

Assessment of Environmental Effects – Site Remediation Works at 17 Hickory Place, Christchurch

✦ Prepared for

Foodstuffs (South Island) Limited

✦ September 2025



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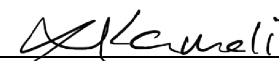
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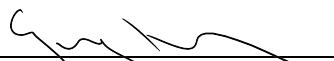
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1.0 Introduction

Pattle Delamore Partners (PDP) has been engaged by Foodstuffs (South Island) Limited (“the applicant” or “Foodstuffs”) for planning, environmental and contaminated land services related to remediating the site, which will include the removal of soils contaminated with asbestos fibres on a contaminated site at 17 Hickory Place, Christchurch (“the site”).

FOODSTUFFS (SOUTH ISLAND) LIMITED - ASSESSMENT OF ENVIRONMENTAL EFFECTS – SITE
REMEDATION WORKS AT 17 HICKORY PLACE, CHRISTCHURCH

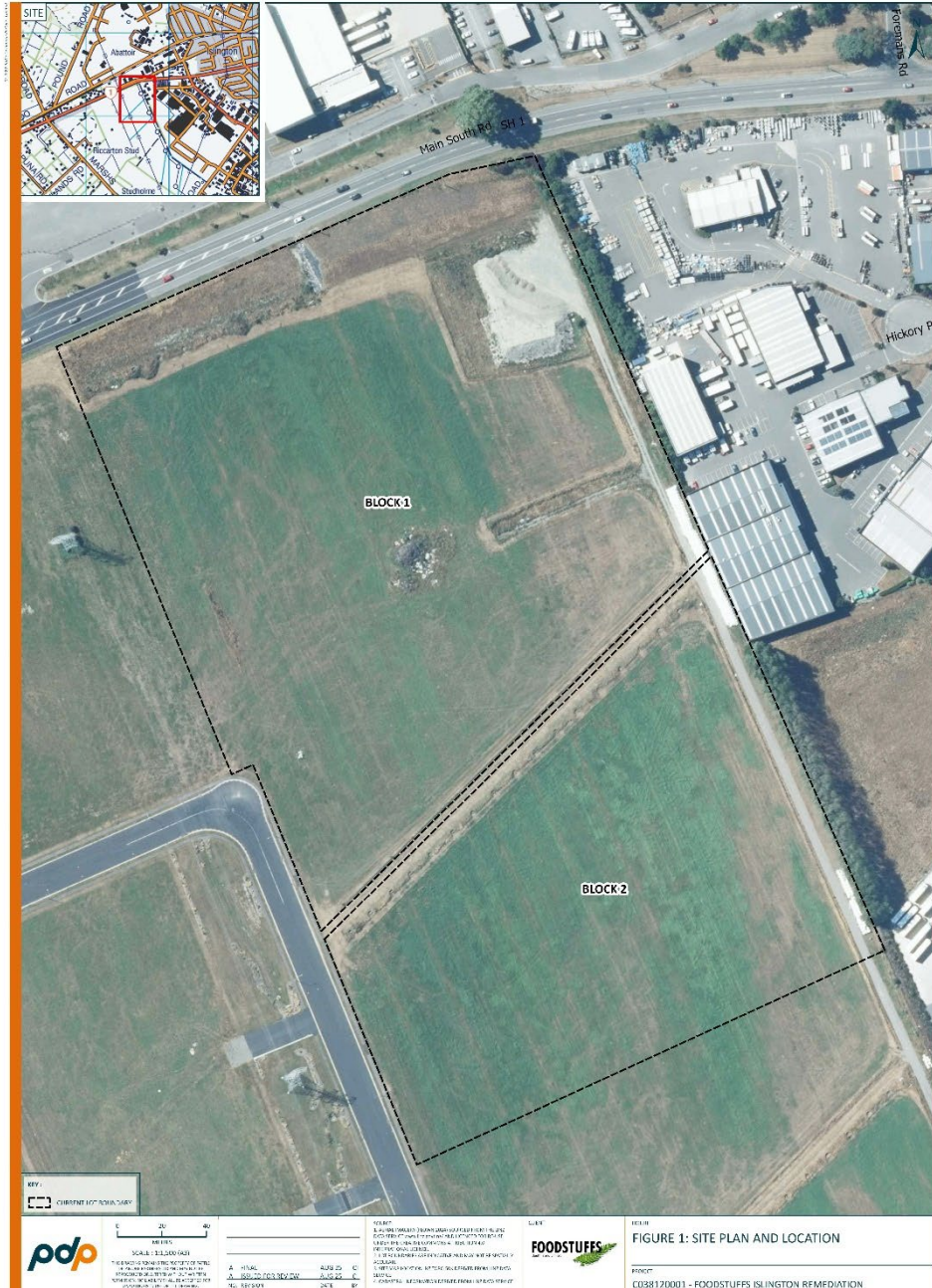


Figure 1: Location and site layout

Soil sampling and testing carried out by PDP in March, April and August 2025, in conjunction with previous soil sampling investigations, confirmed the presence of asbestos in soils above BRANZ (2024) guidelines for all land uses including

commercial/industrial in several locations across Blocks 1 and 2. These can be seen as red dots on Figure 3.

The presence of elevated asbestos concentrations in soils classifies the site as containing HAIL¹ activity E1 (asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition). As such, the soil disturbance and removal associated with remedial earthworks requires consideration under the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* (the NESCS), Regulation 10.

The soil disturbance activities associated with the asbestos remedial works is approximately 1,700 m³, based on best-case scenario where the validation samples are clear and no further remedial excavations are required.

A full statutory assessment of rules is made in Section 6.0. This Assessment of Environmental Effects (AEE) has been prepared by Pattle Delamore Partners Limited (PDP) to support the resource consent application in accordance with the RMA, the Christchurch District Plan (CDP) and the NES-CS.

2.0 Applicant and Site Details

The applicant's details are contained in Table 1. A current Certificate of Title for 17 Hickory Place is provided in Appendix A. The site location and layout subject to the remedial bulk earthworks are presented in Figure 1.

Table 1: Applicant and Site Details	
Applicant	Foodstuffs (South Island) Limited
Site Address	17 Hickory Place, Christchurch
Legal Description	Lot 51 DP 572509
Landowner	Foodstuffs (South Island) Limited
Grid Reference NZTM	1559484.86E : 5178290.41N
Land Parcel Area	Approximately 19.5 ha
Block 1 & Block 2 Investigation/Subdivision Area	Approximately 9.4 ha
Expected area for remediation	Approximately 6,750 m ²

¹ The *Hazardous Activities and Industries List* (HAIL; Ministry for the Environment (MfE), 2011) is a compilation of activities and industries that are considered able to cause land contamination resulting from hazardous substance use, storage or disposal.

2.1 Proposed Subdivision Plan

The remediation works for the areas of land where asbestos fibres have been found at levels above BRANZ (2024) guidance are to be carried out ahead of a potential subdivision of a wider area of land that is currently all part of the same lot. At this stage, the remedial earthworks will be limited to proposed Lots 1, 2 and 3. The subdivision plan is shown at Figure 2.

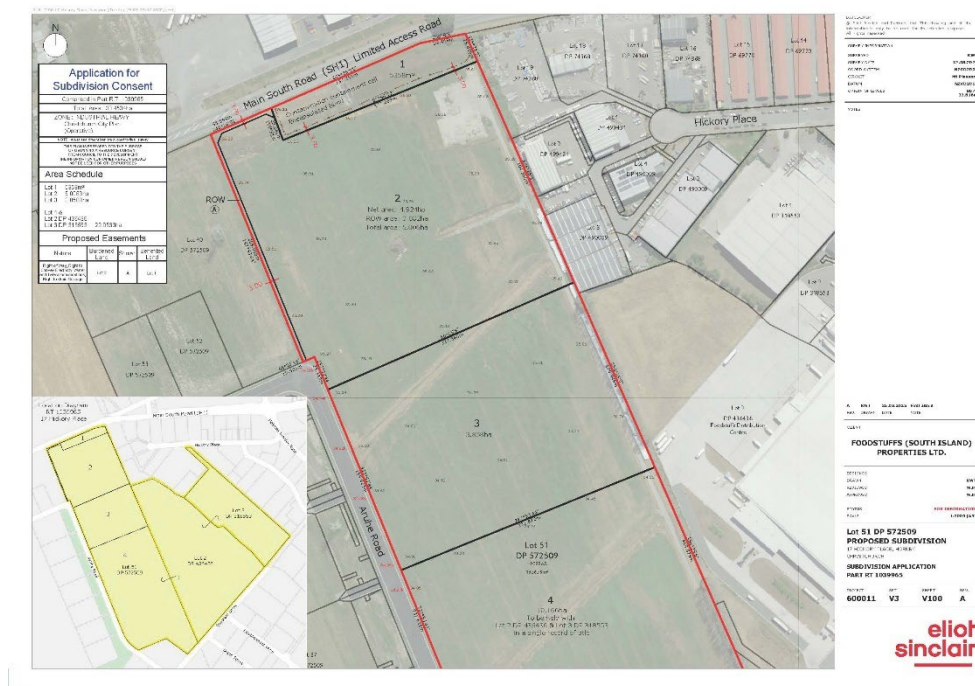


Figure 2: Proposed subdivision plan

3.0 Site and Surrounding Environment

3.1 Existing activities and infrastructure

The application site is within an area of Islington zoned Industrial Heavy in the Christchurch District Plan (CDP). The land is bare having been formerly used for grazing and an area to discharge waste process water to from vegetable processing from the former Heinz-Wattie's facility to the south over Shand's Road.

New industries are taking up leases on the newly created lots in the vicinity but the nearest occupied buildings to the site belong to the applicant making this an ideal time to remediate the land with the least possible interruption to neighbours.

