3861168.4*	*13*	***0.47***	*19*	***30***	***63***	*8*	***460***
	0.2-0.3	*3861168.5*	*11*	***0.53***	*18*	***31***	***80***	*8*	***550***
S205	*0-0.1*	*3861168.6*	*12*	*1*	*16*	***32***	***41***	*11*	***2,500***
	0.2-0.3	*3861168.7*	*9*	***0.43***	*15*	***21***	***48***	*9*	***1040***
S206	*0-0.1*	*3861168.8*	***350***	***0.84***	***270***	***250***	*31*	*12*	***490***
S207	*0-0.1*	*3861168.9*	***1720***	***0.75***	***650***	***920***	***54***	*10*	***870***
S1	0-0.15	4123277.1	5	0.18	14	11	26	9	**105**
S2	0-0.15	4123277.2	3	< 0.10	12	10	24	10	49
S3	0-0.15	4123277.3	6	0.13	13	15	27	8	78
S4	0-0.15	4123277.4	5	0.14	15	12	25	8	86
	0.3-0.45	4123277.5	3	**0.29**	10	**30**	**146**	6	**210**
S5	0-0.15	4123277.6	3	**0.28**	12	18	32	6	92
S6	0-0.15	4123277.7	5	**0.27**	11	**40**	29	5	**196**
S7	0-0.15	4123277.8	3	**0.23**	10	**29**	16.4	6	**123**
S8	0-0.15	4123277.9	< 2	0.12	10	10	11.1	5	71
S9	0-0.15	4123277.1	7	0.12	11	11	11.6	3	**121**
S10	0-0.15	4123277.11	10	0.18	14	15	11	3	**113**
S11	0-0.15	4123277.12	7	0.2	13	19	10.9	3	**103**
S12	0-0.15	4123277.13	6	< 0.10	16	19	12.1	8	**250**
S13	0-0.15	4123277.14	< 2	0.13	8	11	13.3	3	76
S14	0-0.15	4123277.15	< 2	0.17	7	18	16.8	4	85
Central Buildings									
S109	*0.0.1*	*3720279.9*	*8*	*0.14*	*15*	*15*	***43***	*6*	*79*
S110	*0.0.1*	*3720279.10*	***19***	*< 0.10*	*13*	***45***	*21*	*2*	*34*
S111	*0.0.1*	*3720279.11*	*6*	***0.75***	*14*	*20*	***1170***	*4*	***530***
S112	*0.0.1*	*3720279.12*	*7*	***0.38***	*13*	***870***	*9.3*	*5*	***3,600***
S113	*0.0.1*	*3720279.13*	*3*	*0.16*	*13*	***44***	*22*	*8*	***1,580***
S114	*0.0.1*	*3720279.14*	*2*	*< 0.10*	*11*	*5*	*16*	*9*	*49*
S115	*0.0.1*	*3720279.15*	*9*	***1.38***	***26***	***178***	***64***	*12*	***1,190***
S116	*0-0.2*	*3720279.16*	*5*	***0.2***	*11*	*17*	*11.6*	*6*	***270***
S118	*0.0.1*	*3720279.18*	*< 4*	***1.7***	*10*	***76***	*40*	*4*	***3,200***
S119	*0.0.1*	*3720279.19*	*< 2*	***0.3***	*4*	***31***	*7.6*	*4*	***290***
S120	*0.0.1*	*3720279.20*	*2*	***0.24***	*11*	***33***	***52***	*6*	***290***
S121	*0.0.1*	*3720279.21*	***34***	***0.5***	***47***	***129***	*19.9*	***59***	***610***
S122	*0-0.2*	*3720279.22*	*2*	*0.11*	*8*	*12*	*17.4*	*4*	***94***
S123	*0.0.1*	*3720279.23*	*6*	***0.23***	*14*	***31***	*29*	*6*	***310***
S124	*0.0.1*	*3720279.24*	*7*	***0.6***	*13*	***26***	***63***	*6*	***370***
S125	*0-0.2*	*3720279.25*	*4*	*0.15*	*11*	*12*	***60***	*5*	***130***
S126	*0-0.2*	*3720279.26*	*6*	*< 0.10*	*9*	*11*	***125***	*4*	*90*
S127	*0-0.2*	*3720279.27*	*5*	*0.15*	*13*	*14*	*40*	*6*	*90*
S128	*0-0.2*	*3720279.28*	***15***	***0.21***	*18*	***22***	***86***	*8*	***220***
S15	0-0.15	4123277.16	6	0.1	13	11	25	6	**144**
S16	0-0.15	4123277.17	3	< 0.10	8	8	19.2	4	69
S17	0-0.15	4123277.18	3	0.11	9	8	17.9	4	53
S18	0-0.15	4123277.19	< 4	< 0.19	6	8	5.3	5	62
S19	0-0.15	4123277.2	5	< 0.10	12	9	12.1	7	**220**
S20	0-0.15	4123277.21	5	0.1	9	13	10.9	4	**112**
S21	0-0.15	4123277.22	4	< 0.10	8	11	**68**	4	48
S22	0-0.15	4123277.23	3	0.14	15	**22**	12.7	8	**134**
S23	0-0.15	4123277.24	11	0.18	14	**29**	**66**	6	**250**
S24	0-0.15	4123277.25	3	0.19	12	**42**	25	6	**199**
S25	0-0.15	4123277.26	2	**0.49**	8	16	**47**	5	**790**
S26	0-0.15	4123277.27	11	**0.22**	19	15	25	9	**300**
S27	0-0.15	4123277.28	< 2	< 0.10	8	13	10.6	4	**149**
S28	0-0.15	4123277.29	5	0.11	10	15	27	6	**112**
S29	0-0.15	4123277.3	< 2	0.14	7	6	21	3	**188**
S30	0-0.15	4123277.31	4	0.13	8	11	26	4	**240**
S31	0-0.15	4123277.32	< 2	< 0.10	8	27	15.2	4	87
S32	0-0.15	4123277.33	3	0.11	10	13	26	5	81
S33	0-0.15	4123277.34	3	0.13	8	14	19.1	4	80
S34	0-0.15	4123277.35	5	**0.37**	13	**29**	61	6	**270**
S35	0-0.15	4123277.36	4	0.11	10	9	24	5	70
S36	0-0.15	4123277.37	5	0.23	18	17	**42**	11	**160**
S37	0-0.15	4123277.38	2	0.14	11	**24**	**127**	16	72
S38	0-0.15	4123277.39	7	0.2	14	**37**	**330**	7	**430**
S39	0-0.15	4123277.4	**21**	0.17	**23**	**43**	**47**	6	**300**
S40	0-0.15	4123277.41	4	0.13	10	**21**	13.2	5	**1,180**
S41	0-0.15	4123277.42	2	0.11	10	**26**	10.3	6	**119**
S42	0-0.15	4123277.43	3	0.12	11	7	9.3	5	54
S43	0-0.15	4123277.44	3	0.14	7	6	10.2	3	60
S44	0-0.15	4123277.45	**26**	0.13	16	19	**163**	5	**197**
S45	0-0.15	4123277.46	6	0.19	13	18	29	8	**940**

Notes:
All results in mg/kg
Values in Italics - Tetra Tech Coffey 2025 DSI Results
Highlight - indicates exceeds SCS for residential land use
Bold - indicates exceeds ANZG-GV High Guideline Values and/or WMINZ Leaching to groundwater values.
Bold - indicates exceeds adopted background criteria
1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health)
2. NES SCS criteria presented are for Chromium (VI)
3. National Environment Protection Council (NEPC) (2013). National Environmental Protection (Assessment of Site Contamination) Measure
4. Environment Canterbury (Ecan 2007). Background Concentrations of selected trace elements in Canterbury Soils. Regional Recent.
5. ANZECC & ARMCANZ (2000), Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Toxicant Default Guideline Value
6. Waste Management Institute New Zealand (WasteMINZ), September 2013, Technical Guidelines for Disposal to Land, Revision 3.1. Table C3-Leaching to Water

Table 2: Soil Analytical Results - 535 Mill Road Ohoka Subdivision

			Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
SCS Residential Land Use[1]			**20**	**3**	**460 [2]**	**>10,000**	**210**	**400 [3]**	**7,400 [3]**
ANZG-GV High[5]			**70**	**10**	**370**	**270**	**220**	**52**	**410**
WMINZ Leaching to Groundwater[6]			**140**	**10**	**150**	**280**	**460**	**32**	**1200**
Background[4]			**12.58**	**0.19**	**22.7**	**20.3**	**40.96**	**20.7**	**93.94**
Sample	**Depth**	**Lab ID**							
Historic Railway									
TP101	*0.0.1*	*3720279.29*	*2*	***0.36***	*10*	*15*	*36*	*7*	*78*
TP102	*0.0.1*	*3720279.31*	*3*	***0.29***	*12*	*15*	***104***	*13*	*83*
TP103	*0.0.1*	*3720279.34*	*3*	***0.34***	*12*	*18*	***178***	*9*	***100***
TP104	*0.0.1*	*3720279.36*	*< 2*	*0.13*	*8*	*8*	*31*	*4*	*48*
TP105	*0.0.1*	*3720279.38*	*2*	***0.36***	*11*	*15*	***240***	*9*	***118***
Farm Dump									
TP113	*0.0.1*	*3720279.48*	*5*	*0.18*	*7*	***39***	*9.2*	*4*	***170***
	0.7-0.8	*3720279.49*	*2*	***0.26***	*6*	***900***	*12.2*	*5*	***250***
TP115	*0.0.1*	*3720279.51*	*< 2*	*0.13*	*6*	***23***	*10.5*	*4*	***96***
	0.4-0.5	*3720279.52*	*< 2*	*0.15*	*6*	*8*	*9.2*	*4*	*33*
TP116	*0.0.1*	*3720279.53*	*< 2*	*0.11*	*6*	***23***	*9.3*	*3*	*51*
	0.2-0.3	*3720279.54*	*< 2*	*< 0.10*	*4*	*< 2*	*6.6*	*< 2*	*14*
TP117	*0.0.1*	*3720279.55*	*4*	***0.21***	*9*	***41***	*22*	*5*	***180***
	0.1-0.4	*3720279.56*	*< 2*	***0.25***	*9*	***92***	*17.5*	*7*	*82*
Wider Site									
S108	*0-0.2*	*3720279.8*	*< 2*	*0.19*	*5*	***52***	*14.6*	*3*	***240***
TP109	*0.0.1*	*3720279.43*	*2*	*0.19*	*11*	***41***	*11.3*	*6*	***97***
	0.6-0.7	*3720279.44*	*< 2*	*0.15*	*7*	***24***	*9.6*	*3*	*72*
TP110	*0.0.1*	*3720279.45*	*2*	*0.11*	*12*	*11*	*14.6*	*5*	*51*
TP111	*0.0.1*	*3720279.46*	*< 2*	*0.14*	*9*	*17*	*10*	*4*	*52*
TP112	*0.0.1*	*3720279.47*	*< 2*	***0.3***	*5*	*17*	*6.1*	*2*	*63*
	0.2-0.3	*3720279.57*	*< 2*	*0.12*	*6*	*4*	*8.3*	*2*	*18*
F101	*0.0.1*	*3720279.58*	*3*	***0.23***	*16*	*11*	*15.4*	*11*	*85*
F102	*0.0.1*	*3720279.59*	*5*	***0.21***	*18*	*13*	*17.4*	*13*	*88*
F103	*0.0.1*	*3720279.60*	*3*	*0.19*	*14*	*7*	*12.5*	*8*	*65*
F104	*0.0.1*	*3720279.61*	*4*	***0.24***	*18*	*11*	*17.6*	*13*	*95*
F105	*0.0.1*	*3720279.62*	*< 2*	*0.17*	*13*	*9*	*12.6*	*8*	*72*
F106	*0.0.1*	*3720279.63*	*< 2*	*0.19*	*6*	*5*	*7.1*	*3*	*30*
F107	*0.0.1*	*3720279.64*	*< 2*	***0.24***	*6*	*5*	*6.5*	*3*	*25*
F108	*0.0.1*	*3720279.65*	*2*	***0.23***	*13*	*11*	*13.1*	*10*	*84*
F109	*0.0.1*	*3720279.66*	*< 2*	***0.23***	*8*	*5*	*8.3*	*3*	*31*
F110	*0.0.1*	*3720279.67*	*2*	***0.2***	*13*	*7*	*13*	*7*	*65*
F111	*0.0.1*	*3720279.68*	*< 2*	***0.24***	*9*	*8*	*8.1*	*4*	*41*
F112	*0.0.1*	*3720279.69*	*< 2*	***0.23***	*10*	*7*	*9.8*	*5*	*41*
F113	*0.0.1*	*3720279.70*	*< 2*	*0.15*	*7*	***38***	*9*	*4*	*54*
F114	*0.0.1*	*3720279.71*	*< 2*	*0.11*	*7*	*13*	*8.5*	*4*	*67*
F115	*0.0.1*	*3720279.72*	*< 2*	***0.21***	*5*	*8*	*10.3*	*3*	*33*
F116	*0.0.1*	*3720279.73*	*< 2*	***0.22***	*5*	*8*	*6.5*	*2*	*27*
F117	*0.0.1*	*3720279.74*	*< 2*	*0.17*	*4*	*4*	*5.4*	*< 2*	*14*
F118	*0.0.1*	*3720279.75*	*< 2*	***0.23***	*8*	*7*	*7*	*3*	*29*
F119	*0.0.1*	*3720279.76*	*< 2*	*0.18*	*6*	*10*	*8.1*	*3*	*33*
F120	*0.0.1*	*3720279.77*	*< 2*	***0.35***	*8*	*8*	*10*	*4*	*30*
F121	*0.0.1*	*3720279.78*	*< 2*	***0.28***	*5*	*7*	*7*	*< 2*	*26*
F122	*0.0.1*	*3720279.79*	*< 2*	*0.17*	*5*	*4*	*6.4*	*2*	*12*
F123	*0.0.1*	*3720279.80*	*< 2*	***0.29***	*7*	*8*	*10.2*	*2*	*27*
F124	*0.0.1*	*3720279.81*	*< 2*	*0.18*	*6*	*6*	*11.9*	*2*	*20*

Notes:

All results in mg/kg

Values in Italics - Tetra Tech Coffey 2025 DSI Results

Highlight - indicates exceeds SCS for residential land use

Bold - indicates exceeds ANZG-GV High Guideline Values and/or WMINZ Leaching to groundwater values.

Bold - indicates exceeds adopted background criteria

1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health)
2. NES SCS criteria presented are for Chromium (VI)
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5. ANZECC & ARMCANZ (2000), Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Toxicant Default Guideline Value
6. Waste Management Institute New Zealand (WasteMINZ), September 2013, Technical Guidelines for Disposal to Land, Revision 3.1. Table C3-Leaching to Water

Appendix D – Laboratory Reports

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28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

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mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	EHS Support New Zealand Limited	**Lab No:**	4123277	SPv1
Contact:	Warren Sharp	**Date Received:**	06-Mar-2026	
	C/- EHS Support New Zealand Limited	**Date Reported:**	13-Mar-2026	
	Unit 8B 1 Portage Road	**Quote No:**	92248	
	New Lynn	**Order No:**		
	Auckland 0600	**Client Reference:**	07676	
		Submitted By:	Warren Sharp	

Sample Type: Soil

		Sample Name:	S1-0.0 05-Mar-2026	S2-0.0 05-Mar-2026	S3-0.0 05-Mar-2026	S4-0.0 05-Mar-2026	S4-0.3 05-Mar-2026
		Lab Number:	4123277.1	4123277.2	4123277.3	4123277.4	4123277.5
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		5	3	6	5	3
Total Recoverable Cadmium	mg/kg dry wt		0.18	< 0.10	0.13	0.14	0.29
Total Recoverable Chromium	mg/kg dry wt		14	12	13	15	10
Total Recoverable Copper	mg/kg dry wt		11	10	15	12	30
Total Recoverable Lead	mg/kg dry wt		26	24	27	25	146
Total Recoverable Nickel	mg/kg dry wt		9	10	8	8	6
Total Recoverable Zinc	mg/kg dry wt		105	49	78	86	210

		Sample Name:	S5-0.0 05-Mar-2026	S6-0.0 05-Mar-2026	S7-0.0 05-Mar-2026	S8-0.0 05-Mar-2026	S9-0.0 05-Mar-2026
		Lab Number:	4123277.6	4123277.7	4123277.8	4123277.9	4123277.10
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		3	5	3	< 2	7
Total Recoverable Cadmium	mg/kg dry wt		0.28	0.27	0.23	0.12	0.12
Total Recoverable Chromium	mg/kg dry wt		12	11	10	10	11
Total Recoverable Copper	mg/kg dry wt		18	40	29	10	11
Total Recoverable Lead	mg/kg dry wt		32	29	16.4	11.1	11.6
Total Recoverable Nickel	mg/kg dry wt		6	5	6	5	3
Total Recoverable Zinc	mg/kg dry wt		92	196	123	71	121

		Sample Name:	S10-0.0 05-Mar-2026	S11-0.0 05-Mar-2026	S12-0.0 05-Mar-2026	S13-0.0 05-Mar-2026	S14-0.0 05-Mar-2026
		Lab Number:	4123277.11	4123277.12	4123277.13	4123277.14	4123277.15
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		10	7	6	< 2	< 2
Total Recoverable Cadmium	mg/kg dry wt		0.18	0.20	< 0.10	0.13	0.17
Total Recoverable Chromium	mg/kg dry wt		14	13	16	8	7
Total Recoverable Copper	mg/kg dry wt		15	19	19	11	18
Total Recoverable Lead	mg/kg dry wt		11.0	10.9	12.1	13.3	16.8
Total Recoverable Nickel	mg/kg dry wt		3	3	8	3	4
Total Recoverable Zinc	mg/kg dry wt		113	103	250	76	85

		Sample Name:	S15-0.0 05-Mar-2026	S16-0.0 05-Mar-2026	S17-0.0 05-Mar-2026	S18-0.0 05-Mar-2026	S19-0.0 05-Mar-2026
		Lab Number:	4123277.16	4123277.17	4123277.18	4123277.19	4123277.20
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		6	3	3	< 4	5
Total Recoverable Cadmium	mg/kg dry wt		0.10	< 0.10	0.11	< 0.19	< 0.10
Total Recoverable Chromium	mg/kg dry wt		13	8	9	6	12
Total Recoverable Copper	mg/kg dry wt		11	8	8	8	9