3.2 Physical descriptors

3.2.1 Ground conditions

The site is generally flat. The geology of the area is described in the 1:25,000 scale Geological Map of the Christchurch Urban Area (Brown & Weeber, 1992). This map indicates that the site is underlain by the Yaldhurst member of the Springston Formation, comprising “Dominantly alluvial sand and silt overbank deposits”. “Alluvial gravels, sands and silts of historic river flood channels” are present just to the east of the site. Based on previous site investigations completed by Aurecon in 2019, sands and silts extend to between 1.5 m and 2.5 m below ground level (bgl), overlying alluvial gravels, which continue to at least 20 m bgl.

3.2.2 Groundwater

From water level data available on the New Zealand Geotechnical Database, it is inferred that groundwater is likely between 7 m and 15 m bgl across the site. The site lies just outside of the coastal confined gravel aquifer system as defined by Brown (2001) but forms a part of the recharge zone for this aquifer. Based on regional piezometric contours, groundwater flows across the site from north-northwest to south-southeast.

3.2.3 Surface water

No natural sources of surface water exist on the site. The nearest natural surface water bodies are Knights Stream and the upper reaches of the Heathcote River, approximately 3 km to the southeast.

3.3 Cultural and Heritage Setting

A review of the CDP, Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA) and Archsite has indicated that there are no cultural or heritage features in or within close proximity to the site.

4.0 Description of the Proposed Activity

4.1 Proposed Remedial Works

The key purpose of the remedial works is to remove the asbestos impacted soils from within the near surface soils in the areas identified as having asbestos fibres above the BRANZ (2024) guideline level for all land uses, including industrial or commercial land use.

As such, the remedial approach is to remove these soils (to an average depth of approximately 250 mm) over the remedial area as shown on Figure 3 (i.e. two separate grey shaded areas within Blocks 1 and 2).

FOODSTUFFS (SOUTH ISLAND) LIMITED - ASSESSMENT OF ENVIRONMENTAL EFFECTS – SITE
REMEDIALATION WORKS AT 17 HICKORY PLACE, CHRISTCHURCH



Figure 3: Proposed Asbestos Remedial Areas (shown in grey shade)

All works associated with the disturbance and removal of the asbestos impacted soils will need to be undertaken in accordance with the *Health and Safety at Work Act 2015*, the Asbestos Regulations, WorkSafe New Zealand's *Approved Code of Practice for the Management and Removal of Asbestos* (ACOP; November 2016) and the BRANZ (2024) soil guideline document. Based on the soil results, the soil disturbance/removal works would be classified as 'Class B contamination' and therefore considered 'Asbestos Removal Only' in accordance with the BRANZ

(2024) guidance document. A licenced asbestos removal contractor will be required to carry out the works and prepare an Asbestos Removal Control Plan (ARCP) for the soil removal works at the site.

The approximate area and volume for the remedial area of Block 1 will be 3,850 m² and approximately 962 m³.

The approximate area and volume for the remedial area of Block 2 will be 2,900 m² and approximately 725 m³.

The approximate total volume of 1,700 m³ is based on a best-case scenario where the validation samples are clear and no further remedial excavations are required.

The excavated area is to remain restricted (i.e. fenced) and kept damp (i.e. water application) or sprayed with a polymer until the validation results confirm no asbestos is present in the soil samples representing remaining soils within the investigation area.

5.0 Consideration of Alternatives

Schedule 4, clause 6(1)(d)(ii) of the RMA requires that:

‘An assessment of the activity’s effects on the environment must include the following information:

(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity’.

Foodstuffs has not undertaken an assessment of alternative options as no significant adverse effects are anticipated.

6.0 Statutory Framework

The CDP and NES-CS are the relevant planning provisions for this activity.

6.1 Key Features and Overlays

Table 2 provides a description of statutory planning zones and any overlays that apply for the relevant planning documents.

Table 2: Zoning and Key Features		
Plan	Feature	Status
Christchurch District Plan		
Zone	Industrial Heavy	Operative
Overlay	No overlays for the site	

6.1 Reason for Resource Consent

The proposal does not meet the permitted activity standards of Regulation 8(3)(c) and (3)(d)(ii) as the soil disturbance and removal thresholds will be exceeded. As such the activity requires land use consent as a Restricted Discretionary Activity under Regulation 10 of the NESCS.

Table 3 outlines the relevant NES-CS rule under which consent is required.

Table 3: Reasons for Resource Consent			
National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health			
Regulation	Activity	Reason for Consent	Activity Status
10	Soil disturbance	10 (1) The soil disturbance and removal thresholds of Regulation 8(3) are exceeded. 10 (2) a. A Detailed Site Investigation (DSI) exists 10 (2) b. The relevant soil contaminant standard is exceeded 10 (2) c. The DSI is attached (Appendix B) 10 (3) see section 8.0	Restricted discretionary

Table 4: Assessment of NES-CS

National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

Regulation 8(3) Disturbing the soil of a piece of land is permitted activity while following requirements are met:

(a) controls to minimise the exposure of humans to mobilised contaminants must— ✧ (i) be in place when the activity begins: ✧ (ii) be effective while the activity is done: ✧ (iii) be effective until the soil is reinstated to an erosion-resistant state:	Controls to minimise the exposure of humans to mobilised contaminants is outlined in the Draft RAP. Complies
(b) the soil must be reinstated to an erosion-resistant state within 1 month after the serving of the purpose for which the activity was done:	Following the works disturbed land will be reinstated. Complies
(c) the volume of the disturbance of the soil of the piece of land must be no more than 25 m³ per 500 m²:	The pieces of land being disturbed have a combined area of approximately 6,750 m², therefore the permitted threshold for soil disturbance on this piece of land is 337.5 m³. Approximately 1,700 m³ is proposed (best case). Does not comply
(d) soil must not be taken away in the course of the activity, except that,—	All excavated material will be taken off site. The soil will be disposed of at a suitable disposal facility.

Table 4: Assessment of NES-CS	
(i) for the purpose of laboratory analysis, any amount of soil may be taken away as samples: (ii) for all other purposes combined, a maximum of 5 m³ per 500 m² of soil may be taken away per year:	The permitted soil removal threshold is 67.5 m³ (based on two consecutive years). Approximately 1,700 m³ of soil removal is proposed (best case). Does not comply
(e) soil taken away in the course of the activity must be disposed of at a facility authorised to receive soil of that kind:	All excavated material will be taken off site. The soil will be disposed of at a suitable disposal facility. Complies
(f) the duration of the activity must be no longer than 2 months:	It is anticipated the soil disturbance and remedial works will not exceed two months. Complies
(g) the integrity of a structure designed to contain contaminated soil or other contaminated materials must not be compromised.	Not applicable

6.2 Permitted Activities

As required by RMA Schedule 4(3)(a), the following permitted activity in Table 5 is relevant to this proposal under the CDP.

Table 5: Permitted Activities	
Christchurch District Plan	
Rule 8.9.3 Exemptions	Comment:
xv. Earthworks that are required for the removal of contaminants regulated by the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.	The earthworks are exempt from the activity standards set out in Rule 8.9.2.1 P1 and P2:

7.0 Consultation

Schedule 4 RMA 6(1)(f) of the RMA states that an AEE submitted in support of a resource consent application should include “*identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted*”.

Section 36A of the RMA clarifies that:

- (1) *The following apply to an applicant for a resource consent and the local authority:*
- a) *neither has a duty under this Act to consult any person about the application; and*
 - b) *each must comply with a duty under any other enactment to consult any person about the application; and*
 - c) *each may consult any person about the application.*

PDP do not consider any persons to be affected by the activity. Accordingly, consultation is not mandatory by either the applicant or the local authority with respect to a resource consent application.

8.0 Assessment of Environmental Effects

The following assessment of environmental effects is presented on matters concerning the NES-CS.

8.1 Adequacy of the investigations and Draft Remedial Action Plan (RAP)

The site formed part of wider paddock areas that were previously used by Heinz-Wattie's for the discharge by border-dyke flood irrigation of vegetable process water. Detailed Site Investigations (DSIs) carried out by Aurecon (2019) and Eliot Sinclair (2021/2022) undertaken over the wider property (within and adjacent to the current site) concluded that the surface organic detritus within and bordering the irrigation ditches was contaminated with asbestos fines (AF) and friable asbestos (FA) at concentrations that could pose a risk to human health. It is understood that the asbestos likely manifested through the degradation of the asbestos pipes that fed the bubble-up valves/concrete headstocks located in a general north-east to south-west orientation at four locations over the site.

Further sampling work was carried out by PDP (2025) to refine the areas over which the asbestos fibres exceeded BRANZ guideline levels and this is reported in Appendix B.

The draft RAP (Appendix C) provides guidance to site contractors involved in the remedial earthworks for appropriately managing contaminated material. The draft RAP sets out the procedures for:

- ✧ Handling and managing soils across the site to ensure the protection of site workers, occupants of the adjacent residential properties and the general public during the remedial activities;
- ✧ Ensuring excavated soils do not impact air (i.e. mitigating dust impacts) and surface water through stormwater run-off, as a result of the soil remedial works;
- ✧ Soil disposal and validation soil sampling requirements;
- ✧ Providing a protocol for any additional contaminants that may be accidentally discovered as part of the remedial works; and
- ✧ Health and safety to supplement the contractor's health and safety plans for the soil remedial works

It is considered that the draft RAP provides sufficient information to process this consent application and Foodstuffs' request that a consent condition be added for a final RAP to be submitted to Council once the contractor(s) is confirmed.

8.2 Suitability of land

The site is located in an industrial area and the remediation will ensure that the land is suitable for future redevelopment for industrial/commercial use. Removing contaminated soils as far as practicable from the site will reduce the risk to all future users.

The previous investigations identified the primary contamination source and key contaminant of concern relates to asbestos in the vicinity of the former irrigation infrastructure. A licenced asbestos removal contractor will carry out the works and prepare an ARCP for the soil removal works at the site.

Management of this contaminant will be in accordance with the draft RAP, ARCP, Site Management Plan (SMP) and a site-specific health and safety plan (HASP) which are adequate given the scale and type of contaminant present at the site. It is therefore considered that the piece of land is suitable for the proposed activity.

8.3 Approach to the remediation of the land

The remedial works will include the excavation to a depth on average of approximately 250 mm bgl to remove the identified asbestos impacted surface soils. The exact vertical and lateral extent of the remedial dig-out will be based on the results of validation soil samples.

The excavated area is to remain restricted (i.e. fenced) and kept damp (i.e. water application) or sprayed with a polymer until the validation results confirm asbestos is present in the soil samples at concentrations no greater than the relevant BRANZ (2024) guidelines for all land uses including commercial/industrial.

Dust control will be implemented to minimise the generation of dust and movement of dust off-site. The draft RAP outlines a number of mitigation measures to be implemented for all remedial works undertake at the site.

Site specific management measures will need to be implemented to mitigate the potential generation of airborne asbestos and subsequent potential risk to human health during the remedial works.

Air quality monitoring will be required based on the soil results and asbestos removal works. The air monitoring ultimately provides reassurance that the adopted management controls (e.g. dust suppression measures) are adequate for the works.

There is the potential for sediment to be mobilised when entrained in the stormwater during the remedial earthworks. As such, stormwater and sediment control measures outlined in the draft RAP are to be implemented. Approval has been obtained from the relevant CCC department for the construction phase stormwater to be covered by the Council's global stormwater consent. This is included at Appendix D.

Upon completion of the proposed works, a contaminated land specialist shall prepare a Site Validation Report, outlining the works undertaken, the soil removed went to the appropriate landfill and results of the validation sampling.

8.4 Adequacy of the site and remedial management plan

The draft RAP has been prepared by a suitably qualified and experienced practitioner and is considered adequate for undertaking the asbestos remedial earthworks in a safe and effective manner. The RAP will be finalised once the contractor is appointed, and the applicant seeks this as a condition of consent.

An ARCP will be prepared by a licensed asbestos removal contractor.

A SMP will be also prepared to manage the risks associated with the contamination present on-site during the proposed works.

The purpose of the RAP, ARCP and SMP is to manage health, safety and environmental risks associated with contaminated soil disturbance, as well as asbestos and to protect onsite construction workers and the public during the excavation works.

8.5 Transport, disposal and tracking of soil removed from site

Based on the previous soil sampling, all asbestos impacted soils removed from site will need to be disposed of at a landfill that is appropriately licenced/consented landfill to receive asbestos waste of this kind.

All removed soil will be transported via trucks. Suitable controls will be in place such as sealed tailgates, capable of preventing any loss of materials from all loads and tray-covers to prevent the loss of dust, fibres or any loose litter from all loads. Specific controls will be developed by the contractor.

8.6 Effects on human health

The main contaminant present at the site, which requires implementing special handling, disposal and management measures during the earthworks, is asbestos. The primary risk driver for asbestos exposure is via inhalation of airborne asbestos fibres. If there is no airborne asbestos present, there is no risk to human health.

There is a risk that asbestos fibres can be released during the remedial works, which could present a human health risk not only to workers onsite but also to those on neighbouring properties and the general public. This RAP is therefore directed at controlling site works to avoid fibres becoming airborne during such activities.

The disturbance of the asbestos impacted soils from the identified remedial areas has the potential to generate airborne asbestos fibres, which could pose a risk to human health.

The asbestos removal contractor's ARCP will include the appropriate management measures to mitigate the potential generation of airborne asbestos during the earthworks of the asbestos impacted soils.

The RAP also provides guidance on the personal protection equipment and personal hygiene requirements for the site to ensure that health risks to site workers during the remedial works are minimised.

8.7 Summary of Effects

The NESCS seeks to ensure that land affected by contaminants in soil is appropriately identified and assessed before it is further developed and used for long term purposes, and that the land is safe for human use and protects the health and safety of those working on site.

The actual and potential effects on the environment of allowing the activity that is subject of this application, are the effects on human health.

With the implementation of the RAP, SMP, HASP and ARCP the adverse effects on human health resulting from this proposal will be less than minor. Overall, the proposal will be a positive effect on the environment.

9.0 Statutory Assessment

9.1 Assessment under the Resource Management Act 1991 (RMA)

The RMA is a fundamental piece of legislation in New Zealand which sets out a framework for managing land use and development, discharges, water use and waste disposal to ensure adverse effects of activities on the environment are appropriately managed.

This section sets out the statutory framework against which this application is to be assessed under the RMA.

9.2 Notification Assessment

9.2.1 Sections 95A, 95C & 95D - Public Notification

Under s.95A '*Public notification of consent applications*', the consent authority is to decide (in accordance with s.95C and s.95D) whether public notification of the activity is required. This assessment is summarised as follows:

- ✧ The applicant does not request public notification of the application;
- ✧ There is not a rule or national environmental standard that precludes or requires public notification of this application;
- ✧ An assessment of effects on the environment is provided in Section 8.0 of this AEE concludes that the adverse effects on the environment are less than minor.
- ✧ The application is not for any of the activities identified in s.95A(5)(b) (i.e. a controlled activity, subdivision of land or a residential activity, a boundary activity, or an activity prescribed in s.360H(1)(a)(i)); and

- ✧ No special circumstances are considered to exist in relation to the application.

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without public notification.

9.2.2 Sections 95B & 95E - Limited Notification

Under s.95B '*Limited notification of the consent application*', the consent authority is then to decide (in accordance with s.95E to s.95G) whether there are any affected persons in relation to the activity. The threshold for identifying affected persons is more rigorous, whereby the consent authority must decide that a person is affected if the activity's adverse effects are minor or more than minor (but not less than minor) (s.95(E)(1)).

Limited notification is summarised as follows:

- ✧ The application does not need to be notified to any parties under s.95B(4). The proposed change will not affect any customary rights;
- ✧ The proposed activity is not on or adjacent to, or does not affect, land that is the subject of a statutory acknowledgement;
- ✧ There are no applicable rules or national environmental standards precluding limited notification; and
- ✧ The application is not for a controlled activity (but no other activities) that requires a resource consent under a district plan (other than a subdivision of land).
- ✧ No parties are assessed as being affected as a result of the proposed activity.
- ✧ No special circumstances are considered to exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification.

Based on this assessment, we consider that this proposal meets the tests of the RMA to be processed without limited notification.

9.2.3 Section 95 Summary

Having regard to the assessment undertaken within the AEE in support of this application, it is considered that the effects are less than minor and there are no potentially adversely affected parties, and the proposal can be processed on a non-notified basis.

9.3 Section 104 Assessment

A decision on a discretionary resource consent application must be made in accordance with the purpose and principles of the RMA and must have regard to the matters set out in Section 104 of the Act.

Section 104(1) of the RMA lists the matters a consent authority must have regard to when considering a resource consent application. These matters are addressed in Section 8 and in the following sections.

The documents referred to in s104(1)(b) of the RMA demonstrate a hierarchy of policy and planning documents that should have consistent themes, with each lower order document giving effect to the one above it.

National Planning Documents

- 9.3.0 Resource Management (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS)

The 'Users' Guide: NES-CS specifically notes that:

- ∴ The NES-CS does not contain any policy guidance.
- ∴ 'When considering an application for a resource consent required by regulation 9, regulation 10, or regulation 11, the consent authority must have regard to any relevant provisions in the district plan or proposed district plan, and the regional policy statement or proposed regional policy statement (RMA s 104).'

It is considered that the relevant planning documents in relation to the proposed activity are the CDP and NESCS.

Planning Documents

- 9.3.1 Christchurch District Plan

The CDP become operative in 2017 and provides for the control of any actual or potential effects of land use and subdivision. Land use effects can derive from, earthworks, contaminated land and noise amongst others.

The application site is located on Hickory Place and is zoned Industrial Heavy.

- 9.3.1.1 Objectives and policies in the CDP that are relevant to the proposal include:

Chapter 4 Hazardous Substances and Contaminated Land

4.2.2.1 Objective – Contaminate land – managing effects

Land containing elevated levels of contaminants is managed to protect human health and the environment, which includes significant natural and Ngāi Tahu cultural values from the adverse effects of subdivision, development and use of contaminated land and natural hazards, including from site investigations, earthworks and soil disturbance, and to enable the land to be used in the future.

It is considered that the proposal is consistent with the above objective as surface soil sampling around the site confirmed the presence of asbestos fibres above human health soil guidelines, which will require soil removal works as part of the proposal to subdivide the land.

4.2.2.1.1 Policy - Best practice approach

Require any proposal to subdivide, use or develop contaminated land or potentially contaminated land to apply a best practice approach to investigate the risks, and either remediate the contamination or manage activities on contaminated land to protect people and the environment.

The proposal is considered consistent with this policy from a review of historical information and sampling undertaken by Aurecon and PDP confirmed the primary contamination source and the key contaminant of concern. The RAP is the best practice approach to remediate the contaminant and protect people.

4.2.2.1.2 Policy - Remediation

Remediation of contaminated land should not pose a more significant risk to human health or the environment than if remediation had not occurred.

The proposal is consistent with this policy as outlined in the draft RAP the remedial and removal works are to be conducted in accordance with industry accepted best practice and the regulatory auspices of Worksafe with the appointment of a licenced asbestos removalist.

9.3.1.2 Conclusion

The soil disturbance and site remediation works are essential to the proposed subdivision and are consistent with the objectives and policies of the CDP.