Sample Type: Soil						
Sample Name:		S15-0.0 05-Mar-2026	S16-0.0 05-Mar-2026	S17-0.0 05-Mar-2026	S18-0.0 05-Mar-2026	S19-0.0 05-Mar-2026
Lab Number:		4123277.16	4123277.17	4123277.18	4123277.19	4123277.20
Heavy Metals, Screen Level						
Total Recoverable Lead	mg/kg dry wt	25	19.2	17.9	5.3	12.1
Total Recoverable Nickel	mg/kg dry wt	6	4	4	5	7
Total Recoverable Zinc	mg/kg dry wt	144	69	53	62	220

Sample Name:		S20-0.0 05-Mar-2026	S21-0.0 05-Mar-2026	S22-0.0 05-Mar-2026	S23-0.0 05-Mar-2026	S24-0.0 05-Mar-2026
Lab Number:		4123277.21	4123277.22	4123277.23	4123277.24	4123277.25
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	4	3	11	3
Total Recoverable Cadmium	mg/kg dry wt	0.10	< 0.10	0.14	0.18	0.19
Total Recoverable Chromium	mg/kg dry wt	9	8	15	14	12
Total Recoverable Copper	mg/kg dry wt	13	11	22	29	42
Total Recoverable Lead	mg/kg dry wt	10.9	68	12.7	66	25
Total Recoverable Nickel	mg/kg dry wt	4	4	8	6	6
Total Recoverable Zinc	mg/kg dry wt	112	48	134	250	199

Sample Name:		S25-0.0 05-Mar-2026	S26-0.0 05-Mar-2026	S27-0.0 05-Mar-2026	S28-0.0 05-Mar-2026	S29-0.0 05-Mar-2026
Lab Number:		4123277.26	4123277.27	4123277.28	4123277.29	4123277.30
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	2	11	< 2	5	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.49	0.22	< 0.10	0.11	0.14
Total Recoverable Chromium	mg/kg dry wt	8	19	8	10	7
Total Recoverable Copper	mg/kg dry wt	16	15	13	15	6
Total Recoverable Lead	mg/kg dry wt	47	25	10.6	27	21
Total Recoverable Nickel	mg/kg dry wt	5	9	4	6	3
Total Recoverable Zinc	mg/kg dry wt	790	300	149	112	188

Sample Name:		S30-0.0 05-Mar-2026	S31-0.0 05-Mar-2026	S32-0.0 05-Mar-2026	S33-0.0 05-Mar-2026	S34-0.0 05-Mar-2026
Lab Number:		4123277.31	4123277.32	4123277.33	4123277.34	4123277.35
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	< 2	3	3	5
Total Recoverable Cadmium	mg/kg dry wt	0.13	< 0.10	0.11	0.13	0.37
Total Recoverable Chromium	mg/kg dry wt	8	8	10	8	13
Total Recoverable Copper	mg/kg dry wt	11	27	13	14	29
Total Recoverable Lead	mg/kg dry wt	26	15.2	26	19.1	61
Total Recoverable Nickel	mg/kg dry wt	4	4	5	4	6
Total Recoverable Zinc	mg/kg dry wt	240	87	81	80	270

Sample Name:		S35-0.0 05-Mar-2026	S36-0.0 05-Mar-2026	S37-0.0 05-Mar-2026	S38-0.0 05-Mar-2026	S39-0.0 05-Mar-2026
Lab Number:		4123277.36	4123277.37	4123277.38	4123277.39	4123277.40
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	5	2	7	21
Total Recoverable Cadmium	mg/kg dry wt	0.11	0.23	0.14	0.20	0.17
Total Recoverable Chromium	mg/kg dry wt	10	18	11	14	23
Total Recoverable Copper	mg/kg dry wt	9	17	24	37	43
Total Recoverable Lead	mg/kg dry wt	24	42	127	330	47
Total Recoverable Nickel	mg/kg dry wt	5	11	16	7	6
Total Recoverable Zinc	mg/kg dry wt	70	160	72	430	300

Sample Name:		S40-0.0 05-Mar-2026	S41-0.0 05-Mar-2026	S42-0.0 05-Mar-2026	S43-0.0 05-Mar-2026	S44-0.0 05-Mar-2026
Lab Number:		4123277.41	4123277.42	4123277.43	4123277.44	4123277.45
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	2	3	3	26
Total Recoverable Cadmium	mg/kg dry wt	0.13	0.11	0.12	0.14	0.13
Total Recoverable Chromium	mg/kg dry wt	10	10	11	7	16

Sample Type: Soil						
Sample Name:		S40-0.0 05-Mar-2026	S41-0.0 05-Mar-2026	S42-0.0 05-Mar-2026	S43-0.0 05-Mar-2026	S44-0.0 05-Mar-2026
Lab Number:		4123277.41	4123277.42	4123277.43	4123277.44	4123277.45
Heavy Metals, Screen Level						
Total Recoverable Copper	mg/kg dry wt	21	26	7	6	19
Total Recoverable Lead	mg/kg dry wt	13.2	10.3	9.3	10.2	163
Total Recoverable Nickel	mg/kg dry wt	5	6	5	3	5
Total Recoverable Zinc	mg/kg dry wt	1,180	119	54	60	197

Sample Name:		S45-0.0 05-Mar-2026
Lab Number:		4123277.46
Heavy Metals, Screen Level		
Total Recoverable Arsenic	mg/kg dry wt	6
Total Recoverable Cadmium	mg/kg dry wt	0.19
Total Recoverable Chromium	mg/kg dry wt	13
Total Recoverable Copper	mg/kg dry wt	18
Total Recoverable Lead	mg/kg dry wt	29
Total Recoverable Nickel	mg/kg dry wt	8
Total Recoverable Zinc	mg/kg dry wt	940

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-46
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1-46

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 12-Mar-2026 and 13-Mar-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Kim Harrison MSc
Client Services Manager - Environmental

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Quality Assurance Report

Client:	EHS Support New Zealand Limited	**Lab No:**	4123277	QCPv1
Contact:	Warren Sharp	**Date Received:**	06-Mar-2026	
	C/- EHS Support New Zealand Limited	**Date Reported:**	13-Mar-2026	
	Unit 8B 1 Portage Road	**Quote No:**	92248	
	New Lynn	**Order No:**		
	Auckland 0600	**Client Reference:**	07676	
		Submitted By:	Warren Sharp	

Blank QCs

Digest Blank 1 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13571.13

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Digest Blank 2 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13571.43

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Digest Blank 1 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.13

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Digest Blank 2 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.32

		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No

Digest Blank 2 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.32				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

50x Manual Dilution Digest Blank PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.71				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Digest Blank 1 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.13				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Digest Blank 2 PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.31				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

50x Manual Dilution Digest Blank PrepWS esDig - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.59				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Cadmium	mg/kg dry wt	< 0.10 ± 0.065	-0.100 – 0.100	No
Total Recoverable Chromium	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Copper	mg/kg dry wt	< 2 ± 1.3	-2.0 – 2.0	No
Total Recoverable Lead	mg/kg dry wt	< 0.4 ± 0.26	-0.40 – 0.40	No
Total Recoverable Nickel	mg/kg dry wt	< 2 ± 1.4	-2.0 – 2.0	No
Total Recoverable Zinc	mg/kg dry wt	< 4 ± 2.7	-4.0 – 4.0	No

Reference Material QCs

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13571.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.5 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.82 ± 0.16	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	26.4 ± 3.7	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	12.8 ± 2.4	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	32.7 ± 6.2	28 – 38	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13571.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Nickel	mg/kg dry wt	14.0 ± 2.3	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	193 ± 29	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13571.49				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.3 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.82 ± 0.16	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	26.4 ± 3.7	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	13.4 ± 2.5	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	33.0 ± 6.2	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	14.3 ± 2.3	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	196 ± 29	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.8 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.82 ± 0.16	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	25.0 ± 3.6	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	12.9 ± 2.4	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	31.5 ± 5.9	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	13.6 ± 2.2	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	191 ± 29	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.49				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.8 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.84 ± 0.16	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	24.7 ± 3.5	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	12.5 ± 2.4	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	32.3 ± 6.1	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	13.3 ± 2.2	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	191 ± 29	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13572.72				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.0 ± 2.0	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.79 ± 0.16	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	23.0 ± 3.3	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	11.9 ± 2.3	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	28.7 ± 5.4	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	12.3 ± 2.1	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	176 ± 26	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.14				
		Results	Control Limits	Outside Limit (Yes/No)
Total Recoverable Arsenic	mg/kg dry wt	10.5 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.83 ± 0.16	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	26.5 ± 3.7	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	12.9 ± 2.4	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	33.8 ± 6.4	28 – 38	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.14				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Recoverable Nickel	mg/kg dry wt	13.9 ± 2.3	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	194 ± 29	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.51				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Recoverable Arsenic	mg/kg dry wt	10.9 ± 2.1	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.86 ± 0.17	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	26.6 ± 3.8	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	13.1 ± 2.5	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	33.1 ± 6.2	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	14.1 ± 2.3	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	195 ± 29	166 – 230	No

SETOC-705 QC - WS: High Volume Environmental Soils by ICP-MS (HVesTR): 13573.60				
		Results	**Control Limits**	**Outside Limit (Yes/No)**
Total Recoverable Arsenic	mg/kg dry wt	10.1 ± 2.0	9.1 – 12.7	No
Total Recoverable Cadmium	mg/kg dry wt	0.76 ± 0.15	0.70 – 0.98	No
Total Recoverable Chromium	mg/kg dry wt	24.8 ± 3.5	21 – 30	No
Total Recoverable Copper	mg/kg dry wt	12.4 ± 2.4	11.0 – 15.3	No
Total Recoverable Lead	mg/kg dry wt	30.1 ± 5.7	28 – 38	No
Total Recoverable Nickel	mg/kg dry wt	12.9 ± 2.2	11.7 – 16.3	No
Total Recoverable Zinc	mg/kg dry wt	179 ± 27	166 – 230	No

R J Hill Laboratories Limited
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Middleton
Christchurch 8024 New Zealand

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Certificate of Analysis

Client:	EHS Support New Zealand Limited	**Lab No:**	4123285	A2Pv1
Contact:	Warren Sharp	**Date Received:**	06-Mar-2026	
	C/- EHS Support New Zealand Limited	**Date Reported:**	10-Mar-2026	
	Unit 8B 1 Portage Road	**Quote No:**	92248	
	New Lynn	**Order No:**		
	Auckland 0600	**Client Reference:**	07676	
		Submitted By:	Warren Sharp	

Sample Type: Building Material

Sample Name	Lab Number	Sample Category	Sample Weight on receipt (g)	Asbestos Presence / Absence	Description of Asbestos in Non Homogeneous Samples
ACM 1	4123285.1	Cement Product	23.06	Asbestos NOT detected. Organic fibres detected.	N/A

Glossary of Terms

- Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
- Trace - Trace levels of asbestos, as defined by AS4964-2004.

For further details, please contact the Asbestos Team.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Building Material

Test	Method Description	Default Detection Limit	Sample No
Asbestos in Bulk Material			
Sample Category	Assessment of sample type. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	-	1
Sample Weight on receipt	Sample weight (approximate). Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.01 g	1
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1
Description of Asbestos in Non Homogeneous Samples	Form, dimensions and/or weight of asbestos fibres present. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	-	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 09-Mar-2026 and 10-Mar-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

John Keneth Paglingayen BApSc
Laboratory Technician - Asbestos

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Middleton
Christchurch 8024 New Zealand

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Certificate of Analysis

Client:	EHS Support New Zealand Limited	**Lab No:**	4123606	A2Pv1
Contact:	Warren Sharp	**Date Received:**	06-Mar-2026	
	C/- EHS Support New Zealand Limited	**Date Reported:**	11-Mar-2026	
	Unit 8B 1 Portage Road	**Quote No:**	92248	
	New Lynn	**Order No:**		
	Auckland 0600	**Client Reference:**	07676	
		Submitted By:	Warren Sharp	

Sample Type: Soil

		Sample Name:	Asb 1	Asb 2
		Lab Number:	4123606.1	4123606.2
Asbestos Presence / Absence			Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form			-	-
Asbestos in ACM as % of Total Sample*	% w/w		< 0.001	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w		< 0.001	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w		< 0.001	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w		< 0.001	< 0.001
As Received Weight	g		444.5	420.3
Dry Weight	g		349.0	322.3
Moisture*	%		21	23
Sample Fraction >10mm	g dry wt		< 0.1	3.7
Sample Fraction <10mm to >2mm	g dry wt		44.0	48.7
Sample Fraction <2mm	g dry wt		304.8	269.5
<2mm Subsample Weight	g dry wt		55.6	59.2
Weight of Asbestos in ACM (Non-Friable)	g dry wt		< 0.00001	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt		< 0.00001	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt		< 0.00001	< 0.00001

Glossary of Terms

- Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
- Trace - Trace levels of asbestos, as defined by AS4964-2004.

For further details, please contact the Asbestos Team.

Please refer to the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
https://www.branz.co.nz/asbestos

The following assumptions have been made:

1. Asbestos Fines in the <2mm fraction, after homogenisation, is evenly distributed throughout the fraction
2. The weight of asbestos in the sample is unaffected by the ashing process.

Results are representative of the sample provided to Hill Laboratories only.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-2
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-2
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-2
Sample Fraction >10mm	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-2
Sample Fraction <10mm to >2mm	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-2
Sample Fraction <2mm	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-2
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1-2
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-2
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-2
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2
Weight of Asbestos as Fibrous Asbestos (Friable)	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-2
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-2
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 11-Mar-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Dexter Paguirigan Dip Chem Engineering Tech
Laboratory Technician - Asbestos

Appendix E – 2025 Tetra Tech Coffey DSI

Ohoka Development

Detailed Site Investigation - Fast-track Application

Carter Group Limited

Reference: 773-CHCGE288040AB

16 June 2025

OHOKA DEVELOPMENT

Detailed Site Investigation - Fast-track Application

Report reference number: 773-CHCGE288040AB
16 June 2025

PREPARED FOR

Carter Group Limited
ASB House, 166 Cashel Street,
Christchurch Central
8013 New Zealand

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NZBN 9429033691923

QUALITY INFORMATION

Revision history

Revision	Description	Date	Author	Reviewer	Approver
R0	DSI - Final	16/06/2025	N.Cash	T.Shanahan	C. Thompson
D1	DSI - Draft	09/05/2025	N.Cash	T.Shanahan	C. Thompson
D0	DSI - Draft	23/01/2025	N.Cash	T.Shanahan	C. Thompson

Distribution

Report Status	No. of copies	Format	Distributed to	Date
Final	1	PDF	Tim Carter	16/06/2025

EXECUTIVE SUMMARY

Carter Group Limited has commissioned Tetra Tech Coffey (NZ) Limited to conduct a detailed site investigation (DSI) to support the Fast-track Application of the proposed Ohoka Subdivision development located between Bradelys Road, Whites Road and Mill Road. This DSI was undertaken to identify the potential presence of contamination of soil within the site that may be disturbed during this development. The proposed development will involve soil disturbance, however soil stripped from the site will remain onsite where possible with the remaining soil removed from the site to a soil disposal facility.

Tetra Tech Coffey have previously completed a Preliminary Site Investigation (PSI) for the wider development and identified that Hazardous Activities and Industries List (HAIL) activities have been carried out on the site which required assessment through this DSI. This report should be read in conjunction with our previous PSI.

The key findings of this report include:

- The wider site is generally free of significant contamination (meets background).
- Heavy metals, PAHs and asbestos contamination (concentrations exceeding background) was variously detected in soils associated with the northern and central buildings, the former railyard, and in areas of filling (farm dump) areas.
- One or more of arsenic, cadmium, lead and asbestos were detected at concentrations exceeding SCS for residential land use in a number of samples collected around the northern and central buildings, burn piles, and in a sample collected from the historical rail yard.

The key recommendations of this report include:

- A Remediation Action Plan (RAP) will be required prior to earthworks, detailing which areas need to be remediated.
- Areas with soils above Soil Contaminant Standards (SCS) will need to be stockpiled onsite and tested to confirm contaminant levels.
- A Site Validation Report (SVR) will be completed once all remediation works are completed.
- Based on the findings of this DSI, the site is suitable for the proposed development.

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APPENDICES

1. INTRODUCTION

Tetra Tech Coffey (NZ) Limited (Tetra Tech Coffey) has been commissioned by Carter Group Limited ('the client') to conduct a Detailed Site Investigation (DSI) to support a Fast-track Application for the proposed Ohoka Development, located at 531 and 535 Mill Road, Ohoka ('the site').

This DSI follows a Tetra Tech Coffey Preliminary Site Investigation (PSI) dated 31 May 2021, *535 Mill Road, Ohoka Preliminary Site Investigation*. Applicable sections of the PSI have been included in this report.

This DSI was completed in accordance with Tetra Tech Coffey's proposal dated November 2024 and reviewed by a SQEP as required by the Ministry for Environment's (MfE's) Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS) and as per the certifying statement attached in Appendix B.

This report may not be reproduced except in full and must be read together with the "Important Information About Your Tetra Tech Coffey Environmental Report" attached to this report.

1.1 BACKGROUND

The site is proposed to be subdivided and developed for residential, commercial and recreational use. The site currently comprises farmland and has a relatively level terrain with a gentle fall to the east. The site has historically been utilised for farming activities, primarily cropping and cattle grazing. The proposed development will involve soil disturbance including cutting and filling. Topsoil stripped from the site will be replaced on lots or to landscape areas with surplus materials removed from the site to a soil disposal facility as necessary.

The requirements of the NESCS apply to certain activities on sites that have, have had, or are more likely than not to have had an activity on the Hazardous Activities and Industries List (HAIL) carried out on the site. The site is listed on the Environment Canterbury (ECan) Listed Land Use Register (LLUR) as having potentially accommodated HAIL activities, confirmed by the 2021 PSI which identified potential HAILs G3 – Landfill, A17 - Storage tanks for fuel, F6 – Railway yard, and A10 – persistent pesticide use. Subdivision, change of land use, and soil disturbance and removal, required by the proposed site development, are activities covered by the NESCS and potential HAIL activities have been identified. As such the requirements of the NESCS apply to the proposed site development, and a DSI is required.

The objectives of this DSI are to verify the HAIL status of the site and to characterise potential soil contamination, enabling determination of NESCS consent and potential contamination management requirements.

1.2 SCOPE OF WORK

The scope of work was undertaken in general accordance with MfE *Contaminated Land Management Guidelines* (CLMG) *No. 5: Site Investigation and Analysis of Soils* (revised 2021) (MfE, 2021a) and results have been reported in general accordance with MfE *CLMG No.1: Reporting on Contaminated Sites in New Zealand* (revised 2021) (MfE, 2021b). Both of these documents are incorporated by reference into the NESCS.