9.3.2 Section 104 Assessment Summary

On balance, it is considered that the proposed activities will be consistent with the provisions of the national and district statutory documents assessed in the preceding sections. This assessment recognises that the remedial activity will have less than minor adverse effects and will provide a positive environmental outcome by addressing and removing asbestos fibres thereby reducing the risk of exposure to people.

9.4 Part 2 - Purpose and Principles

Recent case law² has directed when decision making should employ “*an overall broad judgement*” in respect of resource consent applications. As found by the Court of Appeal, it would be “*appropriate and necessary*” to refer to Part 2 when considering consent applications, but only where there is doubt that a plan has been “*competently prepared*” under the RMA.

It is considered that in this particular case, the CDP is sufficiently competent and has already given effect to Part 2. Accordingly, Part 2 matters are adequately addressed by lower order documents which are included in the s.104 assessment and referring back to Part 2 wouldn’t “*add anything to the evaluative exercise*”.

9.5 Information Requirements

Section 88(2) of the RMA states that a resource consent application must:

- a) *be made in the prescribed form and manner; and*
- b) *in the case of a fast-track application, include the prescribed information relating to the activity (if any); and*
- c) *in the case of any other application or a fast-track application where there are no prescribed information requirements relating to the activity, include the information relating to the activity, including an assessment of the activity’s effects on the environment, that is required by Schedule 4.*

This report, with the relevant completed application forms, is considered to fulfil the s.88(2) RMA requirements and includes the information requirements of Schedule 4 (RMA).

9.6 Overall Summary

After considering all those matters relevant under Part 2 and s.104, granting the resource consent with appropriate conditions would promote the purpose of the RMA and would constitute sustainable management of natural and physical resources for the following reasons:

- ✧ It allows the use of natural and physical resources in a way which enable people and the community to provide for their social, cultural and economic wellbeing;
- ✧ It sustains the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;

² *RJ Davidson Family Trust v Marlborough District Council* [2018] NZCA 316.

- ✧ It safeguards the life-supporting capacity of air, water and soil, ensures that adverse effects are appropriately avoided, remedied or mitigated;
- ✧ It is demonstrably consistent with the relevant planning documents, including the provisions in the NES-CS and CDP.

10.0 Conclusion

Foodstuffs is applying for a resource consent for soil disturbance activities associated with the asbestos remedial works under the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* at 17 Hickory Place, Christchurch.

The application is for a Restricted Discretionary Activity under the NES-CS. Section 8.0 of the AEE considers the activity against Regulation 10 of the NES-CS. The conclusion reached from the AEE is that actual and potential effects, as mitigated, will be less than minor on the environment and no party is considered adversely affected.

The conclusion reached from the assessment of the objectives and policy provisions is that the proposal is consistent with the provisions. As such, this enables Council to process this application under a non-notified basis and should be granted.

11.0 References

"Geology of the Christchurch Urban Area" L.J. Brown and J.H. Weeber, 1992.

"Groundwaters of New Zealand." Brown LJ. Canterbury. In: Rosen MR, White PA (eds). New Zealand Hydrological Society: Wellington. 2001.

PDP, April 2025. *Soil Sampling Investigation and Indicative Offsite Soil Disposal Costs – Paddock Areas, 17 Hickory Place, Islington, Christchurch.*

PDP, August 2025. *Soil Sampling Investigation – Paddock Areas, 17 Hickory Place, Islington, Christchurch.*

PDP, February 2023. *Soil Sampling Investigation - 17 Hickory Place, Islington, Christchurch.*

PDP, May 2022. *Soil Sampling Investigation at 17 Hickory Place, Islington, Christchurch.*

Resource Management Act 1991, No. 69. (1991).

<https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html>

Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

<https://www.legislation.govt.nz/regulation/public/2011/0361/latest/DLM4052228.html>



RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy



R.W. Muir
Registrar-General
of Land

Identifier **1039965**
Land Registration District **Canterbury**
Date Issued 25 January 2023

Prior References
944686

Estate Fee Simple
Area 38.4534 hectares more or less
Legal Description Lot 2 Deposited Plan 436436 and Lot 3
Deposited Plan 318553 and Lot 51
Deposited Plan 572509

Registered Owners
Foodstuffs (South Island) Properties Limited

Interests

677874 Gazette Notice declaring No.1 State Highway (Awanui-Bluff) fronting the within land to be limited access road - 28.3.1966 at 3.00 pm (affects Lot 51 DP 572509)

Appurtenant to part Lot 3 DP 318553 formerly Lot 3 DP 59249 contained in CT CB35A/492 herein is a right to convey electric power specified in Easement Certificate 961911.7 - 25.10.1991 at 11:16 am

The easement specified in Easement Certificate 961911.7 is subject to Section 309 (1) (a) Local Government Act 1974
Land Covenant in Transfer A72884.7 - 24.9.1993 at 11:53 am (Affects Lot 3 DP 318553)

Appurtenant to Lot 3 DP 318553 are rights of way, rights to drain sewage and rights to convey water, telephonic communications, electric power and data cabling specified in Easement Certificate A72884.13 - 24.9.1993 at 11:53 am

The easements specified in Easement Certificate A72884.13 are subject to Section 309 (1) (a) Local Government Act 1974
Appurtenant to Lot 3 DP 318553 is a right to drain water created by Transfer A95305.4 - 4.2.1994 at 11:17 am

Subject to a right to convey electric power in gross over part Lot 3 DP 318553 marked B on DP 318553 in favour of Southpower Limited created by Transfer A205072.2 - 15.11.1995 at 11:32 am

Subject to a right of way over part Lot 3 DP 318553 marked A on DP 318553 created by Easement Instrument 5569073.5 - 30.4.2003 at 9:00 am

The easement created by Easement Instrument 5569073.5 is subject to Section 243 (a) Resource Management Act 1991
Subject to Section 241(2) and Sections 242(1) and (2) Resource Management Act 1991(affects DP 436436)

Land Covenant in Easement Instrument 8728416.7 - 4.4.2011 at 9:24 am (Affects Lot 2 DP 436436)

Land Covenant in Easement Instrument 8728416.8 - 4.4.2011 at 9:24 am (Affects Lot 2 DP 436436)

Land Covenant in Easement Instrument 8728416.9 - 4.4.2011 at 9:24 am (Affects Lot 2 DP 436436)

9141854.1 CERTIFICATE PURSUANT TO SECTION 77 BUILDING ACT 2004 THAT THIS COMPUTER REGISTER IS SUBJECT TO THE CONDITION IMPOSED UNDER SECTION 75(2) (AFFECTS LOT 2 DP 436436 AND LOT 3 DP 318553) - 31.7.2012 at 2:48 pm

Appurtenant to Lot 2 DP 436436 and Lot 3 DP 318553 is a right of way and a right to drain water and sewage and a right to convey water, electricity, telecommunications and computer media created by Easement Instrument 10509696.11 - 4.8.2016 at 9:41 am

10860780.1 Surrender of Land Covenant 8728416.8 over Lots 19, 20, 21 DP 486661 as appurtenant to Lot 2 DP 436436 - 19.9.2017 at 9:32 am

10860780.2 Surrender of Land Covenant 8728416.9 as appurtenant to Lots 19 - 21 DP 486661 - 19.9.2017 at 9:32 am (affects Lot 2 DP 436436 and Lot 3 DP 318533)

10757354.6 Surrender of Land Covenant 8728416.8 over Lot 8 DP 501353 as appurtenant to Lot 2 DP 436436 - 30.10.2017 at 12:06 pm

10757354.7 Surrender of Land Covenant 8728416.9 as appurtenant to Lot 8 DP 501353 - 30.10.2017 at 12:06 pm (affects Lot 2 DP 436436 and Lot 3 DP 318533)

Fencing Covenant in Transfer 10992635.1 - 20.12.2017 at 4:07 pm (affects Lot 51 DP 572509)

Subject to a right (in gross) to convey electricity over part Lot 3 DP 318553 marked B on DP 522802 in favour of Orion New Zealand Limited created by Easement Instrument 11166190.2 - 7.9.2018 at 2:52 pm

Subject to Section 241(2) Resource Management Act 1991 (affects DP 549428)