In summary, the scope of this DSI included the following:

- Review of the LLUR and PSI containing property file and historical aerial photographs.
- Collection of soil samples from the site including from around buildings, farm dump, historic railroad, burn piles and above ground storage tanks.
- Analysis of selected soil samples for the identified contaminants of concern, to provide information in relation to the potential human health and environmental risk and inform possible options for management and/or offsite disposal of site soils.

- All samples were sent to Hill Laboratories, an International Accredited New Zealand (IANZ) laboratory, under standard Tetra Tech Coffey chain of custody procedures.
- Comparison of laboratory results against published guidelines for the protection of human health.
- Preparation of this DSI report. As required by the NES, the report has been signed-off by a suitably qualified and experienced practitioner (SQEP).

2. SITE INFORMATION

2.1 SITE DESCRIPTION

The site comprises six land parcels:

- Lots 2 & 3 DP 318615
- Lot 2 DP 61732
- Lot 2 & PT Lot 1 DP 8301
- Lot 1 DP 318615

The total land area is approximately 154.4 Ha located to the southwest of Ohoka. The site is bordered by Bradleys Road, Whites Road, Mill Road, and to the south by rural residential and farmland. The site area is indicated on Location Plan 1, Appendix A.

The site is predominantly flat and traversed with branches of the Ohoka Stream. It is currently used for farming and appears to have had this land usage for at least 100 years. A historic rail alignment is located near the northern boundary close to the intersection of Bradleys and Mill Roads. There are multiple farm structures across the site as well as two dwellings.

The Tetra Tech Coffey Geotechnical Assessment Report[1] states that the site is underlain by “Brownish-grey river gravel” with groundwater typically encountered between 0.9 to 1.5mbgl. PDP have prepared a report commenting on groundwater in greater detail.

2.2 SITE HISTORY

The following sections summarise the historical activities undertaken within or in the immediate vicinity of the site, as determined from the information sources reviewed during the PSI.

2.2.1 Listed Land-Use Register

Environment Canterbury’s LLUR was accessed on 11 November 2024, and it notes the following HAIL activities with locations shown in Figure 1:

- A17 – Storage tanks or drums for fuel, chemicals or liquid waste. (SIT 321524)
- G3 – Landfill sites. (SIT 321524)
- G5 – Waste disposal to land. (SIT 321524)
- F6 – Railway yards. (SIT 169659)

The above are shown in Appendix E. The LLUR indicates that the areas of activity were defined from aerial photographs from 1984 to present while the railway yards are dated as the 1880s to 1950s.

[1] Geotechnical Assessment Report – Fast-track Application (13 December 2024)

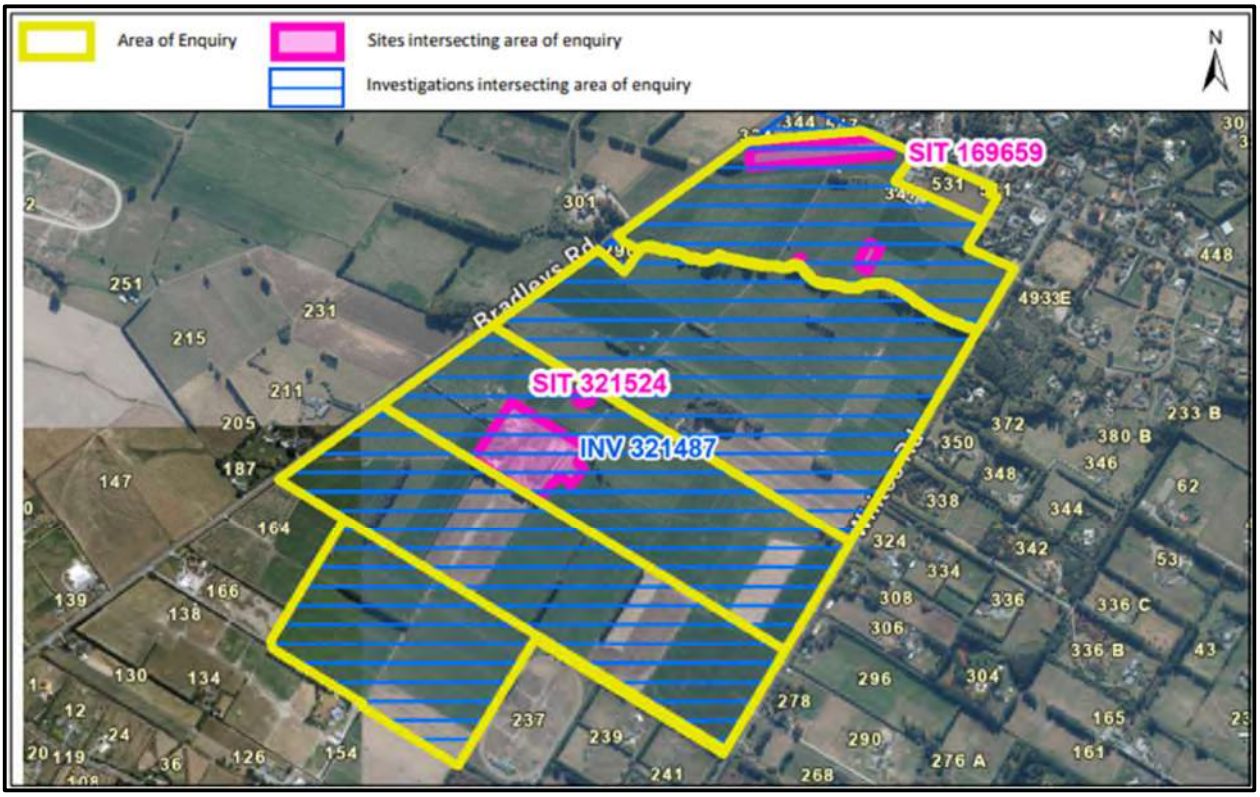

Figure 1: Locations of HAIL activities. Sourced from ECan.

The property at 531 Mill Road, legally known as Lot 1 DP 318615, had no HAIL activities listed on the LLUR.

2.2.2 Historical Aerial Photographs

Historical aerial photographs of the site and the surrounding area taken between 1940 and 2019 were sourced from the Canterbury Maps Viewer. A summary of observations made from the review of these photographs is provided in Table 1 below.

Table 1: Summary of historical aerial photographs.

Year	Description
1940-44	The site is in use as agricultural land and a series of building structures can be seen in the northern section of the site with additional building structures present within the central section of the site and a single structure on the central-western boundary of the site. Some sections of the site appeared to have been stripped and the remainder in use as grazing land. Three streams appear to run west to east through the site. Remnants of a rail-line can be seen in the north of the site. (unknown if it was in use at this point) Offsite land-use surrounding the site appears to be primarily agricultural with more intensified residential land-use to the north of the site (across Mill Road).
1955-59	Two of the structures in the northern section of the site have been removed from the site with the remainder of the site appearing similar to the previous historical aerial image. Offsite land-use remained similar to the previous historical aerial image with residential land- uses gradually intensifying around the site.
1960-64	Additional structures had been constructed within the central section of the site with the stream running through the centre now channelised. The structure located on the central- western boundary of the site had been removed. The remainder of the site appeared similar to the previous historical aerial image. Railway appears to have been removed. Offsite land-use remained similar to the previous historical aerial image with residential land- uses gradually intensifying around the site.
1970-74	Additional structures had been constructed on the northern boundary of the site around the remaining northern structure. Offsite land-use remained similar to the previous historical aerial image with residential land- uses gradually intensifying around the site.
1980-84	Further intensification has occurred with additional structures constructed in the central and northern sections of the site. Several square features in the northern section of the site can now be seen to be being used for alternative land-use, however, the exact use is unclear from this image. These features appear to coincide with the possible landfill sites identified in the LLUR (see Section 2.3.1) Evidence of potential filling is visible in the field northeast of the central structures. Offsite land-use had remained similar to the previous historical aerial image with residential land-uses gradually intensifying around the site.
1995-99	On-site land-use remained similar to the previous historical aerial image. Offsite land-use had remained similar to the previous historical aerial image.
2004-10	On-site land-use remained similar to the previous historical aerial image with the works within the northern section of the site having been covered and re-grassed. Offsite land-use had remained similar to the previous historical aerial image with residential land-uses gradually intensifying around the site.
2010-15	A pond has been installed to the east of the existing central structures as well as construction of a new residential structure east of the existing central structures. Offsite land-use had remained similar to the previous historical aerial image with residential land-uses gradually intensifying around the site.
2019	On-site land-use remained similar to the previous historical aerial image. Offsite land-use had remained similar to the previous aerial image.

2.3 SITE WALKOVER INSPECTION

2.3.1 PSI (2021)

Tetra Tech Coffey staff conducted a site walkover of the site during the PSI works on 6 May 2021. On-site observations made during the site walkover indicated the following:

- Some areas of unnatural plant die-off across the site.
- No major staining.
- Multiple potentially contaminating activities within the area of main farm infrastructure, these included:
  - An above ground fuel tank,
  - Chemical storage within buildings and outside on natural surfaces,
  - A drenching and effluent settlement area.
- A farm dump within the central section of the site which appeared to contain scrap concrete, plastic, bones, wire and other refuse.
- A burn area in the central-northern section of the site.
- Observation of agrichemical storage, likely to have been used across the site over the years e.g. Glyphosate to kill off weeds in paddocks between plantings.
- Rubbish and metal scraps across sections of the site.

On the basis of the information reviewed and collected, Tetra Tech Coffey has identified actual or potential HAIL activities likely to have occurred on-site as summarised in Section 3 below.

2.3.2 DSI (2024)

A site walkover inspection was carried out from 12 to 14 November 2024 by Tetra Tech Coffey staff and the following observations were made:

Northern Buildings

Refer to Location Plan 4.

- Sheds in the north of the site comprise of an old dairy milking shed, covered livestock feeding areas and hay storage shed.
- A pump shed which may have also been used for the storage of pesticides and animal treatment products and a barn used by livestock and storage of hay were located south and west of the dairy milking shed.
- Farming equipment including a spray tank were located south of the hay shed.

Main Buildings

Refer to Location Plan 2.

- Above diesel ground storage tank located next to farm access, however no evidence of leaks or staining were observed at the time of the site visit.
- Large storage tank used for the storage for livestock grain feed.
- Drums of disinfectant (Chlorhexidine) and Zoom Acid used for the disinfection and cleaning of milking equipment.
- Drum of waste oil on the southern side of the dairy milking shed and significant staining of the underlying material and surrounding surface gravel and along the delivery pipes. Three sheds northwest of the dairy shed currently used for the rearing of bobby calves.
- Large and small burn-piles with domestic rubbish located near the milking shed.

- Dangerous goods store located by the driveway access of the residential dwelling which was used for the storage of diesel exhaust fluid, modern pesticides e.g. atrazine and other hazardous chemicals.
- Storage of farming equipment such as tractors, spraying vessels.

531 Mill Road

Refer to Location Plan 4

- The house located on this property is to remain and was therefore not investigated.
- A single corrugated iron shed is located on the south of the property.
- A burn pile located immediately east of the shed was noted and sampled.

Fields

- A mound remains where the historic railway was. (refer to Location Plan 3)
- Fields generally have cattle grazing.
- Some fields have been used for growing maze.
- Localised areas used for storage of farm construction material (concrete posts).
- Localised areas used for burn piles.

2.4 SITE PHOTOGRAPHS

The following photographs were taken on site to illustrate the site and soil conditions.

Figure 2: General field near TP-106.

Figure 3: Milking shed.

Figure 4: Shed located in the far north-east at S108.

Figure 5: Shed located in centre of site near F-114.

Figure 6: Farm equipment.

Figure 7: Stock Effluent Pond near milking shed

Figure 8: Milking shed from S113.

Figure 9: Burn pile located near milking shed.

Figure 10: Farm rubbish at S116 & 117.

Figure 11: Milking shed from S114.

Figure 12: Chemical storage near S118.

Figure 13: Farm shed from S117.

Figure 14: Farm dump located at TP113-117

Figure 15: Sheds at S119 from near S120

Figure 16: Shed located at S120.

Figure 17: Dwelling near central structures.

Figure 18: Diesel tank near main farmyard at S109.

Figure 19: Unknown drum at S114.

3. CONCEPTUAL SITE MODEL

The PSI and DSI history review and site walkovers indicate that the site has been in use for farming activities since pre the 1940's. In addition, a railway formerly ran across the northern portion of the site, and filling activities appear to have occurred in the northern portion of the site. On the basis of the PSI and DSI history review and site inspection the following potential HAIL activities were identified:

Table 2: HAIL activity summary.

Actual/Potential HAIL Activities	Land Use	Information Source	Considered Risk Potential for Contamination to Surrounding Environment
Persistent pesticide bulk storage or use (HAIL Category A10)	Use of pesticide and other agrochemicals in agricultural activities.	Site walkover observations and historical aerial photographs	The risk potential to the underlying soil and groundwater is considered **low to medium** due to: • Relatively long period of use (since prior to 1940). Likely use of non-environmentally persistent chemicals in the paddocks.
Storage tanks or drums for fuel, chemicals or liquid waste (HAIL category A17)	Onsite above ground fuel storage tank. Chemical storage.	Site walkover observations.	The risk potential to the underlying soil and groundwater is considered **low** due to: • No visible staining on site around storage areas. Chemicals generally stored within building structures.
Landfill site (HAIL category G3)	Filling of a section of the site.	Environment Canterbury's LLUR.	The risk potential to the underlying soil and groundwater is considered **medium to high** due to: • Unknown fill material or source. • Continued and prior use of potentially contaminated area as paddocks.
	Farm dump and burn piles	Site walkover	The risk potential to the underlying soil and groundwater is considered **medium to high** due to: • Unknown extent of farm dump. Unable to confirm exact contents of farm dump.
Contamination resulting from use of lead containing paint (HAIL category H)	Numerous current and former buildings date to the pre 1950's buildings when lead containing paint was in use.	Historical aerial photographs	The risk potential to the underlying soil and groundwater is considered **low to medium** due to: • Concentrations > Soil Contaminant Standards for residential land use may be present. Extent of contamination likely to be limited (to small curtilage around buildings).

The primary contaminants of potential concern identified for this investigation were heavy metals, polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs) and asbestos.

Potential future site use is residential, commercial and recreational. On this basis the following potential receptors were identified as being relevant to the site:

- Potential future residential, commercial and recreational land use; occupiers and visitors.
- Earthworks, maintenance and excavation contractors who may come into contact with potentially contaminated soil during site development works.

If encountered, soil contaminants may enter the body through inhalation, ingestion or skin adsorption.

4. SOIL SAMPLING

Soil sampling was undertaken by Tetra Tech Coffey staff between 12 and 14 November 2024 and targeted areas which had previously been used for historic railway, landfill, farm dump, historic sheds, above ground storage tank and chemical storage. Samples were also collected from the wider paddock areas across the site. The sampling undertaken is summarised in Table 5 below. All soil sample locations are indicated on the Location Plans in Appendix A.

Table 3: Sampling location summary.

Location/Activity	Samples	Potential Contaminants
North Buildings/sheds	S101 – S108	Metals, OCPs (selected) and PAHs (selected)
Main Buildings/sheds	S110 – S116, S118 – S128 & S208 – S209	Metals, OCPs (selected) and PAHs (selected), Asbestos (selected)
LLUR Landfill	TP-109 – TP-111	Metals and OCPs
Agriculture	F-101 – F-124	Metals and OCPs
Historic Railway	TP-101 – TP-105	Metals and PAHs
Burn Areas	S116, TP-112, S121, S206, S207	Metals and PAHs
Above Ground Diesel Storage Tank	S109	Metals and PAHs
Farm dump	TP-113, TP-115, TP-116, TP-117	Metals, OCPs and Asbestos (selected)
Residential Dwelling	S125 – S128	Metals and Asbestos

4.1 SAMPLING METHODOLOGY

Soil sampling was undertaken in general accordance with the *CLMG No. 5: Site Investigation and Analysis of Soils* (revised 2021) (MfE, 2021a).

The sampling works comprised:

- Collection of 92 soil samples from 78 locations (81 of which were analysed and 11 of which were kept in cold storage) as shown in Appendix D.
  - Seventeen shallow test pits were advanced with an excavator and soil samples collected at various depths from areas set out in Table 5 (TP sample prefix).
  - Shallow soil surface samples were collected from 61 locations targeted on site features (sample Prefix S) and over the wider site fields (sample prefix F), as set out in Table 5.
- Where test pits were excavated, soil samples were collected from the excavator bucket with a hand trowel using a clean pair of nitrile gloves for each sample in accordance with Tetra Tech Coffey standard operating procedures (SOPs). Shallow soil samples were collected using a trowel. The sampling equipment was cleaned between sampling locations.
- Samples were placed into laboratory supplied sample containers and placed directly into chilled storage. Samples were transported to Hill Laboratories, under standard Tetra Tech Coffey chain of custody procedure.
- On the basis of the potential contaminating activities that were initially identified at the site, the soil samples were selectively analysed for one or more of heavy metals, and OCPs (refer Table 5). Based on the age of several of the buildings, asbestos was analysed in selected soil samples for completeness, although it was not identified on site.

4.2 FIELD OBSERVATIONS

During excavation of test pits, the following was observed:

- In the location of the railway (TP-101 – 105), fill material consisting of a sandy gravel, with topsoil above, was seen to a depth of 0.5mbgl.
- No evidence of fill materials or disturbance was seen in the area of the suspected landfill in the northern portion of the site (sample locations TP109 – 111). Three additional test pits (TP 106 - 108) were also excavated but did not show signs of fill materials or disturbance, with no samples collected from these test pits.
- In TP-113 – 117 (Farm dump), a variety of waste material including concrete, wire, timber, plastic and animals were found at depth of up to 1.0mbgl. No asbestos containing materials were observed.
- Several small burn piles were seen generally located near buildings. A larger burn pile, located in a field, was sampled (TP-112). A burn pile was also noted at 531 Mill Road and sampled (S206 and S207).
- Several stockpiles of farm rubbish (typically containing concrete, timber, wire, tires, etc) were located around the main buildings with one sample (S116) tested.

4.3 QUALITY ASSURANCE / QUALITY CONTROL

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

- Collection of soil samples by suitably qualified staff under standard operating procedures.
- Collection of samples into laboratory supplied containers and storage in a chilled box during site works and transport to the laboratory.
- Submission of all samples to the analytical laboratory under industry standard chain of custody documentation and within the acceptable holding times for the contaminants of concern.
- Sample analysis by Hill Laboratories, which are accredited by IANZ for the analyses performed.

5. RESULTS

5.1 APPLICABLE SOIL CONTAMINANT STANDARDS

To evaluate the soil analytical data, results have been compared to background and Soil Contaminant Standards (SCS) as follows. Adopted SCS and background criteria are presented in the results tables.

- Background concentrations for heavy metals have been adopted from *Environment Canterbury Report R07/1/2: Background Concentrations of Selected Trace Elements in Canterbury Soils. Addendum 1: Additional Samples and Timaru Specific Background Levels*. A number of soil types are present in the wider area around the site, with Regional Gley and Regional Recent soil types adopted, the latter also due to most cleanfill sites in the area having Regional Recent sites as acceptance criteria.
- Background concentrations for PAHs have been adopted from Environment Canterbury Report R07/19: Background Concentrations of polycyclic aromatic hydrocarbons in Christchurch urban soils.
- Tetra Tech Coffey understand ECan has adopted a background value for Total DDT of 0.46 mg/kg.
- The MfE (2012) *User's Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health* details SCS for selected contaminants. The contaminants analysed at this site for which SCSs are available are arsenic, cadmium, chromium, copper, lead, benzo(a)pyrene equivalent and Total DDT. As the site is primarily intended for residential development, a residential (10 % produce) land-use exposure scenario has been adopted.
- For the two heavy metals analysed for which SCSs are not available; nickel and zinc, the National Environment Protection Council (NEPC) (2013) *Australian National Environmental Protection (Assessment of Site Contamination) Measure* (NEPM) *Health Investigation Levels for a Residential A* scenario has been adopted.
- Asbestos results have been compared to guideline criteria from BRANZ November 2017, New Zealand *Guidelines for Assessing and Managing Asbestos in Soil*.

5.2 ANALYTICAL RESULTS

A summary of the soil analytical results is presented in Appendix C with the laboratory analytical reports provided in Appendix D. Analytical results can be summarised as follows, with a pictorial summary of concentrations present versus SCS indicated in Sampling Plans 1 to 5, Appendix A.

5.2.1 Around Buildings

- Cadmium was detected at concentrations exceeding SCS for residential land use in two samples (S104 and S105) collected around a single building in the northern portion of the site. The elevated cadmium is considered likely to be associated with storage of fertiliser products.
- One or more heavy metals were detected at concentrations above background in all other samples collected around the northern buildings.
- Lead (sample S111), arsenic (S121 & S201) and asbestos fines (S126), collected in the main area of buildings in the central area of the site, were detected in a single sample each at a concentration exceeding SCS for residential land use.
- One or more analysed heavy metals and/or PAHs were detected above background concentrations in all other samples collected around the central buildings.

5.2.2 Railway Yard

- Lead was detected at a concentration exceeding SCS for residential land use in a single sample (TP105) collected from the historical railway / railyard area of the site.
- With the exception of sample TP-104, one or more heavy metals and/or PAHs were detected above background concentrations in all other samples collected in this area of the site.

5.2.3 Potential Landfill

- No analysed contaminants of concern were detected at concentrations exceeding SCS for residential land use in samples collected from this area of the site.
- One or more of cadmium, lead and zinc were detected at concentrations exceeding background in samples from this area of the site.

5.2.4 Farm Dump / Burn Piles

- No analysed contaminants of concern were detected at concentrations exceeding SCS for residential land use in samples collected from the burn piles or farm dump in the central area.
- Arsenic was detected in concentrations exceeding SCS for residential land use in samples (S206 & S207) collected from a burn pile located at 531 Mill Road
- Lead and/or zinc were detected at concentrations exceeding background in samples from both of theses areas of the site.

5.2.5 Fields

- No analysed contaminants of concern were detected at concentrations exceeding SCS for residential land use in samples collected from this area of the site.
- Concentrations slightly exceeding background were detected in samples F-104 (zinc), F-113 (chromium), F-120 (cadmium) and F-123 (cadmium). All other samples returned concentrations below adopted background.

6. DISCUSSION

6.1 SUMMARY

The site is located on land which has been identified as having potentially accommodated HAIL activities A10 – persistent pesticide use associated with agricultural use of the property, A17 – associated with fuel and chemical storage, G3 – associated with areas of filling (suspected landfill), farm dump and burn piles, and H – contamination derived from lead containing paint.

While DSI results indicate the wider site is generally free of significant contamination (meets background), heavy metal, PAH and asbestos contamination (concentrations exceeding background) was variously detected in soils associated with the northern and central buildings, the former railyard, and in areas of filling (farm dump) areas. No evidence of filling was observed in the area of the suspected landfill in the northern part of the site. One or more of arsenic, cadmium, lead and asbestos were detected at concentrations exceeding SCS for residential land use in a number of samples collected around the northern and central buildings, and in a sample collected from the historical rail yard.

6.2 REGULATORY CONSIDERATIONS

Concentrations exceeding background were detected and as such the NESCS regulations apply to proposed redevelopment activities at this site.

Application for consent under the NESCS to subdivide and change land use is required. Concentrations exceeding SCS for the planned residential land use were detected and the proposed subdivision and change of land use therefore requires consent as a restricted discretionary activity under Regulation 10 of the NESCS. Dependent on development earthworks requirements, consent under the NESCS to disturb and/or remove contaminated soils may also be required.

As contamination is present, regional council consents may also be required for construction phase stormwater discharge and dewatering (if required) during development works. Dependent on development plans, including how detected contamination and operational stormwater will be managed, operational phase consents may also be required, e.g. operational phase stormwater discharge and passive discharge (if contaminated soils are encapsulated onsite). Consultation with ECan to determine necessary consents is recommended.

6.3 DEVELOPMENT CONSIDERATIONS

Detected soil contamination exceeding SCS for residential land use will require management / remediation. Preparation of a Remedial Action Plan (RAP) setting out proposed management methodologies will be required prior to commencement of construction. Additional soil sampling to delineate detected contamination is recommended. This can be undertaken prior to consent application and/or detailed in the RAP.

Contaminated soils have been detected at the site. Should offsite disposal of these soils be required during site development works, these soils are not suitable for disposal as cleanfill and will require disposal to a licensed disposal facility. Re-use of contaminated soils within the site, e.g. outside residential lots in reserve or road reserve areas, would also likely be an acceptable management option for these soils; however, such re-use may be subject to regional council consent. The RAP required prior to construction should set out all (soils > SCS and soils > background) proposed contamination management methodologies.

7. CONCLUSION

Carter Group Limited engaged Tetra Tech Coffey (NZ) Limited (Tetra Tech Coffey) to conduct a DSI to support the proposed Ohoka development located at 531 and 535 Mill Road. This investigation included reviewing the site's history, field observations and the collection and analysis of soil samples.

The conclusions made as part of this investigation include the following:

- A total of 92 soil samples were collected from a total of 78 sampling locations to target contaminants typically associated with agriculture and to provide preliminary disposal information for excavated soils. A total of 43 of the 51 samples were analysed and 8 were kept in cold storage. Laboratory analysis of these samples found the following:
  - Samples exceeding residential soil contaminant standards included:
    - S104 & S105 (Cadmium)
    - S111 & TP105 (Lead)
    - S121, S201, S206 & S207 (Arsenic)
    - S126 Asbestos
  - One or more analysed heavy metals and/or PAHs were detected above background concentrations in most samples collected from around the central buildings, Railway, Farm dumps and Burn Piles.
  - No samples collected from withing the fields exceeded soil contaminant standards, while concentrations slightly exceeding background were detected in samples F-104 (zinc), F-113 (chromium), F-120 (cadmium) and F-123 (cadmium). All other samples returned concentrations below adopted background concentrations.
  - All soils from within fields can be retained onsite as concentrations of contaminants in soil samples from these locations were below human health guidelines except in the locations noted above.
  - Soils from around most buildings will need to be removed from site. This will be detailed in the RAP.
  - Topsoil from all fields sampled is considered to be free from contaminants and can be reused on site or removed to be used for agricultural or residential use.
  - Further sampling will be required to validate the site post building/shed removal.
- A Remediation Action Plan (RAP) will be required prior to earthworks commencing on-site to outline remediation requirements.
- A Site Validation Report (SVR) will be completed once remediation works are undertaken.

Standard environmental controls including sediment management and controlling the movement of cleanfill and topsoil during development will reduce any discharges to the environment.

This report may not be reproduced except in full and must be read together with the "Important Information About Your Tetra Tech Coffey Environmental Report" attached to this report.

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APPENDIX A: TEST LOCATION PLANS

TETRA TECH COFFEY Christchurch Geotech +64 3 374 9600 1/254 Montreal Street Christchurch 8013 New Zealand		PROJECT Carter Group Limited 535 Mill Road Ohoka Subdivision	
		SHEET Environmental Sampling Location Plan 1	
DRAWN J. Monk	APPROVED C. Thompson		
SHEET NUMBER 1 of 4	SCALE 1:5,500	PROJECT NUMBER 773-CHCGE288040AB	REVISION DATE 15/05/2025
			REVISION R3

Original Sheet Size: A3 [W = 420, H = 297] Plot Date: 2025-05-15 10:01:28 by Monk, Joseph (joseph.monk) File Ref: \\tt.local\cof\S809\F\GENZ\Projects\03 TETRALINX PROJECTS\280000 - 289999\288040 - 535 Mill Road, Ohoka\06 DRAWINGS\QGIS\Ohoka Environmental Sampling.qgz

TETRA TECH COFFEY Christchurch Geotech +64 3 374 9600 1/254 Montreal Street Christchurch 8013 New Zealand		PROJECT Carter Group Limited 535 Mill Road Ohoka Subdivision	
		SHEET Environmental Sampling Location Plan 2	
DRAWN J. Monk	APPROVED C. Thompson		
SHEET NUMBER 2 of 4	SCALE 1:800	PROJECT NUMBER 773-CHCGE288040AB	REVISION DATE 15/05/2025 / REVISION R3

Original Sheet Size: A3 [W = 420, H = 297] Plot Date: 2025-05-15 10:02:50 by Monk, Joseph (joseph.monk) File Ref: \\tt.local\cof\S809\F\GENZ\Projects\03 TETRALINX PROJECTS\280000 - 289999\288040 - 535 Mill Road, Ohoka\06 DRAWINGS\QGIS\Ohoka Environmental Sampling.qgz

TETRA TECH COFFEY Christchurch Geotech +64 3 374 9600 1/254 Montreal Street Christchurch 8013 New Zealand		PROJECT Carter Group Limited 535 Mill Road Ohoka Subdivision	
		SHEET Environmental Sampling Location Plan 3	
DRAWN J. Monk	APPROVED C. Thompson		
SHEET NUMBER 3 of 4	SCALE 1:600	PROJECT NUMBER 773-CHCGE288040AB	REVISION DATE 15/05/2025 / REVISION R3

Original Sheet Size: A3 [W = 420, H = 297] Plot Date: 2025-05-15 10:04:01 by Monk, Joseph (joseph.monk) File Ref: \\tt.local\cof\S809\F\GENZ\Projects\03 TETRALINX PROJECTS\280000 - 289999\288040 - 535 Mill Road, Ohoka\06 DRAWINGS\QGIS\Ohoka Environmental Sampling.qgz

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DRAWN	APPROVED
J. Monk	C. Thompson
SHEET NUMBER	SCALE
4 of 4	1:700

PROJECT

Carter Group Limited
535 Mill Road Ohoka Subdivision

SHEET

Environmental Sampling Location Plan 4

PROJECT NUMBER	REVISION DATE	REVISION
773-CHCGE288040AB	15/05/2025	R3

Original Sheet Size: A3 [W = 420, H = 297] Plot Date: 2025-05-15 10:05:19 by Monk, Joseph (joseph.monk) File Ref: \\tt.local\cof\S809\F\GENZ\Projects\03 TETRALINX PROJECTS\280000 - 289999\288040 - 535 Mill Road, Ohoka\06 DRAWINGS\QGIS\Ohoka Environmental Sampling.qgz

APPENDIX B: CERTIFYING STATEMENT

Certifying Statement

I, Tim Shanahan, of Tetra Tech Coffey, certify that:

1. This 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 (the NESCS) because it has been:
   A. done by a suitably qualified and experienced practitioner, and
   B. done in accordance with the current edition of Contaminated land management guidelines No 5 – Site investigation and analysis of soils, and.
   C. reported on in accordance with the current edition of Contaminated land management guidelines No 1 – Reporting on contaminated sites in New Zealand, and.
   D. the report is certified by a suitably qualified and experienced practitioner.

2. This detailed site investigation concludes that:
   A- [For activities under R9 of the NESCS] does not exceed the applicable standard in Regulation 7 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) who have done this investigation and certified this report can be requested if required.

16/06/2025

For and on behalf of Tetra Tech Coffey

Tim Shanahan

Principal Environmental Engineer

: .....

APPENDIX C: ANALYTICAL RESULTS TABLES

TETRA TECH COFFEY

Results Table 1: Summary of Soil Analytical Results

Discrete Sample Identification / Analyte	Soil Contaminant Standards by NES[1] and MfE Hierarchy - Residential land use (mg/kg)	Background Concentrations[2] (mg/kg)	S101 Depth 0 - 0.2 m	S102 Depth 0 - 0.2 m	S103 Depth 0 - 0.2 m	S104 Depth 0 - 0.2 m	S105 Depth 0 - 0.1 m	S106 Depth 0 - 0.2 m	S107 Depth 0 - 0.2 m	S108 Depth 0 - 0.2 m	S109 Depth 0 - 0.1 m	S110 Depth 0 - 0.1 m	S111 Depth 0 - 0.1 m	S112 Depth 0 - 0.1 m	S113 Depth 0 - 0.1 m	S114 Depth 0 - 0.1 m
Heavy metals																
Arsenic	20	12.58	6	8	4	< 4	5	9	8	< 2	8	19	6	7	3	2
Cadmium	3	0.28	0.12	0.2	0.4	12.7	19.2	0.18	1.4	0.19	0.14	< 0.10	0.75	0.38	0.16	< 0.10
Chromium	>10,000	22.7	11	13	10	125	210	10	18	5	15	13	14	13	13	11
Copper	>10,000	20.3	12	32	40	16	12	25	22	52	15	45	20	870	44	5
Lead	210	40.96	74	17.5	11.2	4.7	5.5	7	97	14.6	43	21	1,170	9	22	16
Nickel	6000 [3]	20.7	3	8	4	19	22	6	7	3	6	2	4	5	8	9
Zinc	7400 [3]	93.9	77	250	570	163	220	150	550	240	79	34	530	3600	1580	49
Organochlorine pesticides																
2,4'-DDD	-	-	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	< 0.015	< 0.013	< 0.015	-
4,4'-DDD	-	-	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	< 0.015	< 0.013	< 0.015	-
2,4'-DDE	-	-	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	< 0.015	< 0.013	< 0.015	-
4,4'-DDE	-	-	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	0.053	< 0.013	< 0.015	-
2,4'-DDT	-	-	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	< 0.015	< 0.013	< 0.015	-
4,4'-DDT	-	-	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	< 0.015	< 0.013	< 0.015	-
Total DDT Isomers	70	0.46 [4]	< 0.08	< 0.08	< 0.08	< 0.10	< 0.09	< 0.10	< 0.11	< 0.09	-	< 0.07	< 0.09	< 0.08	< 0.09	-
Dieldrin	2.6	<LOR	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014	< 0.017	< 0.019	< 0.015	-	< 0.012	< 0.015	< 0.013	< 0.015	-
Polycyclic aromatic hydrocarbons (PAHs)																
1-Methylnaphthalene	-	<LOR	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
2-Methylnaphthalene	-	<LOR	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Acenaphthylene	-	0.069	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Acenaphthene	-	0.055	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Anthracene	-	0.113	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Benzo[a]anthracene	-	0.47	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Benzo[a]pyrene (BAP)	-	0.595	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Benzo[b]fluoranthene + Benzo[j]fluoranthene	-	0.947	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Benzo[e]pyrene	-	<LOR	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Benzo[g,h,i]perylene	-	0.459	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	0.029
Benzo[k]fluoranthene	-	0.296	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Chrysene	-	0.539	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Dibenzo[a,h]anthracene	-	0.112	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.013
Fluoranthene	-	1.345	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Fluorene	-	0.06	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Indeno(1,2,3-c,d)pyrene	-	0.385	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Naphthalene	-	0.029	-	-	-	-	-	-	-	-	< 0.06	-	-	-	-	< 0.06
Perylene	-	<LOR	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Phenanthrene	-	0.703	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	< 0.012
Pyrene	-	1.362	-	-	-	-	-	-	-	-	< 0.011	-	-	-	-	0.014
Benzo[a]pyrene Toxic Equivalence (TEF)	10	-	-	-	-	-	-	-	-	-	< 0.027	-	-	-	-	< 0.028

Highlighted, coloured cell indicates samples exceeds human health guideline, permitted activity criterion or background concentration

Notes:

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or sample not tested for this analyte

< LOR Indicates less than laboratory level of reporting.