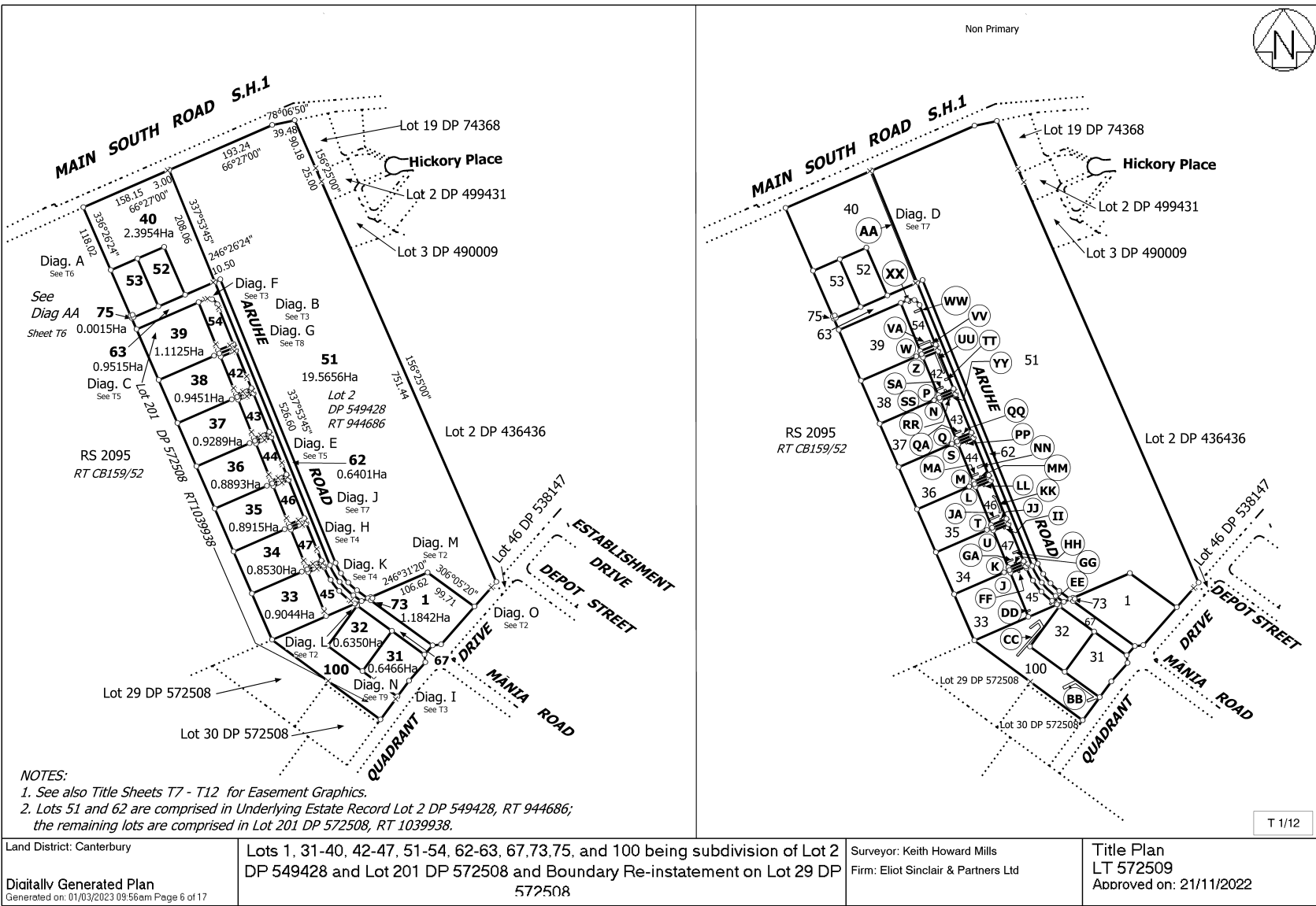
11957339.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 21.12.2020 at 3:29 pm (affects Lot 51 DP 572509)

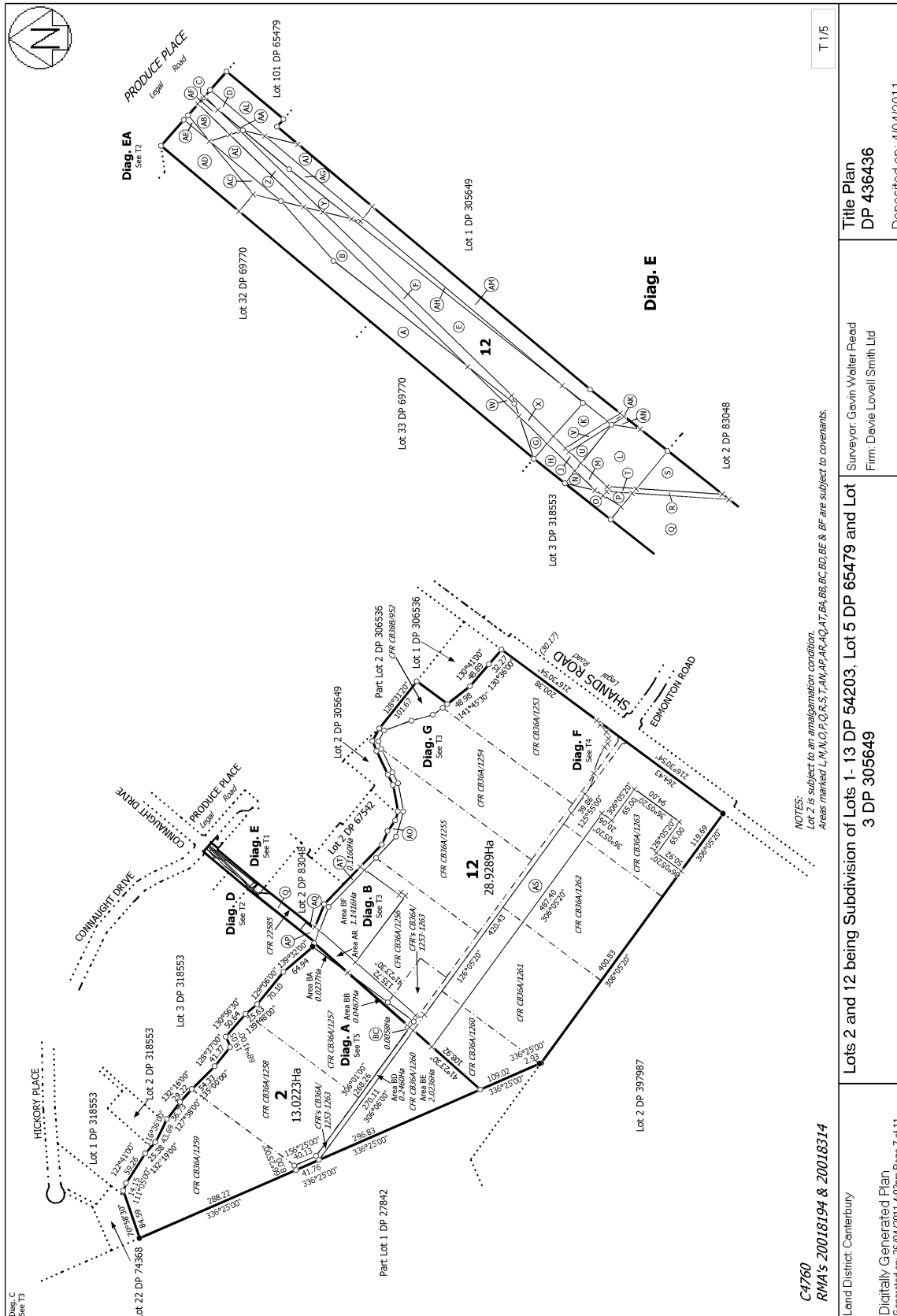
Subject to Section 241(2) Resource Management Act 1991 (affects DP 572509)

12576700.15 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 25.1.2023 at 4:59 pm (affects Lot 51 DP 572509)

12842583.1 Surrender of Land Covenant 8728416.9 appurtenant to Lot 46 DP 538147 - 20.11.2023 at 4:15 pm

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Register Only







27 August 2025

Rebecca Parish
Senior Property Development Manager
Foodstuffs South Island Limited
167 Main North Road,
CHRISTCHURCH 8051

Dear Rebecca

SOIL SAMPLING INVESTIGATION – PADDOCK AREAS, 17 HICKORY PLACE, ISLINGTON, CHRISTCHURCH

1.0 Introduction

Pattle Delamore Partners Limited (PDP) has been engaged by Foodstuffs South Island Limited (Foodstuffs) to undertake surficial soil sampling over the northern paddock areas located to the rear of the current operational Foodstuffs Distribution Centre, 17 Hickory Place, Islington, Christchurch (i.e. the site). The site investigation area covers approximately 9.4 ha, as shown on Figure 1. The assessment has been undertaken to characterise the soil contamination status within the investigation site prior to potential subdivision and divestment. This letter includes a brief site history review, a test pit soil sampling investigation and consideration of soil disposal options as part of any future site redevelopment following subdivision.

The site formed part of wider paddock areas that were previously used by Heinz-Wattie's for the discharge by border-dyke flood irrigation of vegetable process water. Detailed Site Investigations (DSIs) carried out by Aurecon¹ (2019) and Eliot Sinclair² (2021/2022) undertaken over the wider property (within and adjacent to the current site) concluded that the surface organic detritus within and bordering the irrigation ditches was contaminated with asbestos fines (AF) and friable asbestos (FA) at concentrations that could pose a risk to human health. It is understood that the asbestos likely manifested through the degradation of the asbestos pipes that fed the bubble-up valves/concrete headstocks located in a general north-east to south-west orientation at four locations over the site.

The results of these previous soil sampling investigations show that the asbestos fines/friable asbestos are more likely to be present closer to the bubble-up valves/concrete headstocks. However, investigations undertaken on adjacent similar land to the west (owned and developed by Ngāi Tahu) have recorded detectable but acceptably low soil asbestos concentrations outside of these areas in isolated pockets.

¹ *Hornby Bottling Plant – Balance of Site, Preliminary and Detailed Site Investigation*, dated December 2019, Aurecon.

² *Remedial Action Plan, Mánia, 320 Shands Road and 637 Main South Road, Hornby*, dated March 2021, Eliot Sinclair. *Site Validation Report, 320 Shands Road, Hornby*, dated May 2022, Eliot Sinclair.

1.1 Proposed Subdivision

It is proposed for the site investigation area to be subdivided into three Lots with Lot 1 (approximate area of 5,358 m²), fronting State Highway 1, to be retained by Foodstuffs. The remaining two Lots located to the immediate south (Lot 2; approximate area of 5.01 ha and Lot 3; approximate area of 3.86 ha) will be divested and developed for commercial/industrial land use. A proposed subdivision plan has been provided by Eliot Sinclair Limited (attached) indicating an approximate 5,358 m² Lot 1 that will be retained by Foodstuffs.