1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES). Soil Contaminant Standards for Residential Land Use.
2. Environment Canterbury Report R07/1/2 (2007). Background Concentrations of Selected Trace Elements in Canterbury Soils. Level 2, Regional Recent, Gley

3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Class Residential A

4. ECan adopted background value for Total DDT.

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Results Table 2: Summary of Soil Analytical Results

Discrete Sample Identification / Analyte	Soil Contaminant Standards by NES[1] and MfE Hierarchy - Residential land use (mg/kg)	Background Concentrations[2] (mg/kg)	S115 Depth 0 - 0.1 m	S116 Depth 0 - 0.2 m	S118 Depth 0 - 0.1 m	S119 Depth 0 - 0.1 m	S120 Depth 0 - 0.1 m	S121 Depth 0 - 0.1 m	S122 Depth 0 - 0.2 m	S123 Depth 0 - 0.1 m	S124 Depth 0 - 0.1 m	S125 Depth 0 - 0.2 m	S126 Depth 0 - 0.2 m	S127 Depth 0 - 0.2 m	S128 Depth 0 - 0.2 m
Heavy metals															
Arsenic	20	12.58	9	5	<4	<2	2	34	2	6	7	4	6	5	15
Cadmium	3	0.28	1.38	0.2	1.7	0.3	0.24	0.5	0.11	0.23	0.6	0.15	<0.10	0.15	0.21
Chromium	>10,000	22.7	26	11	10	4	11	47	8	14	13	11	9	13	18
Copper	>10,000	20.3	178	17	76	31	33	129	12	31	26	12	11	14	22
Lead	210	40.96	64	11.6	40	7.6	52	19.9	17.4	29	63	60	125	40	86
Nickel	6000[3]	20.7	12	6	4	4	6	59	4	6	6	5	4	6	8
Zinc	7400[3]	93.9	1190	270	3200	290	290	610	94	310	370	130	90	90	220
Asbestos															
Concentration (%wt/wt)	0.001[5]	-	-	-	-	-	-	-	-	-	-	Not Detected	0.00666	Not Detected	Not Detected
Organochlorine pesticides															
2,4'-DDD	-	-	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
4,4'-DDD	-	-	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
2,4'-DDE	-	-	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
4,4'-DDE	-	-	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
2,4'-DDT	-	-	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
4,4'-DDT	-	-	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
Total DDT Isomers	70	0.46[4]	-	-	<0.16	<0.3	<0.08	-	<0.07	<0.09	<0.3	-	-	-	-
Dieldrin	2.6	<LOR	-	-	<0.03	<0.05	<0.013	-	<0.012	<0.015	<0.04	-	-	-	-
Polycyclic aromatic hydrocarbons (PAHs)															
1-Methylnaphthalene	-	<LOR	<0.011	0.029	-	-	-	<0.018	-	-	-	-	-	-	-
2-Methylnaphthalene	-	<LOR	<0.011	0.021	-	-	-	<0.018	-	-	-	-	-	-	-
Acenaphthylene	-	0.069	<0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Acenaphthene	-	0.055	<0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Anthracene	-	0.113	<0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Benzo[a]anthracene	-	0.47	0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Benzo[a]pyrene (BAP)	-	0.595	0.012	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	-	0.947	0.03	<0.013	-	-	-	0.017	-	-	-	-	-	-	-
Benzo[e]pyrene	-	<LOR	0.024	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Benzo[g,h,i]perylene	-	0.459	0.027	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Benzo[k]fluoranthene	-	0.296	<0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Chrysene	-	0.539	0.019	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Dibenzo[a,h]anthracene	-	0.112	<0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Fluoranthene	-	1.345	0.046	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Fluorene	-	0.06	0.012	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	-	0.385	0.016	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Naphthalene	-	0.029	<0.06	0.09	-	-	-	<0.09	-	-	-	-	-	-	-
Perylene	-	<LOR	<0.011	<0.013	-	-	-	<0.018	-	-	-	-	-	-	-
Phenanthrene	-	0.703	0.056	0.028	-	-	-	0.024	-	-	-	-	-	-	-
Pyrene	-	1.362	0.54	<0.013	-	-	-	0.02	-	-	-	-	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)	10	-	<0.025	<0.031	-	-	-	<0.042	-	-	-	-	-	-	-

Highlighted, coloured cell indicates samples exceeds human health guideline, permitted activity criterion or background concentration

Notes:

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or sample not tested for this analyte

< LOR indicates less than laboratory level of reporting.

1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES). Soil Contaminant Standards for Residential Land Use.
2. Environment Canterbury Report R07/1/2 (2007). Background Concentrations of Selected Trace Elements in Canterbury Soils. Level 2, Regional Recent, Gley

3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Class Residential A

4. ECan adopted background value for Total DDT

5. Asbestos criteria from: BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil

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Results Table 3: Summary of Soil Analytical Results

Discrete Sample Identification / Analyte	Soil Contaminant Standards by NES[1] and MfE Hierarchy - Residential land use (mg/kg)	Background Concentrations[2] (mg/kg)	F-101 Depth 0 - 0.1 m	F-102 Depth 0 - 0.1 m	F-103 Depth 0 - 0.1 m	F-104 Depth 0 - 0.1 m	F-105 Depth 0 - 0.1 m	F-106 Depth 0 - 0.1 m	F-107 Depth 0 - 0.1 m	F-108 Depth 0 - 0.1 m	F-109 Depth 0 - 0.1 m	F-110 Depth 0 - 0.1 m	F-111 Depth 0 - 0.1 m	F-112 Depth 0 - 0.1 m	F-113 Depth 0 - 0.1 m	F-114 Depth 0 - 0.1 m
Heavy metals																
Arsenic	20	12.58	3	5	3	4	< 2	< 2	< 2	2	< 2	2	< 2	< 2	< 2	< 2
Cadmium	3	0.28	0.23	0.21	0.19	0.24	0.17	0.19	0.24	0.23	0.23	0.2	0.24	0.23	0.15	0.11
Chromium	>10,000	22.7	16	18	14	18	13	6	6	13	8	13	9	10	7	7
Copper	>10,000	20.3	11	13	7	11	9	5	5	11	5	7	8	7	38	13
Lead	210	40.96	15.4	17.4	12.5	17.6	12.6	7.1	6.5	13.1	8.3	13	8.1	10	9	9
Nickel	6000 [3]	20.7	11	13	8	13	8	3	3	10	3	7	4	5	4	4
Zinc	7400 [3]	93.9	85	88	65	95	72	30	25	84	31	65	41	41	54	67
Organochlorine pesticides																
2,4'-DDD	-	-	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
4,4'-DDD	-	-	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
2,4'-DDE	-	-	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
4,4'-DDE	-	-	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	0.036	0.016	< 0.013	< 0.013	< 0.014	< 0.012
2,4'-DDT	-	-	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
4,4'-DDT	-	-	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013	< 0.014	< 0.013	0.014	< 0.014	< 0.012
Total DDT Isomers	70	0.46 [4]	< 0.08	< 0.08	< 0.08	< 0.08	< 0.09	< 0.08	< 0.09	< 0.08	< 0.08	< 0.09	< 0.08	< 0.08	< 0.08	< 0.07
Dieldrin	2.6	<LOR	< 0.013	< 0.013	< 0.013	< 0.012	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012

Highlighted, coloured cell indicates samples exceeds human health guideline, permitted activity criterion or background concentration

Notes:

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or sample not tested for this analyte

< LOR indicates less than laboratory level of reporting.

1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES). Soil Contaminant Standards for Residential Land Use.
2. Environment Canterbury Report R07/1/2 (2007). Background Concentrations of Selected Trace Elements in Canterbury Soils. Level 2, Regional Recent, Gley
3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Class Residential A
4. ECan adopted background value for Total DDT.

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Results Table 4: Summary of Soil Analytical Results

Discrete Sample Identification / Analyte	Soil Contaminant Standards by NES[1] and MfE Hierarchy - Residential land use (mg/kg)	Background Concentrations[2] (mg/kg)	F-115 Depth 0 - 0.1 m	F-116 Depth 0 - 0.1 m	F-117 Depth 0 - 0.1 m	F-118 Depth 0 - 0.1 m	F-119 Depth 0 - 0.1 m	F-120 Depth 0 - 0.1 m	F-121 Depth 0 - 0.1 m	F-122 Depth 0 - 0.1 m	F-123 Depth 0 - 0.1 m	F-124 Depth 0 - 0.1 m
Heavy metals												
Arsenic	20	12.58	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
Cadmium	3	0.28	0.21	0.22	0.17	0.23	0.18	0.35	0.28	0.17	0.29	0.18
Chromium	>10,000	22.7	5	5	4	8	6	8	5	5	7	6
Copper	>10,000	20.3	8	8	4	7	10	8	7	4	8	6
Lead	210	40.96	10.3	6.5	5.4	7	8.1	10	7	6.4	10.2	12
Nickel	6000[3]	20.7	3	2	< 2	3	3	4	< 2	2	2	2
Zinc	7400[3]	93.9	33	27	14	29	33	30	26	12	27	20
Organochlorine pesticides												
2,4'-DDD	-	-		< 0.015	< 0.012	< 0.012	< 0.013	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
4,4'-DDD	-	-		< 0.015	< 0.012	< 0.012	< 0.013	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
2,4'-DDE	-	-		< 0.015	< 0.012	< 0.012	< 0.013	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
4,4'-DDE	-	-		< 0.015	< 0.012	< 0.012	< 0.013	0.016	0.013	< 0.012	< 0.013	0.013
2,4'-DDT	-	-		< 0.015	< 0.012	< 0.012	< 0.013	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
4,4'-DDT	-	-		< 0.015	< 0.012	< 0.012	< 0.013	0.014	< 0.013	< 0.012	< 0.013	0.013
Total DDT Isomers	70	0.46[4]	< 0.08	< 0.09	< 0.08	< 0.07	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Dieldrin	2.6	<LOR	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012

Highlighted, coloured cell indicates samples exceeds human health guideline, permitted activity criterion or background concentration

Notes:

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or sample not tested for this analyte

< LOR Indicates less than laboratory level of reporting.

1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES). Soil Contaminant Standards for Residential Land Use.
2. Environment Canterbury Report R07/1/2 (2007). Background Concentrations of Selected Trace Elements in Canterbury Soils. Level 2, Regional Recent, Gley
3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Class Residential A
4. ECan adopted background value for Total DDT.

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Results Table 5: Summary of Soil Analytical Results

Discrete Sample Identification / Analyte	Soil Contaminant Standards by NES[1] and MfE Hierarchy - Residential land use (mg/kg)	Background Concentrations[2] (mg/kg)	TP-101 Depth 0 - 0.1 m	TP-102 Depth 0.1 - 0.2 m	TP-103 Depth 0 - 0.1 m	TP-104 Depth 0 - 0.1 m	TP-105 Depth 0 - 0.1 m	TP-109 Depth 0 - 0.1 m	TP-109 Depth 0.6 - 0.7 m	TP-110 Depth 0 - 0.1 m	TP-111 Depth 0 - 0.1 m	TP-112 Depth 0 - 0.1 m	TP-112 Depth 0.2 - 0.3 m	TP-113 Depth 0 - 0.1 m	TP-113 Depth 0.7 - 0.8 m	TP-115 Depth 0 - 0.1 m	TP-115 Depth 0.4 - 0.5 m	TP-116 Depth 0 - 0.1 m	TP-116 Depth 0.2 - 0.3 m	TP-117 Depth 0 - 0.1 m	TP-117 Depth 0.1 - 0.4 m
Heavy metals																					
Arsenic	20	12.58	2	3	3	< 2	2	2	< 2	2	< 2	< 2	< 2	5	2	< 2	< 2	< 2	< 2	4	< 2
Cadmium	3	0.28	0.36	0.29	0.34	0.13	0.36	0.19	0.15	0.11	0.14	0.3	0.12	0.18	0.26	0.13	0.15	0.11	< 0.10	0.21	0.25
Chromium	>10,000	22.7	10	12	12	8	11	11	7	12	9	5	6	7	6	6	6	6	4	9	9
Copper	>10,000	20.3	15	15	18	8	15	41	24	11	17	17	4	39	900	23	8	23	< 2	41	92
Lead	210	40.96	36	104	178	31	240	11.3	9.6	14.6	10	6	8	9	12	10.5	9.2	9.3	6.6	22	18
Nickel	6000 [3]	20.7	7	13	9	4	9	6	3	5	4	2	2	4	5	4	4	3	< 2	5	7
Zinc	7400 [3]	93.9	78	83	100	48	118	97	72	51	52	63	18	170	250	96	33	51	14	180	82
Organochlorine pesticides																					
2,4'-DDD	-	-	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
4,4'-DDD	-	-	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
2,4'-DDE	-	-	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
4,4'-DDE	-	-	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
2,4'-DDT	-	-	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
4,4'-DDT	-	-	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
Total DDT Isomers	70	0.46 [4]	-					< 0.08	< 0.11	< 0.07	< 0.08			< 0.11		< 0.09		< 0.09		< 0.13	
Dieldrin	2.6	<LOR	-					< 0.013	< 0.018	< 0.012	< 0.013			< 0.018		< 0.015		< 0.015		< 0.03	
Polycyclic aromatic hydrocarbons (PAHs)																					
1-Methylnaphthalene	-	<LOR	0.024	0.075	0.038	< 0.014	0.065	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
2-Methylnaphthalene	-	<LOR	0.025	0.066	0.036	< 0.014	0.069	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Acenaphthylene	-	0.069	< 0.012	0.055	< 0.014	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Acenaphthene	-	0.055	< 0.012	< 0.013	< 0.014	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Anthracene	-	0.113	< 0.012	0.034	< 0.014	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[a]anthracene	-	0.47	0.041	0.133	0.036	< 0.014	0.035	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[a]pyrene (BAP)	-	0.595	0.06	0.22	0.048	0.015	0.069	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[b]fluoranthene + Benzo[j]fluoranthene	-	0.947	0.071	0.27	0.063	0.023	0.093	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[e]pyrene	-	<LOR	0.037	0.162	0.031	< 0.014	0.05	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[g,h,i]perylene	-	0.459	0.037	0.163	0.033	< 0.014	0.044	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[k]fluoranthene	-	0.296	0.025	0.103	0.022	< 0.014	0.029	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Chrysene	-	0.539	0.041	0.22	0.042	< 0.014	0.065	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Dibenzo[a,h]anthracene	-	0.112	< 0.012	0.034	< 0.014	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Fluoranthene	-	1.345	0.07	0.49	0.089	0.028	0.155	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Fluorene	-	0.06	< 0.012	< 0.013	< 0.014	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	-	0.385	0.038	0.158	0.032	< 0.014	0.046	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Naphthalene	-	0.029	< 0.06	0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.09	< 0.06	< 0.07	< 0.09	< 0.06	< 0.09	< 0.16	< 0.08	< 0.08	< 0.08	< 0.08	< 0.11	< 0.12
Perylene	-	<LOR	< 0.012	0.031	< 0.014	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Phenanthrene	-	0.703	0.036	0.39	0.075	< 0.014	0.173	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Pyrene	-	1.362	0.08	0.52	0.091	0.026	0.175	< 0.013	< 0.018	< 0.012	< 0.013	< 0.017	< 0.012	< 0.018	< 0.04	< 0.015	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[a]pyrene Toxic Equivalence (TEF)	10	-	0.086	0.32	0.073	< 0.052	0.099	< 0.032	< 0.042	< 0.027	< 0.030	< 0.041	< 0.028	< 0.043	< 0.074	< 0.035	< 0.036	< 0.036	< 0.029	< 0.049	< 0.054

Highlighted, coloured cell indicates samples exceeds human health guideline, permitted activity criterion or background concentration

Notes:

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or sample not tested for this analyte

< LOR indicates less than laboratory level of reporting.

1. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES). Soil Contaminant Standards for Residential Land Use.
2. Environment Canterbury Report R07/12 (2007). Background Concentrations of Selected Trace Elements in Canterbury Soils. Level 2, Regional Recent, Gley

3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Class Residential A .

4. ECan adopted background value for Total DDT.

TETRA TECH COFFEY

Table 1: Summary of Soil Analytical Results

Discrete Sample Identification / Analyte	Soil Contaminant Standards by NES[1] and MfE Hierarchy - Residential land use (mg/kg)	Background Concentrations[2] (mg/kg)	S201 Depth 0.0-0.1m	S202 Depth 0.0-0.1m	S203 Depth 0.0-0.1m	S204 Depth 0.0-0.1m	S204 Depth 0.2-0.3m	S205 Depth 0.0-0.1m	S205 Depth 0.2-0.3m	S206 Depth 0.0-0.1m	S207 Depth 0.0-0.1m	S208 Depth 0.0-0.1m	S209 Depth 0.0-0.1m
Heavy metals													
Arsenic	20	12.58	32	6	6	13	11	12	9	350	1,720	-	-
Cadmium	3	0.28	0.34	0.11	0.38	0.47	0.53	1	0.43	0.84	0.75	-	-
Chromium	>10,000	22.7	16	17	15	19	18	16	15	270	650	-	-
Copper	>10,000	20.3	27	11	30	30	31	32	21	250	920	-	-
Lead	210	40.96	25	28	84	63	80	41	48	31	54	-	-
Nickel	6000 [3]	20.7	10	11	9	8	8	11	9	12	10	-	-
Zinc	7400 [3]	93.9	167	88	290	460	550	2,500	1,040	490	870	-	-
Asbestos													
Concentration (%wt/wt)	0.001 [5]	-	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected

Highlighted, coloured cell indicates samples exceeds human health guideline, permitted activity criterion or background concentration

Notes:

mg/kg = milligrams per kilogram

A hyphen (-) indicates criteria are not available or sample not tested for this analyte

< LOR Indicates less than laboratory level of reporting.