2.0 Previous PDP Soil Sampling Investigation

As part of the previous works to relocate surplus soils from other Foodstuffs supermarket development sites within Christchurch at the site (refer to Section 6.3), PDP has previously undertaken a number of soil contaminant investigations within the northern part of the site (Block 1). The purpose of these earlier PDP soil sampling investigations was to aid in the final burial of relocated contaminated soils to a depth of approximately 5 m below ground level (bgl) and within an overlying bund to a maximum height of approximately 4 m above ground level, extending over a length of approximately 170 m and a width of up to approximately 25 m. These relocated soils were fully encapsulated in seam welded HDPE polyethylene sheeting and capped with topsoil in order to provide an effective barrier.

Taking into consideration the soil disturbance activities associated with the burial of the contaminated soils and bund creation, it is considered that the previously collected soil samples located within the south-eastern part of Block 1 (refer to blue box on Figure 1) are still representative of current site conditions in this part of the site. The results from these soil samples are presented in Section 5.4.

3.0 Current Soil Sampling Investigations

Two additional soil sampling investigations have been undertaken over the site to better characterise the extent of asbestos in site soils as a result of previous site activities. In addition to establishing the extent of asbestos, the first of the two additional investigations included an assessment of heavy metals and organochlorine pesticides (OCP), being general indicator contaminants.

3.1 March and April 2025 Investigation

PDP environmental geologists/scientists attended the site on 20 March, and 2 and 3 April 2025 to carry out the first phase of additional soil sampling, which included the collection of samples from the surface soils and at a depth of 0.2 m bgl from a series of sampling points over the site. The sampling plan was based on the findings of the previous investigations and to assess the lateral and vertical extent asbestos fines friable asbestos likely to be present away from the bubble-up valves/concrete headstocks. Samples were also collected from the general paddock areas away from the 'upstream' bubble-up valves/concrete headstocks in order to provide soil contamination information over the wider site.

Each soil sample was placed directly into a glass jar with a food grade plastic sealed lid for heavy metals and organochlorine pesticides (OCP) (general indicator contaminants) supplied by Hill Laboratories (Hills). Soil collected for asbestos in soil analysis was placed into 500 mL asbestos tubs. A fresh pair of nitrile gloves was used at each sample location to prevent cross contamination of the soils and to protect the PDP site worker during sample collection.

Following collection, samples were placed immediately into chilly-bins containing frozen ice packs. The chilly-bins were sent with chain of custody documentation to Hills in Christchurch on the same day as collection.

A total of 47 selected samples were analysed for the presence of asbestos (semi-quantitative laboratory analysis), 26 samples for heavy metals analysis and one sample for OCP. It is noted that OCP analysis was

undertaken as part of the previous 2019 Aurecon investigation over the current investigation site and wider area, and individual compounds were not recorded above the laboratory limits of reporting.

3.2 August 2025 Investigation

A PDP environmental scientist attended the site on 7 and 8 August 2025 to carry out the second phase of additional soil sampling, which included the collection of samples from the surface soils and at a depth of 0.2 m bgl from a series of sampling points over the site for the presence of asbestos only. The sampling plan was based on the findings of the March and April investigations. Samples were also collected from within the north-western corner of the site adjacent to State Highway 1 (SH1) for completeness.

The soil samples were collected in the same manner as detailed in Section 3.1 and submitted with chain of custody documentation to Hills in Christchurch on the same day as collection.

A total of 54 selected samples were analysed for the presence of asbestos (semi-quantitative laboratory analysis).

A plan showing the sampling locations is attached as Figure 1 together with site photographs taken during the soil sampling investigations.

3.3 Field Observations

In general, each soil sample location in Block 1 and Block 2 comprised grass and roots underlain by moist, silty topsoil to 0.2 m bgl. Soil sample locations in Block 1, immediately adjacent to the encapsulated bund area, comprised compacted silty sand soils with some gravels evident as a result of the bund formation, with some locations having a sandier composition.

In addition, the following was also noted:

- ✧ Two stockpiles were noted within the north-eastern and central parts of Block 1 (refer to Section 6.5 for more detail); and
- ✧ Two small glass fragments and one piece of brick fragment were observed in BLK1_SS8 at 0.2 m bgl.

4.0 Offsite Soil Disposal Criteria

Following discussions with Foodstuffs, and based on the previously identified presence of asbestos within site soils, they have indicated that subsequent to the results of the additional soil sampling detailed in Section 3.0, their preferred remedial approach is to remove soils containing asbestos above BRANZ (2024), *New Zealand Guidelines for Assessing and Managing Asbestos in Soil* for all land uses including for commercial/industrial land use.

There are a number of different disposal facilities located within the Canterbury regional that are able to accept soils containing asbestos. It should be noted that the offsite disposal location for soils that contain asbestos will also be determined that the concentration of other contaminants, in this case heavy metals and OCP. Table 2 also provides the soil acceptance criteria for heavy metals for the landfills that are able to accept asbestos containing soils. The asbestos approved disposal facilities include:

- ✧ Protranz Earthmoving Limited, managed landfill, Leggett Road, Templeton, Christchurch;
- ✧ Frews Quarry Limited (Frews), managed landfill, Plantation Road, Hororata;
- ✧ Taiko Road, managed landfill, Cave, South Canterbury; and
- ✧ Kate Valley Regional Landfill, Waipara, North Canterbury.

For completeness, the soil sample results have also been compared to the following commercial/industrial land use standards/guidelines:

- ✧ *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health* (MfE, 2011);
- ✧ *Guideline on the Investigation Levels for Soil and Groundwater* (National Environmental Protection Council) (NEPC, 2013); and
- ✧ BRANZ, 2024. *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*.

5.0 Soil Sampling Results and Comparison to Guideline Criteria

The soil sample test results are displayed on Table 1 (asbestos) and Table 2 (heavy metals). Copies of the laboratory reports and the chain of custody documentation are also attached. A summary of results is as follows:

5.1 Asbestos

A total of 101 soil samples were collected and analysed at the laboratory using the semi-quantitative analytical method, with the following results noted. Note that only results that recorded the positive presence of asbestos have been tabulated.

Block 1:

- ✧ Of the 47 samples collected from Block 1, 20 soil samples analysed using the semi-quantitative analytical method did not record the presence of asbestos.
- ✧ The remaining 27 samples recorded asbestos in the soil as ACM (asbestos containing material) debris and/or loose fibres. In all cases ACM was not measured above the laboratory limit of detection (0.001% w/w) in all soil samples. Asbestos as fibrous asbestos/asbestos fines was measured above the laboratory limit of detection in nine of the 27 samples up to 0.013% w/w (BLK1_SS1_0.05).
- ✧ Based on the semi-quantitative method, all 27 soil samples recording detectable asbestos contained asbestos as ACM below the BRANZ (2024) soil guideline value of 0.05% w/w for commercial/industrial land use.
- ✧ Based on the semi-quantitative method, nine of the 27 asbestos detectable soil samples contained fibrous asbestos/asbestos fines above the BRANZ (2024) soil guideline value of 0.001% w/w for all land uses.

Block 2:

- ✧ Of the 54 samples collected from Block 2, 37 soil samples analysed using the semi-quantitative analytical method did not record the presence of asbestos.
- ✧ The remaining 17 samples recorded asbestos in the soil as ACM (asbestos containing material) debris and/or loose fibres. In all cases ACM was not measured above the laboratory limit of detection (0.001% w/w) in all soil samples. Asbestos as fibrous asbestos/asbestos fines was measured above the laboratory limit of detection in ten of the 17 samples at 0.007% w/w (BLK2_SS12_0.05).
- ✧ Based on the semi-quantitative method, all 17 soil samples contained asbestos as ACM below the BRANZ (2024) soil guideline value of 0.05% w/w for commercial/industrial land use.

- Based on the semi-quantitative method, ten of the 17 asbestos detectable soil samples contained fibrous asbestos/asbestos fines above the BRANZ (2024) soil guideline value of 0.001% w/w for all land uses.

No suspected ACM fragments were observed on site during the site inspection and soil sampling investigations.

5.2 Heavy Metals

Heavy metal concentrations were generally measured at or around the Environment Canterbury (ECan; 2007) background concentrations for the local soil type (Regional – Recent) over both Blocks 1 and 2. However, slight exceedances of cadmium (six samples), lead (one sample) and zinc (19 samples) were recorded of the total of the 26 samples analysed.

For comparison purposes, all heavy metal concentrations were measured below the human health soil contaminant standards/guideline values in the context of commercial/industrial land use.

5.3 Organochlorine Pesticides

The single sample analysed for OCP compounds (BLK2_SS7_0.05) did not record any of the individual compounds above the laboratory limit of detection. As such, the sample recorded Σ DDT below the adopted ECan background concentration and in the context of a commercial/industrial land use setting. This sample result has not been tabulated.

5.4 Previous Soil Sampling Investigation (PDP; April 2022³)

A total of 13 samples were collected from nine locations within the south-eastern part of Block 1 (refer to blue box on Figure 1) and analysed for a suite of seven heavy metals and asbestos (semi-quantitative analysis). Samples were collected between the ground surface and 0.3 m bgl. In summary, asbestos was not measured in any of the 13 samples and individual heavy metal concentrations were all measured below the ECan (2007) background concentrations for the local soil type (Regional – Recent).

6.0 Offsite Soil Disposal Options

6.1 Asbestos Soil Containing Areas

As discussed in Section 4.0, the objective is to remediate soils that contain asbestos above the BRANZ (2024) acceptance criteria for all land uses, including commercial/industrial and dispose of at an approved disposal facility (excluding the buried and encapsulated bund soils).

Where asbestos has been recorded in soils over parts of the site, but below the laboratory level of detection, it meets the BRANZ (2024) acceptance criteria for all land uses including for commercial/industrial purposes. Therefore, these soils do not need to be removed from the site from a protection of human health perspective, even though they contain very low levels of asbestos.

Figure 1 has been annotated to show the proposed remedial areas based on the soil sampling undertaken to date at the site. It is important to note that additional soil sampling could be undertaken over parts of the site to better define the lateral and vertical extents of the non-complying soil asbestos concentrations. However, the expected non-complying soil asbestos areas, as shown on Figure 1, are likely to be well defined based on the current data, including how the asbestos fines were likely deposited over the site from the headstocks, and following a review of previous investigations undertaken on the neighbouring commercial/industrial development located to the immediate west, which is located over similarly contaminated land.

³ Soil Sampling Investigation at 17 Hickory Place, Islington, Christchurch, dated 10 May 2022.

The approximate volume of soils requiring offsite disposal to an approved facility are:

- ✧ **Block 1** (approx. 3,850 m²) – 962 m³, based on an average excavation depth of 0.25 m
- ✧ **Block 2** (approx. 2,900 m²) – 725 m³, based on an average excavation depth of 0.25 m

Furthermore, any remaining non-complying soil asbestos areas will be identified during the required validation soil sampling programme and remediated accordingly (refer to Section 7.0).

The bulk remedial earthworks will be undertaken in accordance with a Remedial Action Plan.

6.2 Offsite Soil Disposal Options

Accounting for the slight exceedance of heavy metals within the tested soils compared with the Regional Recent soil type, the asbestos containing soils would not be deemed acceptable for disposal at the Protranz Leggett Road facility, which is able to accept asbestos containing soils. However, these soils would be deemed acceptable for disposal at the Frews Hororata managed fill facility, subject to their approval.

In addition, based on the soil sampling results the asbestos containing soils would also be deemed acceptable for disposal at the Taiko Road, managed landfill, Cave, South Canterbury, subject to their approval. It is noted that ECan consent CRC224661 authorises the deposition of hazardous waste to land at the Taiko landfill facility. Table 1 of the consent's Waste Acceptance Criteria notes that if soil asbestos concentrations exceed all land uses (i.e. 0.05 % w/w bonded and 0.001 % w/w asbestos fines/fibrous asbestos) then additional controls will be required at the landfill during disposal including ensuring asbestos air monitoring results do not exceed 0.1 f/mL.

6.3 Encapsulated Bund and Buried Material

As noted in Section 2.0, the contaminated soils located in the current engineered bund along the site's northern boundary and beneath the bund have come from two Foodstuffs development sites (Pak'nSave Papanui and Durham St New World). These soils invariably contain asbestos and other contaminants, including heavy metals, petroleum hydrocarbon-based compounds and a range of volatile and semi-volatile compounds. It is possible that through the handling processes between the source site and final encapsulation the contaminants have been well mixed, therefore providing a degree of uniformity.

It is proposed for the engineered bund and associated buried soils to be contained within proposed Lot 1, to be retained under the ownership of Foodstuffs, as per the attached plan provided by Eliot Sinclair Limited. It is understood that there will be a minimum 3 m wide level strip of land to the immediate south of the bund extent to permit access for tractors and similar to maintain the current grassed surface capping of the bund. Access to the bund will be via a right of way extending around the western and northern perimeter of Lot 2 from Aruhe Road to the immediate west.

6.4 Non-Complying Asbestos Soil Containing Areas

Outside of the non-complying asbestos containing areas, the remaining soils do not need to be removed offsite from a human health protection perspective.

However, as part of any future commercial/industrial development, it is most likely that the topsoil/organic soils will need to be removed and disposed of at an approved facility. Due to several exceedances of the Regional Recent soil type background concentrations, which are the typical adopted cleanfill criteria within the greater Christchurch area, the soils would on the whole not be acceptable for general cleanfill disposal.

There are some areas over both Blocks that do contain heavy metals below the Regional Recent cleanfill acceptance criteria and further soil sampling could be undertaken to better define these extents to permit soils to be disposed of as cleanfill.

However, the option for disposal at the Fulton Hogan Roberts Road cleanfill⁴ could be considered, although it is noted that based on the sampling to date two soil samples collected from the wider area outside of the asbestos containing areas contain cadmium marginally above their disposal acceptance criteria. Whilst noting this, taking into consideration the mixing processes that would occur in bulk site excavation, placement onto trucks and final placement within the cleanfill then suitable dilution and mixing would occur to meet the cleanfill disposal acceptance criteria. Acceptance of non-asbestos containing soils at the Roberts Road cleanfill would need to be discussed with Fulton Hogan in the first instance.

Furthermore, it would be considered prudent to carry out confirmatory asbestos soil testing outside of the proposed remediated areas to ensure the absence of acceptably low asbestos soil concentrations prior to offsite disposal of surplus soils.

6.5 Offsite Disposal of Other Materials – North-East Part of Block 1

It is noted that a stockpile of soils, concrete blocks and a small volume of waste materials including plastic sheeting is located in the north-eastern corner of the site (refer to red box on Figure 1) and are surplus contaminated soils that were unable to be accommodated into the encapsulated bund. Information provided by Protranz has estimated the combined tonnage of this stockpile, accounting for the different materials, to be approximately 580 tonnes.

Laboratory testing of this material by PDP in July 2024 recorded a low-level detect of asbestos (one sample). In addition, low-level heavy metals and/or poly-cyclic aromatic hydrocarbon (PAH) concentrations were recorded in some samples above the ECan (2007) background concentrations for the local soil type (Regional – Recent) for cleanfill disposal.

We understand that Foodstuffs has received a separate costing from Protranz (email dated 6 September 2024) to remove this material from the site to approved disposal facilities.

An additional smaller stockpile of waste material is located in the central part of Block 1, including an empty 210 L drum, fencing wire, timber posts, etc. Noting the contents of this material it will need to be disposed of at the regional Kate Valley Landfill.

7.0 Validation Soil Sampling

Following the completion of the remedial earthworks, a validation soil sampling programme will be undertaken over the remaining exposed soils. Validation samples will be collected in a similar manner to the current investigation works and analysed for asbestos only, being the identified contaminant of concern.

As noted in Section 6.1, based on the soil sampling undertaken to date, there may be isolated areas in proximity to the headstocks that are not fully remediated, based on the current remedial works plan shown on Figure 1. However, it is anticipated that this will be captured through the validation process and non-complying soils remediated accordingly in order to meet commercial/industrial lands use.

⁴ Roberts Road cleanfill is able to accept slightly higher heavy metal concentrations compared with other traditional cleanfills located in the wider area, typically west of Christchurch Airport.

8.0 Other Considerations

We note that resource consent is currently being applied for from CCC in accordance with the *Resource Management (National Environment Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011* for the disturbance of soil as part of the remedial earthworks.

For those areas of the site that contain asbestos, and in particular above the guideline acceptance criteria in the context of commercial/industrial land use, the BRANZ (2024) and Health and Safety at Work (Asbestos) Regulations 2016 will need to be adhered to with regards to the bulk remedial earthworks.

9.0 Summary

Two soil sampling investigations have been conducted over an approximate 9.4 ha area of the Foodstuffs Distribution Centre paddock areas, 17 Hickory Place, Islington, Christchurch to characterise the soil contamination status prior to potential subdivision and divestment for commercial/industrial development.

The site history information has identified asbestos fines present in surficial site soils resulting from the historical discharge, via border-dyke flood irrigation, from the former neighbouring Heinz-Wattie's production facility. The recent soil sampling investigations aimed to better establish the lateral and vertical extent of asbestos and heavy metals over the site because of this former activity and to remove soils containing asbestos above BRANZ (2024) guidelines for all land uses to an approved waste disposal facility.

Based on the findings of the additional sampling investigations, remedial areas have been defined, as shown on Figure 1, together with landfill disposal options for the non-complying soils. Following the removal of the non-complying asbestos soils, and to ensure that remaining soils comply with BRANZ (2024) guidelines for all land uses, including commercial/industrial, a validation soil sampling programme will be completed. Should the validation sampling record remaining non-complying asbestos soil concentrations, then further remedial earthworks will be completed and the validation sampling programme completed.

In addition to the removal of the asbestos soil impacted areas over the site, there are two separate soil/waste stockpiles located within Block 1, which will also need to be disposed of to approved disposal facilities, as detailed in Section 6.5.

10.0 Limitations

This document has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Foodstuffs South Island Limited and others including Aurecon and Eliot Sinclair. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the document. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This document has been prepared by PDP on the specific instructions of Foodstuffs South Island Limited for the limited purposes described in the document. PDP accepts no liability if the document is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

This document has been prepared based on: a review of site history information, field data gathered by PDP and the results from laboratory analyses of up to 101 soil samples. The site conditions as described in this document have been interpreted from, and are subject to, this information and its limitations and accordingly PDP does not represent that its interpretation accurately represents the full site conditions.

The advice and opinions expressed in this document are based on the observation and sampling of soils at the site. The geological and associated environmental conditions interpolated between the test holes are not guaranteed to be accurate.

The laboratory test results provide an approximation of the concentration of the tested analytes and are subject to the inherent limitations of the laboratory techniques used for the tests.

This assessment is limited to collection and analysis of soil samples from discrete sampling locations. Interpretations of subsurface conditions, including contaminant concentrations, are not guaranteed at distance away from the specific points of sampling.

If contaminants have been found at the site, it is possible that the contaminants could extend off-site, or that any contaminants existing on neighbouring sites might have contributed to the contamination that exists at the site. The presence or absence of contaminants off-site, and risks associated with any off-site contaminants, are not considered by this document.

The information contained within this document applies to sampling undertaken on the date stated in this document, or if none is stated, the date of this document. With time, the site conditions and environmental standards may change. Accordingly, the reported assessment and conclusions are not guaranteed to apply at a later date.