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2. Environment Canterbury Report R07/1/2 (2007). Background Concentrations of Selected Trace Elements in Canterbury Soils. Level 2, Regional Recent, Gley

3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Class Residential A

4. ECan adopted background value for Total DDT.

APPENDIX D: LABORATORY RESULTS

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Private Bag 3205
Hamilton 3240 New Zealand

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www.hill-labs.co.nz

Certificate of Analysis

Client:	Rolleston Industrial Developments Limited	**Lab No:**	3720279 SPv1
Contact:	Mark Crooks	**Date Received:**	20-Nov-2024
	C/- Tetra Tech Coffey (NZ) Limited	**Date Reported:**	29-Nov-2024
	PO Box 8261	**Quote No:**	86992
	Symonds Street	**Order No:**	773-CHCGE288040
	Auckland 1050	**Client Reference:**	535 Mill Road, Ohoka
		Submitted By:	Nathan Cash

Sample Type: Soil

Sample Name:		S101 0-0.2 13-Nov-2024	S102 0-0.2 13-Nov-2024	S103 0-0.2 13-Nov-2024	S104 0-0.2 13-Nov-2024	S105 0-0.1 13-Nov-2024
Lab Number:		3720279.1	3720279.2	3720279.3	3720279.4	3720279.5
Individual Tests						
Dry Matter	g/100g as rcvd	82	74	79	62	71
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	6	8	4	< 4	5
Total Recoverable Cadmium	mg/kg dry wt	0.12	0.20	0.4	12.7	19.2
Total Recoverable Chromium	mg/kg dry wt	11	13	10	125	210
Total Recoverable Copper	mg/kg dry wt	12	32	40	16	12
Total Recoverable Lead	mg/kg dry wt	74	17.5	11.2	4.7	5.5
Total Recoverable Nickel	mg/kg dry wt	3	8	4	19	22
Total Recoverable Zinc	mg/kg dry wt	77	250	570	163	220
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
alpha-BHC	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
beta-BHC	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
delta-BHC	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
4,4'-DDE	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
4,4'-DDT	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.10	< 0.09
Dieldrin	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Endosulfan I	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Endosulfan II	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Endrin	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Endrin ketone	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Heptachlor	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014
Methoxychlor	mg/kg dry wt	< 0.012	< 0.014	< 0.013	< 0.016	< 0.014

Sample Type: Soil						
Sample Name:		S106 0-0.2 13-Nov-2024	S107 0-0.2 13-Nov-2024	S108 0-0.2 13-Nov-2024	S109 0-0.1 14-Nov-2024	S110 0-0.1 14-Nov-2024
Lab Number:		3720279.6	3720279.7	3720279.8	3720279.9	3720279.10
Individual Tests						
Dry Matter	g/100g as rcvd	59	55	66	90	83
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	9	8	< 2	8	19
Total Recoverable Cadmium	mg/kg dry wt	0.18	1.40	0.19	0.14	< 0.10
Total Recoverable Chromium	mg/kg dry wt	10	18	5	15	13
Total Recoverable Copper	mg/kg dry wt	25	22	52	15	45
Total Recoverable Lead	mg/kg dry wt	7.0	97	14.6	43	21
Total Recoverable Nickel	mg/kg dry wt	6	7	3	6	2
Total Recoverable Zinc	mg/kg dry wt	150	550	240	79	34
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
alpha-BHC	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
beta-BHC	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
delta-BHC	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
2,4'-DDD	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
4,4'-DDE	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
2,4'-DDT	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
4,4'-DDT	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Total DDT Isomers	mg/kg dry wt	< 0.10	< 0.11	< 0.09	-	< 0.07
Dieldrin	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Endosulfan I	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Endosulfan II	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Endrin	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Endrin ketone	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Heptachlor	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	0.020
Methoxychlor	mg/kg dry wt	< 0.017	< 0.019	< 0.015	-	< 0.012
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	-	-	< 0.3	-
1-Methylnaphthalene	mg/kg dry wt	-	-	-	< 0.011	-
2-Methylnaphthalene	mg/kg dry wt	-	-	-	< 0.011	-
Acenaphthylene	mg/kg dry wt	-	-	-	< 0.011	-
Acenaphthene	mg/kg dry wt	-	-	-	< 0.011	-
Anthracene	mg/kg dry wt	-	-	-	< 0.011	-
Benzo[a]anthracene	mg/kg dry wt	-	-	-	< 0.011	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	-	-	< 0.011	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	-	-	< 0.027	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	-	-	< 0.027	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	-	-	-	< 0.011	-
Benzo[e]pyrene	mg/kg dry wt	-	-	-	< 0.011	-
Benzo[g,h,i]perylene	mg/kg dry wt	-	-	-	< 0.011	-
Benzo[k]fluoranthene	mg/kg dry wt	-	-	-	< 0.011	-
Chrysene	mg/kg dry wt	-	-	-	< 0.011	-
Dibenzo[a,h]anthracene	mg/kg dry wt	-	-	-	< 0.011	-

Sample Type: Soil						
Sample Name:		S106 0-0.2 13-Nov-2024	S107 0-0.2 13-Nov-2024	S108 0-0.2 13-Nov-2024	S109 0-0.1 14-Nov-2024	S110 0-0.1 14-Nov-2024
Lab Number:		3720279.6	3720279.7	3720279.8	3720279.9	3720279.10
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Fluoranthene	mg/kg dry wt	-	-	-	< 0.011	-
Fluorene	mg/kg dry wt	-	-	-	< 0.011	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	-	-	< 0.011	-
Naphthalene	mg/kg dry wt	-	-	-	< 0.06	-
Perylene	mg/kg dry wt	-	-	-	< 0.011	-
Phenanthrene	mg/kg dry wt	-	-	-	< 0.011	-
Pyrene	mg/kg dry wt	-	-	-	< 0.011	-

Sample Name:		S111 0-0.1 14-Nov-2024	S112 0-0.1 14-Nov-2024	S113 0-0.1 14-Nov-2024	S114 0-0.1 14-Nov-2024	S115 0-0.1 14-Nov-2024
Lab Number:		3720279.11	3720279.12	3720279.13	3720279.14	3720279.15
Individual Tests						
Dry Matter	g/100g as rcvd	69	76	70	88	96
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	6	7	3	2	9
Total Recoverable Cadmium	mg/kg dry wt	0.75	0.38	0.16	< 0.10	1.38
Total Recoverable Chromium	mg/kg dry wt	14	13	13	11	26
Total Recoverable Copper	mg/kg dry wt	20	870	44	5	178
Total Recoverable Lead	mg/kg dry wt	1,170	9.3	22	16.0	64
Total Recoverable Nickel	mg/kg dry wt	4	5	8	9	12
Total Recoverable Zinc	mg/kg dry wt	530	3,600	1,580	49	1,190
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
alpha-BHC	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
beta-BHC	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
delta-BHC	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
cis-Chlordane	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
trans-Chlordane	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
2,4'-DDD	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
4,4'-DDD	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
2,4'-DDE	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
4,4'-DDE	mg/kg dry wt	0.053	< 0.013	< 0.015	-	-
2,4'-DDT	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
4,4'-DDT	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Total DDT Isomers	mg/kg dry wt	< 0.09	< 0.08	< 0.09	-	-
Dieldrin	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Endosulfan I	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Endosulfan II	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Endrin	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Endrin aldehyde	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Endrin ketone	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Heptachlor	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Methoxychlor	mg/kg dry wt	< 0.015	< 0.013	< 0.015	-	-
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	-	-	< 0.3	0.8
1-Methylnaphthalene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
2-Methylnaphthalene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Acenaphthylene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Acenaphthene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Anthracene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Benzo[a]anthracene	mg/kg dry wt	-	-	-	< 0.012	0.011

Sample Type: Soil						
Sample Name:		S111 0-0.1 14-Nov-2024	S112 0-0.1 14-Nov-2024	S113 0-0.1 14-Nov-2024	S114 0-0.1 14-Nov-2024	S115 0-0.1 14-Nov-2024
Lab Number:		3720279.11	3720279.12	3720279.13	3720279.14	3720279.15
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	-	-	< 0.012	0.012
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	-	-	< 0.028	< 0.025
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	-	-	< 0.028	< 0.025
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	-	-	-	< 0.012	0.030
Benzo[e]pyrene	mg/kg dry wt	-	-	-	< 0.012	0.024
Benzo[g,h,i]perylene	mg/kg dry wt	-	-	-	0.029	0.027
Benzo[k]fluoranthene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Chrysene	mg/kg dry wt	-	-	-	< 0.012	0.019
Dibenzo[a,h]anthracene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Fluoranthene	mg/kg dry wt	-	-	-	< 0.012	0.046
Fluorene	mg/kg dry wt	-	-	-	< 0.012	0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	-	-	< 0.012	0.016
Naphthalene	mg/kg dry wt	-	-	-	< 0.06	< 0.06
Perylene	mg/kg dry wt	-	-	-	< 0.012	< 0.011
Phenanthrene	mg/kg dry wt	-	-	-	< 0.012	0.056
Pyrene	mg/kg dry wt	-	-	-	0.014	0.54

Sample Name:		S116 0-0.2 14-Nov-2024	S118 0-0.1 14-Nov-2024	S119 0-0.1 14-Nov-2024	S120 0-0.1 14-Nov-2024	S121 0-0.1 14-Nov-2024
Lab Number:		3720279.16	3720279.18	3720279.19	3720279.20	3720279.21
Individual Tests						
Dry Matter	g/100g as rcvd	78	36	42	75	55
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	< 4	< 2	2	34
Total Recoverable Cadmium	mg/kg dry wt	0.20	1.7	0.30	0.24	0.50
Total Recoverable Chromium	mg/kg dry wt	11	10	4	11	47
Total Recoverable Copper	mg/kg dry wt	17	76	31	33	129
Total Recoverable Lead	mg/kg dry wt	11.6	40	7.6	52	19.9
Total Recoverable Nickel	mg/kg dry wt	6	4	4	6	59
Total Recoverable Zinc	mg/kg dry wt	270	3,200	290	290	610
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
alpha-BHC	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
beta-BHC	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
delta-BHC	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
gamma-BHC (Lindane)	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
cis-Chlordane	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
trans-Chlordane	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
2,4'-DDD	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
4,4'-DDD	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
2,4'-DDE	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
4,4'-DDE	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
2,4'-DDT	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
4,4'-DDT	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Total DDT Isomers	mg/kg dry wt	-	< 0.16	< 0.3	< 0.08	-
Dieldrin	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Endosulfan I	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Endosulfan II	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Endosulfan sulphate	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Endrin	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Endrin aldehyde	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Endrin ketone	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Heptachlor	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-

Sample Type: Soil						
Sample Name:		S116 0-0.2 14-Nov-2024	S118 0-0.1 14-Nov-2024	S119 0-0.1 14-Nov-2024	S120 0-0.1 14-Nov-2024	S121 0-0.1 14-Nov-2024
Lab Number:		3720279.16	3720279.18	3720279.19	3720279.20	3720279.21
Organochlorine Pesticides Screening in Soil						
Heptachlor epoxide	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Hexachlorobenzene	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Methoxychlor	mg/kg dry wt	-	< 0.03	< 0.05	< 0.013	-
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	-	-	-	< 0.5
1-Methylnaphthalene	mg/kg dry wt	0.029	-	-	-	< 0.018
2-Methylnaphthalene	mg/kg dry wt	0.021	-	-	-	< 0.018
Acenaphthylene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Acenaphthene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Anthracene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Benzo[a]anthracene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.031	-	-	-	< 0.042
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.031	-	-	-	< 0.042
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	< 0.013	-	-	-	0.017
Benzo[e]pyrene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Benzo[k]fluoranthene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Chrysene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Fluoranthene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Fluorene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Naphthalene	mg/kg dry wt	0.09	-	-	-	< 0.09
Perylene	mg/kg dry wt	< 0.013	-	-	-	< 0.018
Phenanthrene	mg/kg dry wt	0.028	-	-	-	0.024
Pyrene	mg/kg dry wt	< 0.013	-	-	-	0.020

Sample Name:		S122 0-0.2 14-Nov-2024	S123 0-0.1 14-Nov-2024	S124 0-0.1 14-Nov-2024	S125 0-0.2 14-Nov-2024	S126 0-0.2 14-Nov-2024
Lab Number:		3720279.22	3720279.23	3720279.24	3720279.25	3720279.26
Individual Tests						
Dry Matter	g/100g as rcvd	85	65	53	-	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	2	6	7	4	6
Total Recoverable Cadmium	mg/kg dry wt	0.11	0.23	0.6	0.15	< 0.10
Total Recoverable Chromium	mg/kg dry wt	8	14	13	11	9
Total Recoverable Copper	mg/kg dry wt	12	31	26	12	11
Total Recoverable Lead	mg/kg dry wt	17.4	29	63	60	125
Total Recoverable Nickel	mg/kg dry wt	4	6	6	5	4
Total Recoverable Zinc	mg/kg dry wt	94	310	370	130	90
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
alpha-BHC	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
beta-BHC	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
delta-BHC	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
cis-Chlordane	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
trans-Chlordane	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
2,4'-DDD	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
4,4'-DDD	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
2,4'-DDE	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
4,4'-DDE	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-

Sample Type: Soil						
Sample Name:		S122 0-0.2 14-Nov-2024	S123 0-0.1 14-Nov-2024	S124 0-0.1 14-Nov-2024	S125 0-0.2 14-Nov-2024	S126 0-0.2 14-Nov-2024
Lab Number:		3720279.22	3720279.23	3720279.24	3720279.25	3720279.26
Organochlorine Pesticides Screening in Soil						
2,4'-DDT	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
4,4'-DDT	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Total DDT Isomers	mg/kg dry wt	< 0.07	< 0.09	< 0.3	-	-
Dieldrin	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Endosulfan I	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Endosulfan II	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Endosulfan sulphate	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Endrin	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Endrin aldehyde	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Endrin ketone	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Heptachlor	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Heptachlor epoxide	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Hexachlorobenzene	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-
Methoxychlor	mg/kg dry wt	< 0.012	< 0.015	< 0.04	-	-

Sample Name:		S127 0-0.2 14-Nov-2024	S128 0-0.2 14-Nov-2024	TP-101 0-0.1 12-Nov-2024	TP-102 0.1-0.2 12-Nov-2024	TP-103 0-0.1 12-Nov-2024
Lab Number:		3720279.27	3720279.28	3720279.29	3720279.31	3720279.34
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	83	80	71
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	15	2	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.21	0.36	0.29	0.34
Total Recoverable Chromium	mg/kg dry wt	13	18	10	12	12
Total Recoverable Copper	mg/kg dry wt	14	22	15	15	18
Total Recoverable Lead	mg/kg dry wt	40	86	36	104	178
Total Recoverable Nickel	mg/kg dry wt	6	8	7	13	9
Total Recoverable Zinc	mg/kg dry wt	90	220	78	83	100
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	-	0.6	3.2	0.7
1-Methylnaphthalene	mg/kg dry wt	-	-	0.024	0.075	0.038
2-Methylnaphthalene	mg/kg dry wt	-	-	0.025	0.066	0.036
Acenaphthylene	mg/kg dry wt	-	-	< 0.012	0.055	< 0.014
Acenaphthene	mg/kg dry wt	-	-	< 0.012	< 0.013	< 0.014
Anthracene	mg/kg dry wt	-	-	< 0.012	0.034	< 0.014
Benzo[a]anthracene	mg/kg dry wt	-	-	0.041	0.133	0.036
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	-	0.060	0.22	0.048
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	-	0.087	0.33	0.074
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	-	0.086	0.32	0.073
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	-	-	0.071	0.27	0.063
Benzo[e]pyrene	mg/kg dry wt	-	-	0.037	0.162	0.031
Benzo[g,h,i]perylene	mg/kg dry wt	-	-	0.037	0.163	0.033
Benzo[k]fluoranthene	mg/kg dry wt	-	-	0.025	0.103	0.022
Chrysene	mg/kg dry wt	-	-	0.041	0.22	0.042
Dibenzo[a,h]anthracene	mg/kg dry wt	-	-	< 0.012	0.034	< 0.014
Fluoranthene	mg/kg dry wt	-	-	0.070	0.49	0.089
Fluorene	mg/kg dry wt	-	-	< 0.012	< 0.013	< 0.014
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	-	0.038	0.158	0.032
Naphthalene	mg/kg dry wt	-	-	< 0.06	0.07	< 0.07
Perylene	mg/kg dry wt	-	-	< 0.012	0.031	< 0.014
Phenanthrene	mg/kg dry wt	-	-	0.036	0.39	0.075
Pyrene	mg/kg dry wt	-	-	0.080	0.52	0.091

Sample Type: Soil						
	Sample Name:	TP-104 0-0.1 12-Nov-2024	TP-105 0-0.1 12-Nov-2024	TP-109 0-0.1 12-Nov-2024	TP-109 0.6-0.7 12-Nov-2024	TP-110 0-0.1 12-Nov-2024
	Lab Number:	3720279.36	3720279.38	3720279.43	3720279.44	3720279.45
Individual Tests						
Dry Matter	g/100g as rcvd	72	81	76	56	86
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	2	2	< 2	2
Total Recoverable Cadmium	mg/kg dry wt	0.13	0.36	0.19	0.15	0.11
Total Recoverable Chromium	mg/kg dry wt	8	11	11	7	12
Total Recoverable Copper	mg/kg dry wt	8	15	41	24	11
Total Recoverable Lead	mg/kg dry wt	31	240	11.3	9.6	14.6
Total Recoverable Nickel	mg/kg dry wt	4	9	6	3	5
Total Recoverable Zinc	mg/kg dry wt	48	118	97	72	51
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
alpha-BHC	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
beta-BHC	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
delta-BHC	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
cis-Chlordane	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
trans-Chlordane	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
2,4'-DDD	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
4,4'-DDD	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
2,4'-DDE	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
4,4'-DDE	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
2,4'-DDT	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
4,4'-DDT	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Total DDT Isomers	mg/kg dry wt	-	-	< 0.08	< 0.11	< 0.07
Dieldrin	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Endosulfan I	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Endosulfan II	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Endrin	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Endrin aldehyde	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Endrin ketone	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Heptachlor	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Methoxychlor	mg/kg dry wt	-	-	< 0.013	< 0.018	< 0.012
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	1.2	< 0.4	< 0.5	< 0.3
1-Methylnaphthalene	mg/kg dry wt	< 0.014	0.065	< 0.013	< 0.018	< 0.012
2-Methylnaphthalene	mg/kg dry wt	< 0.014	0.069	< 0.013	< 0.018	< 0.012
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012
Acenaphthene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012
Anthracene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012
Benzo[a]anthracene	mg/kg dry wt	< 0.014	0.035	< 0.013	< 0.018	< 0.012
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.015	0.069	< 0.013	< 0.018	< 0.012
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.033	0.100	< 0.032	< 0.042	< 0.027
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.032	0.099	< 0.032	< 0.042	< 0.027
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.023	0.093	< 0.013	< 0.018	< 0.012
Benzo[e]pyrene	mg/kg dry wt	< 0.014	0.050	< 0.013	< 0.018	< 0.012
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	0.044	< 0.013	< 0.018	< 0.012
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	0.029	< 0.013	< 0.018	< 0.012
Chrysene	mg/kg dry wt	< 0.014	0.065 #1	< 0.013	< 0.018	< 0.012
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012

Sample Type: Soil						
Sample Name:		TP-104 0-0.1 12-Nov-2024	TP-105 0-0.1 12-Nov-2024	TP-109 0-0.1 12-Nov-2024	TP-109 0.6-0.7 12-Nov-2024	TP-110 0-0.1 12-Nov-2024
Lab Number:		3720279.36	3720279.38	3720279.43	3720279.44	3720279.45
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Fluoranthene	mg/kg dry wt	0.028	0.155	< 0.013	< 0.018	< 0.012
Fluorene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	0.046	< 0.013	< 0.018	< 0.012
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.07	< 0.09	< 0.06
Perylene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.018	< 0.012
Phenanthrene	mg/kg dry wt	< 0.014	0.173	< 0.013	< 0.018	< 0.012
Pyrene	mg/kg dry wt	0.026	0.175	< 0.013	< 0.018	< 0.012

Sample Name:		TP-111 0-0.1 12-Nov-2024	TP-112 0-0.1 12-Nov-2024	TP-113 0-0.1 12-Nov-2024	TP-113 0.7-0.8 12-Nov-2024	TP-115 0-0.1 12-Nov-2024
Lab Number:		3720279.46	3720279.47	3720279.48	3720279.49	3720279.51
Individual Tests						
Dry Matter	g/100g as rcvd	79	57	57	32	67
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	5	2	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.14	0.30	0.18	0.26	0.13
Total Recoverable Chromium	mg/kg dry wt	9	5	7	6	6
Total Recoverable Copper	mg/kg dry wt	17	17	39	900	23
Total Recoverable Lead	mg/kg dry wt	10.0	6.1	9.2	12.2	10.5
Total Recoverable Nickel	mg/kg dry wt	4	2	4	5	4
Total Recoverable Zinc	mg/kg dry wt	52	63	170	250	96
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
alpha-BHC	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
beta-BHC	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
delta-BHC	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
cis-Chlordane	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
trans-Chlordane	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
2,4'-DDD	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
4,4'-DDD	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
2,4'-DDE	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
4,4'-DDE	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
2,4'-DDT	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
4,4'-DDT	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Total DDT Isomers	mg/kg dry wt	< 0.08	-	< 0.11	-	< 0.09
Dieldrin	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Endosulfan I	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Endosulfan II	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Endosulfan sulphate	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Endrin	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Endrin aldehyde	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Endrin ketone	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Heptachlor	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Heptachlor epoxide	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Hexachlorobenzene	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Methoxychlor	mg/kg dry wt	< 0.013	-	< 0.018	-	< 0.015
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	< 0.5	< 0.5	< 0.8	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Acenaphthene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Anthracene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015

Sample Type: Soil						
Sample Name:		TP-111 0-0.1 12-Nov-2024	TP-112 0-0.1 12-Nov-2024	TP-113 0-0.1 12-Nov-2024	TP-113 0.7-0.8 12-Nov-2024	TP-115 0-0.1 12-Nov-2024
Lab Number:		3720279.46	3720279.47	3720279.48	3720279.49	3720279.51
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.031	< 0.041	< 0.043	< 0.075	< 0.035
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.030	< 0.041	< 0.043	< 0.074	< 0.035
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Benzo[e]pyrene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Chrysene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Fluoranthene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Fluorene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Naphthalene	mg/kg dry wt	< 0.07	< 0.09	< 0.09	< 0.16	< 0.08
Perylene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Phenanthrene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015
Pyrene	mg/kg dry wt	< 0.013	< 0.017	< 0.018	< 0.04	< 0.015

Sample Name:		TP-115 0.4-0.5 12-Nov-2024	TP-116 0.1 12-Nov-2024	TP-116 0.2-0.3 12-Nov-2024	TP-117 0-0.1 12-Nov-2024	TP-117 0.1-0.4 12-Nov-2024
Lab Number:		3720279.52	3720279.53	3720279.54	3720279.55	3720279.56
Individual Tests						
Dry Matter	g/100g as rcvd	65	66	82	48	43
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	< 2	4	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.11	< 0.10	0.21	0.25
Total Recoverable Chromium	mg/kg dry wt	6	6	4	9	9
Total Recoverable Copper	mg/kg dry wt	8	23	< 2	41	92
Total Recoverable Lead	mg/kg dry wt	9.2	9.3	6.6	22	17.5
Total Recoverable Nickel	mg/kg dry wt	4	3	< 2	5	7
Total Recoverable Zinc	mg/kg dry wt	33	51	14	180	82
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	< 0.015	-	< 0.03	-
alpha-BHC	mg/kg dry wt	-	< 0.015	-	< 0.03	-
beta-BHC	mg/kg dry wt	-	< 0.015	-	< 0.03	-
delta-BHC	mg/kg dry wt	-	< 0.015	-	< 0.03	-
gamma-BHC (Lindane)	mg/kg dry wt	-	< 0.015	-	< 0.03	-
cis-Chlordane	mg/kg dry wt	-	< 0.015	-	< 0.03	-
trans-Chlordane	mg/kg dry wt	-	< 0.015	-	< 0.03	-
2,4'-DDD	mg/kg dry wt	-	< 0.015	-	< 0.03	-
4,4'-DDD	mg/kg dry wt	-	< 0.015	-	< 0.03	-
2,4'-DDE	mg/kg dry wt	-	< 0.015	-	< 0.03	-
4,4'-DDE	mg/kg dry wt	-	< 0.015	-	< 0.03	-
2,4'-DDT	mg/kg dry wt	-	< 0.015	-	< 0.03	-
4,4'-DDT	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Total DDT Isomers	mg/kg dry wt	-	< 0.09	-	< 0.13	-
Dieldrin	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Endosulfan I	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Endosulfan II	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Endosulfan sulphate	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Endrin	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Endrin aldehyde	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Endrin ketone	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Heptachlor	mg/kg dry wt	-	< 0.015	-	< 0.03	-

Sample Type: Soil						
Sample Name:		TP-115 0.4-0.5 12-Nov-2024	TP-116 0.1 12-Nov-2024	TP-116 0.2-0.3 12-Nov-2024	TP-117 0-0.1 12-Nov-2024	TP-117 0.1-0.4 12-Nov-2024
Lab Number:		3720279.52	3720279.53	3720279.54	3720279.55	3720279.56
Organochlorine Pesticides Screening in Soil						
Heptachlor epoxide	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Hexachlorobenzene	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Methoxychlor	mg/kg dry wt	-	< 0.015	-	< 0.03	-
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.3	< 0.5	< 0.6
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
2-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Acenaphthylene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Acenaphthene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Anthracene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[a]anthracene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.036	< 0.036	< 0.029	< 0.049	< 0.054
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.036	< 0.036	< 0.029	< 0.049	< 0.054
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[e]pyrene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Benzo[k]fluoranthene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Chrysene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Fluoranthene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Fluorene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	< 0.06	< 0.11	< 0.12
Perylene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Phenanthrene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03
Pyrene	mg/kg dry wt	< 0.015	< 0.015	< 0.012	< 0.03	< 0.03

Sample Name:		TP-112 0.2-0.3 12-Nov-2024	F-101 14-Nov-2024	F-102 14-Nov-2024	F-103 14-Nov-2024	F-104 14-Nov-2024
Lab Number:		3720279.57	3720279.58	3720279.59	3720279.60	3720279.61
Individual Tests						
Dry Matter	g/100g as rcvd	83	81	82	77	80
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	3	5	3	4
Total Recoverable Cadmium	mg/kg dry wt	0.12	0.23	0.21	0.19	0.24
Total Recoverable Chromium	mg/kg dry wt	6	16	18	14	18
Total Recoverable Copper	mg/kg dry wt	4	11	13	7	11
Total Recoverable Lead	mg/kg dry wt	8.3	15.4	17.4	12.5	17.6
Total Recoverable Nickel	mg/kg dry wt	2	11	13	8	13
Total Recoverable Zinc	mg/kg dry wt	18	85	88	65	95
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
alpha-BHC	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
beta-BHC	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
delta-BHC	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
cis-Chlordane	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
trans-Chlordane	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
2,4'-DDD	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
4,4'-DDD	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
2,4'-DDE	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
4,4'-DDE	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012

Sample Type: Soil						
Sample Name:		TP-112 0.2-0.3 12-Nov-2024	F-101 14-Nov-2024	F-102 14-Nov-2024	F-103 14-Nov-2024	F-104 14-Nov-2024
Lab Number:		3720279.57	3720279.58	3720279.59	3720279.60	3720279.61
Organochlorine Pesticides Screening in Soil						
2,4'-DDT	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
4,4'-DDT	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Total DDT Isomers	mg/kg dry wt	-	< 0.08	< 0.08	< 0.08	< 0.08
Dieldrin	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Endosulfan I	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Endosulfan II	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Endosulfan sulphate	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Endrin	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Endrin aldehyde	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Endrin ketone	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Heptachlor	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Heptachlor epoxide	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Hexachlorobenzene	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Methoxychlor	mg/kg dry wt	-	< 0.013	< 0.013	< 0.013	< 0.012
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	-	-	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.012	-	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.012	-	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.012	-	-	-	-
Acenaphthene	mg/kg dry wt	< 0.012	-	-	-	-
Anthracene	mg/kg dry wt	< 0.012	-	-	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.012	-	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.012	-	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.029	-	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.029	-	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.012	-	-	-	-
Benzo[e]pyrene	mg/kg dry wt	< 0.012	-	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	-	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	-	-	-	-
Chrysene	mg/kg dry wt	< 0.012	-	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	-	-	-	-
Fluoranthene	mg/kg dry wt	< 0.012	-	-	-	-
Fluorene	mg/kg dry wt	< 0.012	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.012	-	-	-	-
Naphthalene	mg/kg dry wt	< 0.06	-	-	-	-
Perylene	mg/kg dry wt	< 0.012	-	-	-	-
Phenanthrene	mg/kg dry wt	< 0.012	-	-	-	-
Pyrene	mg/kg dry wt	< 0.012	-	-	-	-

Sample Name:		F-105 14-Nov-2024	F-106 14-Nov-2024	F-107 14-Nov-2024	F-108 14-Nov-2024	F-109 14-Nov-2024
Lab Number:		3720279.62	3720279.63	3720279.64	3720279.65	3720279.66
Individual Tests						
Dry Matter	g/100g as rcvd	69	75	66	84	76
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	< 2	2	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.17	0.19	0.24	0.23	0.23
Total Recoverable Chromium	mg/kg dry wt	13	6	6	13	8
Total Recoverable Copper	mg/kg dry wt	9	5	5	11	5
Total Recoverable Lead	mg/kg dry wt	12.6	7.1	6.5	13.1	8.3
Total Recoverable Nickel	mg/kg dry wt	8	3	3	10	3
Total Recoverable Zinc	mg/kg dry wt	72	30	25	84	31

Sample Type: Soil						
Sample Name:		F-105 14-Nov-2024	F-106 14-Nov-2024	F-107 14-Nov-2024	F-108 14-Nov-2024	F-109 14-Nov-2024
Lab Number:		3720279.62	3720279.63	3720279.64	3720279.65	3720279.66
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
alpha-BHC	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
beta-BHC	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
delta-BHC	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
gamma-BHC (Lindane)	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
cis-Chlordane	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
trans-Chlordane	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
2,4'-DDD	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
4,4'-DDD	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
2,4'-DDE	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
4,4'-DDE	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	0.036
2,4'-DDT	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
4,4'-DDT	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Total DDT Isomers	mg/kg dry wt	< 0.09	< 0.08	< 0.09	< 0.08	< 0.08
Dieldrin	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Endosulfan I	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Endosulfan II	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Endosulfan sulphate	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Endrin	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Endrin aldehyde	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Endrin ketone	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Heptachlor	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Heptachlor epoxide	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Hexachlorobenzene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013
Methoxychlor	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.012	< 0.013

Sample Name:		F-110 14-Nov-2024	F-111 14-Nov-2024	F-112 14-Nov-2024	F-113 14-Nov-2024	F-114 14-Nov-2024
Lab Number:		3720279.67	3720279.68	3720279.69	3720279.70	3720279.71
Individual Tests						
Dry Matter	g/100g as rcvd	75	80	77	72	84
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	2	< 2	< 2	< 2	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.20	0.24	0.23	0.15	0.11
Total Recoverable Chromium	mg/kg dry wt	13	9	10	7	7
Total Recoverable Copper	mg/kg dry wt	7	8	7	38	13
Total Recoverable Lead	mg/kg dry wt	13.0	8.1	9.8	9.0	8.5
Total Recoverable Nickel	mg/kg dry wt	7	4	5	4	4
Total Recoverable Zinc	mg/kg dry wt	65	41	41	54	67
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
alpha-BHC	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
beta-BHC	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
delta-BHC	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
2,4'-DDD	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
4,4'-DDE	mg/kg dry wt	0.016	< 0.013	< 0.013	< 0.014	< 0.012
2,4'-DDT	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
4,4'-DDT	mg/kg dry wt	< 0.014	< 0.013	0.014	< 0.014	< 0.012
Total DDT Isomers	mg/kg dry wt	< 0.09	< 0.08	< 0.08	< 0.08	< 0.07
Dieldrin	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Endosulfan I	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012

Sample Type: Soil						
Sample Name:		F-110 14-Nov-2024	F-111 14-Nov-2024	F-112 14-Nov-2024	F-113 14-Nov-2024	F-114 14-Nov-2024
Lab Number:		3720279.67	3720279.68	3720279.69	3720279.70	3720279.71
Organochlorine Pesticides Screening in Soil						
Endosulfan II	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Endrin	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Endrin ketone	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Heptachlor	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012
Methoxychlor	mg/kg dry wt	< 0.014	< 0.013	< 0.013	< 0.014	< 0.012

Sample Name:		F-115 14-Nov-2024	F-116 14-Nov-2024	F-117 14-Nov-2024	F-118 14-Nov-2024	F-119 14-Nov-2024
Lab Number:		3720279.72	3720279.73	3720279.74	3720279.75	3720279.76
Individual Tests						
Dry Matter	g/100g as rcvd	81	64	82	84	78
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	< 2	< 2	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.21	0.22	0.17	0.23	0.18
Total Recoverable Chromium	mg/kg dry wt	5	5	4	8	6
Total Recoverable Copper	mg/kg dry wt	8	8	4	7	10
Total Recoverable Lead	mg/kg dry wt	10.3	6.5	5.4	7.0	8.1
Total Recoverable Nickel	mg/kg dry wt	3	2	< 2	3	3
Total Recoverable Zinc	mg/kg dry wt	33	27	14	29	33
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
alpha-BHC	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
beta-BHC	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
delta-BHC	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
4,4'-DDT	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.09	< 0.08	< 0.07	< 0.08
Dieldrin	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Endosulfan I	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Endosulfan II	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Endrin	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Endrin ketone	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Heptachlor	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013
Methoxychlor	mg/kg dry wt	< 0.013	< 0.015	< 0.012	< 0.012	< 0.013

Sample Name:		F-120 14-Nov-2024	F-121 14-Nov-2024	F-122 14-Nov-2024	F-123 14-Nov-2024	F-124 14-Nov-2024
Lab Number:		3720279.77	3720279.78	3720279.79	3720279.80	3720279.81
Individual Tests						
Dry Matter	g/100g as rcvd	77	76	82	79	83

Sample Type: Soil						
Sample Name:		F-120 14-Nov-2024	F-121 14-Nov-2024	F-122 14-Nov-2024	F-123 14-Nov-2024	F-124 14-Nov-2024
Lab Number:		3720279.77	3720279.78	3720279.79	3720279.80	3720279.81
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	< 2	< 2	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.35	0.28	0.17	0.29	0.18
Total Recoverable Chromium	mg/kg dry wt	8	5	5	7	6
Total Recoverable Copper	mg/kg dry wt	8	7	4	8	6
Total Recoverable Lead	mg/kg dry wt	10.0	7.0	6.4	10.2	11.9
Total Recoverable Nickel	mg/kg dry wt	4	< 2	2	2	2
Total Recoverable Zinc	mg/kg dry wt	30	26	12	27	20
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
alpha-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
beta-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
delta-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
4,4'-DDE	mg/kg dry wt	0.016	0.013	< 0.012	< 0.013	0.013
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
4,4'-DDT	mg/kg dry wt	0.014	< 0.013	< 0.012	< 0.013	0.013
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Dieldrin	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Endosulfan I	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Endosulfan II	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Endrin	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Endrin ketone	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Heptachlor	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012
Methoxychlor	mg/kg dry wt	< 0.013	< 0.013	< 0.012	< 0.013	< 0.012

Analyst's Comments

It has been noted that the spike for OCP on sample 3720279.48, was run as part of our in-house QC procedure, had a lower than expected recovery for Endrin aldehyde at 28%. Therefore the results maybe underestimated.

#1 Chrysene is higher than expected when compared to Benzo[a]anthracene. It is possible that Benzo(l)phenanthrene is present which co-elutes with Chrysene.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-16, 18-29, 31, 34, 36, 38, 43-49, 51-81
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	9, 14-16, 21, 29, 31, 34, 36, 38, 43-49, 51-57

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-16, 18-29, 31, 34, 36, 38, 43-49, 51-81
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	1-8, 10-13, 18-20, 22-24, 43-46, 48, 51, 53, 55, 58-81
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	9, 14-16, 21, 29, 31, 34, 36, 38, 43-49, 51-57
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1-16, 18-24, 29, 31, 34, 36, 38, 43-49, 51-81
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	9, 14-16, 21, 29, 31, 34, 36, 38, 43-49, 51-57
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	9, 14-16, 21, 29, 31, 34, 36, 38, 43-49, 51-57

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 21-Nov-2024 and 26-Nov-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Ara Heron BSc (Tech)
Client Services Manager - Environmental

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Certificate of Analysis

Client:	Rolleston Industrial Developments Limited	**Lab No:**	3720280	A2Pv1
Contact:	Mark Crooks	**Date Received:**	20-Nov-2024	
	C/- Tetra Tech Coffey (NZ) Limited	**Date Reported:**	22-Nov-2024	
	PO Box 8261	**Quote No:**	86992	
	Symonds Street	**Order No:**	773-CHCGE288040	
	Auckland 1050	**Client Reference:**	535 Mill Road, Ohoka	
		Submitted By:	Nathan Cash	

Sample Type: Soil

Sample Name	Lab Number	As Received Weight Presence / Absence Testing (g)	Dry Weight Presence / Absence Testing (g)	<2mm Subsample Weight Presence / Absence Testing (g dry wt)	Asbestos Presence / Absence from Presence / Absence Testing	Description of Asbestos Form Presence / Absence Testing
TP-113 0.7-0.8	3720280.5	251.5	78.5	13.2	Asbestos NOT detected.	-
TP-115 0.4-0.5	3720280.6	295.3	198.5	52.4	Asbestos NOT detected.	-
TP-116 0.2-0.3	3720280.7	457.9	391.5	52.5	Asbestos NOT detected.	-
TP-117 0.1-0.4	3720280.8	259.8	117.5	59.0	Asbestos NOT detected.	-

Sample Type: Soil

		Sample Name:	S125 0-0.2 14-Nov-2024	S126 0-0.2 14-Nov-2024	S127 0-0.2 14-Nov-2024	S128 0-0.2 14-Nov-2024
		Lab Number:	3720280.1	3720280.2	3720280.3	3720280.4
Asbestos Presence / Absence			Asbestos NOT detected.	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form			-	ACM debris	-	-
Asbestos in ACM as % of Total Sample*	% w/w		< 0.001	< 0.001	< 0.001	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w		< 0.001	< 0.001	< 0.001	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w		< 0.001	< 0.001	< 0.001	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w		< 0.001	< 0.001	< 0.001	< 0.001
As Received Weight	g		943.0	987.3	822.6	745.2
Dry Weight	g		723.5	766.0	621.8	664.4
Moisture*	%		23	22	24	11
Sample Fraction >10mm	g dry wt		10.6	59.2	4.1	56.3
Sample Fraction <10mm to >2mm	g dry wt		54.4	223.3	79.8	263.8
Sample Fraction <2mm	g dry wt		656.8	480.9	535.3	343.2
<2mm Subsample Weight	g dry wt		56.2	53.4	51.8	56.4
Weight of Asbestos in ACM (Non-Friable)	g dry wt		< 0.00001	< 0.00001	< 0.00001	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt		< 0.00001	< 0.00001	< 0.00001	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt		< 0.00001	0.00666	< 0.00001	< 0.00001

Glossary of Terms
• Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
• Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
• ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
• ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
• Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
• Trace - Trace levels of asbestos, as defined by AS4964-2004.
For further details, please contact the Asbestos Team.

Please refer to the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
https://www.branz.co.nz/asbestos

The following assumptions have been made:

1. Asbestos Fines in the <2mm fraction, after homogenisation, is evenly distributed throughout the fraction
2. The weight of asbestos in the sample is unaffected by the ashing process.

Results are representative of the sample provided to Hill Laboratories only.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Asbestos in Soil			
As Received Weight Presence / Absence Testing	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	5-8
Dry Weight Presence / Absence Testing	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	5-8
<2mm Subsample Weight Presence / Absence Testing	Sample dried at 100 to 105°C, weight of <2mm sample fraction taken for asbestos identification if less than entire fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	-	5-8
Asbestos Presence / Absence from Presence / Absence Testing	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	5-8
Description of Asbestos Form Presence / Absence Testing	Description of asbestos form and/or shape if present.	-	5-8
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-4
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-4
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-4
Sample Fraction >10mm	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-4
Sample Fraction <10mm to >2mm	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-4
Sample Fraction <2mm	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-4
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1-4
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-4

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-4
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-4
Weight of Asbestos as Fibrous Asbestos (Friable)	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-4
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-4
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-4
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-4
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-4

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 22-Nov-2024. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Dexter Paguirigan Dip Chem Engineering Tech
Laboratory Technician - Asbestos

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand

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+64 7 858 2000
mail@hill-labs.co.nz
www.hill-labs.co.nz

Certificate of Analysis

Client:	Tetra Tech Coffey (NZ) Limited	**Lab No:**	3861168 SPv1
Contact:	Nathan Cash	**Date Received:**	16-Apr-2025
	C/- Tetra Tech Coffey (NZ) Limited	**Date Reported:**	23-Apr-2025
	PO Box 1872	**Quote No:**	86992
	Christchurch 8140	**Order No:**	773-CHCGE288040
		Client Reference:	Ohoka Additional Mill Rd Sampling
		Submitted By:	Nathan Cash

Sample Type: Soil

		Sample Name:	S201 0.0-0.1 16-Apr-2025	S202 0.0-0.1 16-Apr-2025	S203 0.0-0.1 16-Apr-2025	S204 0.0-0.1 16-Apr-2025	S204 0.2-0.3 16-Apr-2025
		Lab Number:	3861168.1	3861168.2	3861168.3	3861168.4	3861168.5
Heavy Metals, Screen Level							
Total Recoverable Arsenic	mg/kg dry wt		32	6	6	13	11
Total Recoverable Cadmium	mg/kg dry wt		0.34	0.11	0.38	0.47	0.53
Total Recoverable Chromium	mg/kg dry wt		16	17	15	19	18
Total Recoverable Copper	mg/kg dry wt		27	11	30	30	31
Total Recoverable Lead	mg/kg dry wt		25	28	84	63	80
Total Recoverable Nickel	mg/kg dry wt		10	11	9	8	8
Total Recoverable Zinc	mg/kg dry wt		167	88	290	460	550

		Sample Name:	S205 0.0-0.1 16-Apr-2025	S205 0.2-0.3 16-Apr-2025	S206 0.0-0.1 16-Apr-2025	S207 0.0-0.1 16-Apr-2025
		Lab Number:	3861168.6	3861168.7	3861168.8	3861168.9
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt		12	9	350	1,720
Total Recoverable Cadmium	mg/kg dry wt		1.00	0.43	0.84	0.75
Total Recoverable Chromium	mg/kg dry wt		16	15	270	650
Total Recoverable Copper	mg/kg dry wt		32	21	250	920
Total Recoverable Lead	mg/kg dry wt		41	48	31	54
Total Recoverable Nickel	mg/kg dry wt		11	9	12	10
Total Recoverable Zinc	mg/kg dry wt		2,500	1,040	490	870

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-9
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-9

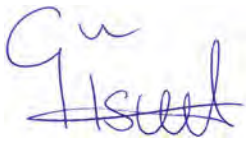
This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 17-Apr-2025 and 23-Apr-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Yu-Hsuan (Coco) Hsueh BSc (Tech)
Client Services Manager - Environmental

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Middleton
Christchurch 8024 New Zealand

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

Certificate of Analysis

Client:	Tetra Tech Coffey (NZ) Limited	**Lab No:**	3861167 A2Pv1
Contact:	Nathan Cash	**Date Received:**	16-Apr-2025
	C/- Tetra Tech Coffey (NZ) Limited	**Date Reported:**	22-Apr-2025
	PO Box 1872	**Quote No:**	86992
	Christchurch 8140	**Order No:**	773-CHCGE288040
		Client Reference:	Ohoka Additional Mill Rd Sampling
		Submitted By:	Nathan Cash

Sample Type: Soil

Sample Name:		S208 0.0-0.1 16-Apr-2025	S209 0.0-0.1 16-Apr-2025
Lab Number:		3861167.1	3861167.2
Asbestos Presence / Absence		Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form		-	-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w	< 0.001	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001	< 0.001
As Received Weight	g	443.3	487.1
Dry Weight	g	339.5	389.3
Moisture*	%	23	20
Sample Fraction >10mm	g dry wt	< 0.1	8.3
Sample Fraction <10mm to >2mm	g dry wt	9.1	35.3
Sample Fraction <2mm	g dry wt	329.5	344.8
<2mm Subsample Weight	g dry wt	55.2	51.6
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt	< 0.00001	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	< 0.00001

Glossary of Terms

- Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
- Trace - Trace levels of asbestos, as defined by AS4964-2004.

For further details, please contact the Asbestos Team.

Please refer to the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
https://www.branz.co.nz/asbestos

The following assumptions have been made:

1. Asbestos Fines in the <2mm fraction, after homogenisation, is evenly distributed throughout the fraction
2. The weight of asbestos in the sample is unaffected by the ashing process.

Results are representative of the sample provided to Hill Laboratories only.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-2
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-2
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-2
Sample Fraction >10mm	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-2
Sample Fraction <10mm to >2mm	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-2
Sample Fraction <2mm	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-2
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1-2
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-2
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-2
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2
Weight of Asbestos as Fibrous Asbestos (Friable)	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-2
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-2
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 22-Apr-2025. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Jessica Griffin BSc, BOHS W504
Team Leader - Asbestos

APPENDIX E: LLUR

Environment Canterbury
Regional Council
Kaunihera Taiao ki Waitaha

Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345
Christchurch 8140

P. 03 365 3828
F. 03 365 3194
E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Sir/Madam

Thank you for submitting your property enquiry from our Listed Land Use Register (LLUR). The LLUR holds information about sites that have been used or are currently used for activities which have the potential to cause contamination.

The LLUR statement shows the land parcel(s) you enquired about and provides information regarding any potential LLUR sites within a specified radius.

Please note that if a property is not currently registered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR database is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; additional relevant information may be held in other files (for example consent and enforcement files).

Please contact Environment Canterbury if you wish to discuss the contents of this property statement.

Yours sincerely

Contaminated Sites Team

Property Statement
from the Listed Land Use Register

Visit ecan.govt.nz/HAIL for more information or
contact Customer Services at ecan.govt.nz/contact/ and quote ENQ401633

Date generated: 15 January 2025
Land parcels: Lot 2 DP 8301
Lot 2 DP 318615
Lot 3 DP 318615
Lot 2 DP 61732
Part Lot 1 DP 8301

The information presented in this map is specific to the property you have selected. Information on nearby properties may not be shown on this map, even if the property is visible.

Sites at a glance

Sites within enquiry area

Site number	Name	Location	HAIL activity(s)	Category
169659	Lot 2 DP 318615, Ohoka	Lot 2 DP 318615, Ohoka	G3 - Landfill sites;F6 - Railway yards;G5 - Waste disposal to land;	Not Investigated
321524	347 Whites Road, Ohoka	347 Whites Road, Ohoka	G5 - Waste disposal to land;A17 - Storage tanks or drums for fuel, chemicals or liquid waste;	Verified HAIL

More detail about the sites

Site 169659: Lot 2 DP 318615, Ohoka (Intersects enquiry area.)

Category: Not Investigated
Definition: Verified HAIL has not been investigated.

Location: Lot 2 DP 318615, Ohoka
Legal description(s): Lot 2 DP 318615

HAIL activity(s):

Period from	Period to	HAIL activity
1984	2000	Landfill sites
~ 1880s	~1950s	Railway yards including goods-handling yards, workshops, refuelling facilities or maintenance areas
Unknown	Present	Waste disposal to land (excluding where biosolids have been used as soil conditioners)

Notes:

1 Dec 2016 This record was created as part of the Waimakariri District Council 2016 HAIL identification project.

7 Jul 2017 Area defined from 1984 to 2000 aerial photographs. G3 - Landfill sites was noted in aerial photographs reviewed.

Investigations:

INV 321487 **535 Mill Road, Ohoka Preliminary Site Investigation**
Tetra Tech Coffey - Preliminary Site Investigation
13 May 2021

Summary of investigation(s):

Environment Canterbury has received a Preliminary Site Investigation report that includes all or part of the property you have selected.

A Preliminary Site Investigation seeks to identify potential sources of contamination resulting from current and historical land uses.

The preliminary site investigation may not have found any potential sources of contamination on the property you have enquired about. Where potential sources of contamination have been identified, a site identification number (e.g. SIT 1234) and land uses from the Hazardous Activities and Industries List (HAIL) will be shown on your statement.

This investigation has not been summarised.

Site 321524: 347 Whites Road, Ohoka (Intersects enquiry area.)

Category: Verified HAIL
Definition: The land-use / HAIL history has been confirmed.

Location: 347 Whites Road, Ohoka
Legal description(s): Part Lot 1 DP 8301

HAIL activity(s):

Period from	Period to	HAIL activity
	Present	Waste disposal to land (excluding where biosolids have been used as soil conditioners)
Unknown	Present	Storage tanks or drums for fuel, chemicals or liquid waste

Notes:

Investigations:

There are no investigations associated with this site.

Disclaimer

The enclosed information is derived from Environment Canterbury’s Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987.

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

Any person receiving and using this information is bound by the provisions of the Privacy Act 1993.

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Listed Land Use Register

What you need to know

Everything is connected

What is the Listed Land Use Register (LLUR)?

The LLUR is a database that Environment Canterbury uses to manage information about land that is, or has been, associated with the use, storage or disposal of hazardous substances.

Why do we need the LLUR?

Some activities and industries are hazardous and can potentially contaminate land or water. We need the LLUR to help us manage information about land which could pose a risk to your health and the environment because of its current or former land use.

Section 30 of the Resource Management Act (RMA, 1991) requires Environment Canterbury to investigate, identify and monitor contaminated land. To do this we follow national guidelines and use the LLUR to help us manage the information.

The information we collect also helps your local district or city council to fulfil its functions under the RMA. One of these is implementing the National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil, which came into effect on 1 January 2012.

For information on the NES, contact your city or district council.

How does Environment Canterbury identify sites to be included on the LLUR?

We identify sites to be included on the LLUR based on a list of land uses produced by the Ministry for the Environment (MfE). This is called the Hazardous Activities and Industries List (HAIL)[1]. The HAIL has 53 different activities, and includes land uses such as fuel storage sites, orchards, timber treatment yards, landfills, sheep dips and any other activities where hazardous substances could cause land and water contamination.

We have two main ways of identifying HAIL sites:

- We are actively identifying sites in each district using historic records and aerial photographs. This project started in 2008 and is ongoing.
- We also receive information from other sources, such as environmental site investigation reports submitted to us as a requirement of the Regional Plan, and in resource consent applications.

[1] The Hazardous Activities and Industries List (HAIL) can be downloaded from MfE's website www.mfe.govt.nz, keyword search HAIL

How does Environment Canterbury classify sites on the LLUR?

Where we have identified a HAIL land use, we review all the available information, which may include investigation reports if we have them. We then assign the site a category on the LLUR. The category is intended to best describe what we know about the land use and potential contamination at the site and is signed off by a senior staff member.

Please refer to the Site Categories and Definitions factsheet for further information.

What does Environment Canterbury do with the information on the LLUR?

The LLUR is available online at www.llur.ecan.govt.nz. We mainly receive enquiries from potential property buyers and environmental consultants or engineers working on sites. An inquirer would typically receive a summary of any information we hold, including the category assigned to the site and a list of any investigation reports.

We may also use the information to prioritise sites for further investigation, remediation and management, to aid with planning, and to help assess resource consent applications. These are some of our other responsibilities under the RMA.

If you are conducting an environmental investigation or removing an underground storage tank at your property, you will need to comply with the rules in the Regional Plan and send us a copy of the report. This means we can keep our records accurate and up-to-date, and we can assign your property an appropriate category on the LLUR. To find out more, visit www.ecan.govt.nz/HAIL.

IMPORTANT!

The LLUR is an online database which we are continually updating. A property may not currently be registered on the LLUR, but this does not necessarily mean that it hasn't had a HAIL use in the past.

Sheep dipping (ABOVE) and gas works (TOP) are among the former land uses that have been identified as potentially hazardous. (Photo above by Wheeler & Son in 1987, courtesy of Canterbury Museum.)

My land is on the LLUR – what should I do now?

IMPORTANT! Just because your property has a land use that is deemed hazardous or is on the LLUR, it doesn't necessarily mean it's contaminated. The only way to know if land is contaminated is by carrying out a detailed site investigation, which involves collecting and testing soil samples.

You do not need to do anything if your land is on the LLUR and you have no plans to alter it in any way. It is important that you let a tenant or buyer know your land is on the Listed Land Use Register if you intend to rent or sell your property. If you are not sure what you need to tell the other party, you should seek legal advice.

You may choose to have your property further investigated for your own peace of mind, or because you want to do one of the activities covered by the National Environmental Standard for Assessing and Managing Contaminants in Soil. Your district or city council will provide further information.

If you wish to engage a suitably qualified experienced practitioner to undertake a detailed site investigation, there are criteria for choosing a practitioner on www.ecan.govt.nz/HAIL.

I think my site category is incorrect – how can I change it?

If you have an environmental investigation undertaken at your site, you must send us the report and we will review the LLUR category based on the information you provide. Similarly, if you have information that clearly shows your site has not been associated with HAIL activities (eg. a preliminary site investigation), or if other HAIL activities have occurred which we have not listed, we need to know about it so that our records are accurate.

If we have incorrectly identified that a HAIL activity has occurred at a site, it will be not be removed from the LLUR but categorised as Verified Non-HAIL. This helps us to ensure that the same site is not re-identified in the future.

Contact us

Property owners have the right to look at all the information Environment Canterbury holds about their properties.

It is free to check the information on the LLUR, online at www.llur.ecan.govt.nz.

If you don't have access to the internet, you can enquire about a specific site by phoning us on (03) 353 9007 or toll free on 0800 EC INFO (32 4636) during business hours.

Contact Environment Canterbury:

Email: ecinfo@ecan.govt.nz

Phone:
Calling from Christchurch: (03) 353 9007
Calling from any other area: 0800 EC INFO (32 4636)

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

Everything is connected

Promoting quality of life through balanced resource management.

www.ecan.govt.nz E13/101

Listed Land Use Register

Site categories and definitions

When Environment Canterbury identifies a Hazardous Activities and Industries List (HAIL) land use, we review the available information and assign the site a category on the Listed Land Use Register. The category is intended to best describe what we know about the land use.

If a site is categorised as **Unverified** it means it has been reported or identified as one that appears on the HAIL, but the land use has not been confirmed with the property owner.

If the land use has been confirmed but analytical information from the collection of samples is not available, and the presence or absence of contamination has therefore not been determined, the site is registered as:

Not investigated:

- A site whose past or present use has been reported and verified as one that appears on the HAIL.
- The site has not been investigated, which might typically include sampling and analysis of site soil, water and/or ambient air, and assessment of the associated analytical data.
- There is insufficient information to characterise any risks to human health or the environment from those activities undertaken on the site. Contamination may have occurred, but should not be assumed to have occurred.

If analytical information from the collection of samples is available, the site can be registered in one of six ways:

At or below background concentrations:

The site has been investigated or remediated. The investigation or post remediation validation results confirm there are no hazardous substances above local background concentrations other than those that occur naturally in the area. The investigation or validation sampling has been sufficiently detailed to characterise the site.

Below guideline values for:

The site has been investigated. Results show that there are hazardous substances present at the site but indicate that any adverse effects or risks to people and/or the environment are considered to be so low as to be acceptable. The site may have been remediated to reduce contamination to this level, and samples taken after remediation confirm this.

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Managed for:

The site has been investigated. Results show that there are hazardous substances present at the site in concentrations that have the potential to cause adverse effects or risks to people and/or the environment. However, those risks are considered managed because:

- the nature of the use of the site prevents human and/or ecological exposure to the risks; and/or
- the land has been altered in some way and/or restrictions have been placed on the way it is used which prevent human and/or ecological exposure to the risks.

Partially investigated:

The site has been partially investigated. Results:

- demonstrate there are hazardous substances present at the site; however, there is insufficient information to quantify any adverse effects or risks to people or the environment; or
- do not adequately verify the presence or absence of contamination associated with all HAIL activities that are and/or have been undertaken on the site.

Significant adverse environmental effects:

The site has been investigated. Results show that sediment, groundwater or surface water contains hazardous substances that:

- have significant adverse effects on the environment; or
- are reasonably likely to have significant adverse effects on the environment.

Contaminated:

The site has been investigated. Results show that the land has a hazardous substance in or on it that:

- has significant adverse effects on human health and/or the environment; and/or
- is reasonably likely to have significant adverse effects on human health and/or the environment.

If a site has been included incorrectly on the Listed Land Use Register as having a HAIL, it will not be removed but will be registered as:

Verified non-HAIL:

Information shows that this site has never been associated with any of the specific activities or industries on the HAIL.

Please contact Environment Canterbury for further information:

(03) 353 9007 or toll free
on 0800 EC INFO (32 4636)
email ecinfo@ecan.govt.nz

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha

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