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Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED

Prepared by



Finn Seeds

Environmental Scientist

Reviewed and Approved by

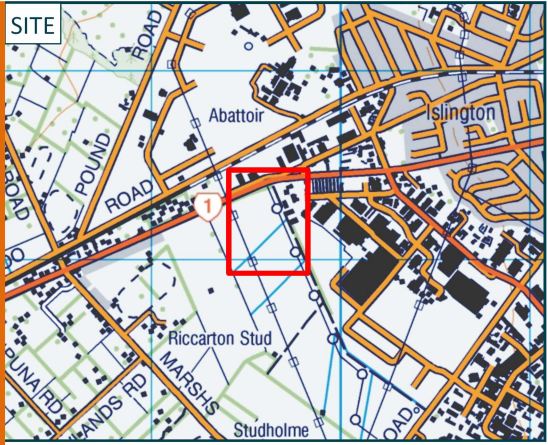


Guy Knoyle

Technical Director - Contaminated Land



Figures



KEY :

SOIL SAMPLING LOCATIONS

- ASBESTOS POSITIVE BRANZ EXCEEDANCE
- ASBESTOS POSITIVE BRANZ NON EXCEEDANCE
- NO ASBESTOS DETECTED
- PDP SOIL SAMPLE INVESTIGATIONS 2022
- ENCAPSULATED BUND
- STOCKPILED MATERIAL
- PDP SOIL SAMPLE INVESTIGATION 2022
- SITE BOUNDARY
- PROPOSED REMEDIAL AREA
- BLOCKS

pdp

0 20 40
METRES

SCALE : 1:1,500 (A3)

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A	FINAL	AUG 25	CI
A	ISSUED FOR REVIEW	AUG 25	CI
NO.	REVISION	DATE	BY

SOURCE:

- AERIAL IMAGERY (FLOWN 2024) SOURCED FROM THE LINZ DATA SERVICE www.linz.govt.nz/ AND LICENCED FOR RE-USE UNDER THE CREATIVE COMMONS ATTRIBUTION 4.0 INTERNATIONAL LICENCE.
- SITE INVESTIGATION LOCATIONS SURVEYED USING TRIMBLE CATALYST EQUIPMENT
- SITE MAP LOCATION NZ TOPO 50K DERIVED FROM LINZ DATA SERVICE

CLIENT

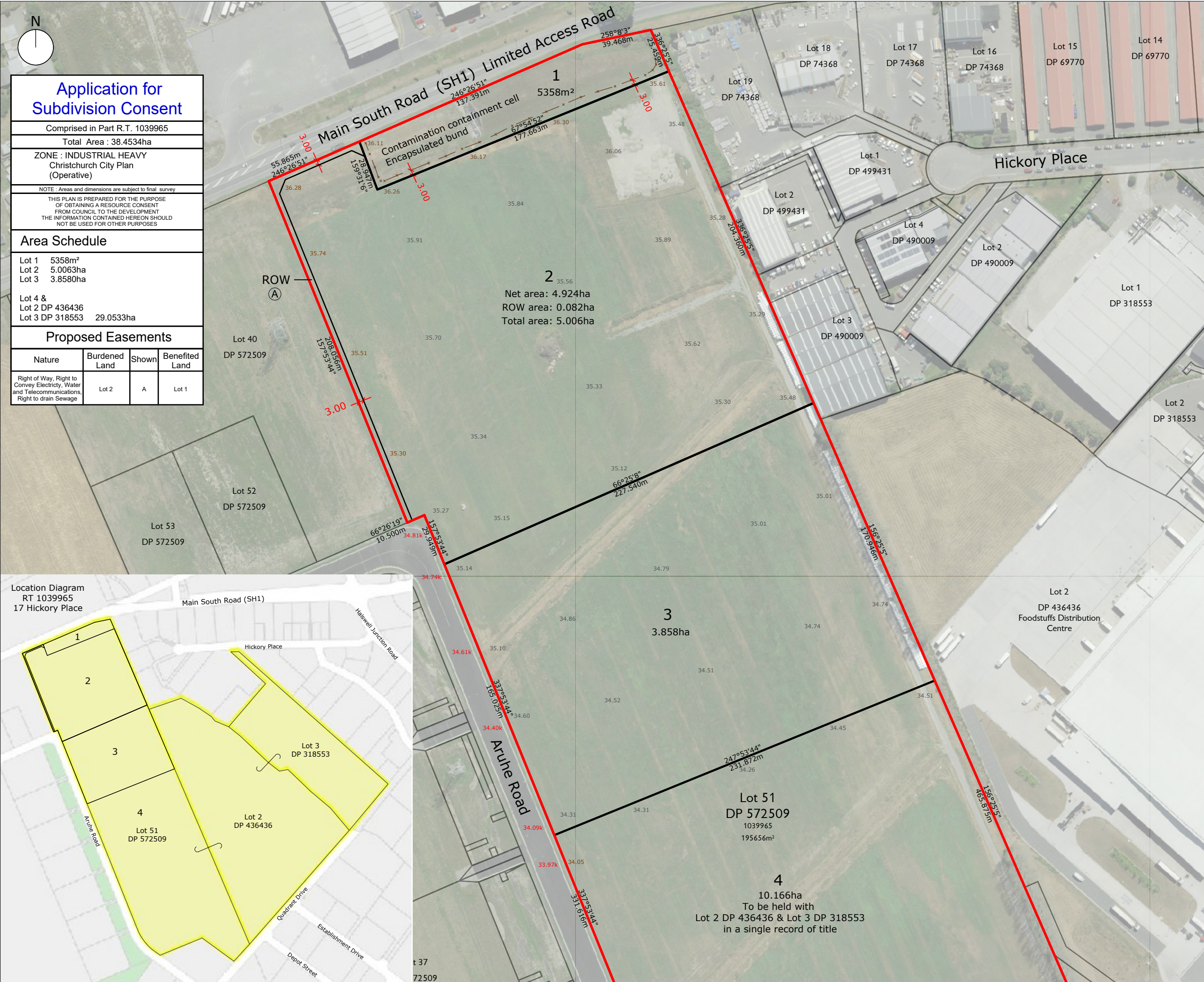
FOODSTUFFS
South Island Limited

FIGURE

FIGURE 1: SITE PLAN, SOIL SAMPLING LOCATIONS AND PROPOSED REMEDIAL AREAS

PROJECT

C038120001 - FOODSTUFFS ISLINGTON REMEDIATION



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SURVEY INFORMATION			
SURVEYED		RWT	
SURVEY DATE		12.08.2025	
COORD SYSTEM		NZGD2000	
CIRCUIT		Mt Pleasant	
DATUM		NZVD2016	
ORIGIN OF LEVELS		887T	
		32.816m	

NOTES

A	RWT	25.08.2025	First Issue
REV.	DRAWN	DATE	NOTE

CLIENT

FOODSTUFFS (SOUTH ISLAND) PROPERTIES LTD.

DESIGNED		RWT
DRAWN		WJH
REVIEWED		WJH
APPROVED		WJH
STATUS		FOR INFORMATION
SCALE		1:2000 [A3]

Lot 51 DP 572509
PROPOSED SUBDIVISION
17 HICKORY PLACE, HORNBY
CHRISTCHURCH

SUBDIVISION APPLICATION
PART RT 1039965

PROJECT	SET	SHEET	REV.
600011	V3	V100	A





Site Photographs



Photograph 1: View of Block 2 looking north-west (March/April 2025 Investigation).



Photograph 2: The soil profile of BLK2_SS2 consisting of grass underlain by silty topsoil to 0.2 m bgl. (March/April 2025 Investigation).



Photograph 3: View of the northern end of Block 1 looking north-east, showing the remaining headstocks in the western corner and the encapsulated bund centre picture. (March/April 2025 Investigation).



Photograph 4: A remaining headstock in Block 1. (March/April 2025 Investigation).



Photograph 5: Soil profile of BLK1_SS4 (next to encapsulated bund area) consisting of silty soils with sand down to 0.2 m bgl. (March/April 2025 Investigation).



Photograph 6: Two small pieces of glass and one brick fragment were encountered in BLK1_SS8. (March/April 2025 Investigation).



Photograph 7: Soil sample location BLK1_SS8 comprising of silty with sand soil to 0.2 m bgl. A brick fragment was observed at 0.2 m bgl. (March/April 2025 Investigation).



Photograph 8: View of the encapsulated bund looking east. (March/April 2025 Investigation)



Photograph 9: Southern headstocks Block 2 looking west. (August 2025 Investigation).



Photograph 10: Stockpile in north-eastern part of the site (Block 1), viewed looking west. (August 2025 Investigation).



Photograph11: Stockpile in north-eastern part of the site (Block 1), viewed looking south. (August 2025 Investigation).



Photograph 12: Stockpile in north-eastern part of the site (Block 1), viewed looking east. (August 2025 Investigation).



Results Tables

Table 1: Soil Analytical Results - Asbestos - Foodstuffs DC, 17 Hickory Place, Islington, Christchurch

Sample Name	BLK1_SS1_0.05	BLK1_SS1_0.2	BLK1_SS2_0.05	BLK1_SS2_0.2	BLK1_SS4_0.05	BLK1_SS4_0.2	BLK1_SS5_0.05	BLK1_SS7_0.05	BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3843460.1	3843460.3	3843460.4	3843460.5	3843460.7	3843460.8	3843460.9	3843460.12				
Sample Location	Block 1											
Sample Depth (m bgl)	0.05	0.2	0.05	0.2	0.05	0.2	0.05	0.05				
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	-	-	-	-
Description of Asbestos Form	ACM debris and Loose fibres	ACM debris and Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	-	-	-	-
Asbestos as ACM ³	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	0.013	0.006	0.004	0.002	<0.001	<0.001	<0.001	<0.001	0.001	1		0.001

Sample Name	BLK1_SS7_0.2	BLK1_SS8_0.05	BLK1_SS9_0.05	BLK1_SS22_0.05	BLK1_SS25_0.05	BLK1_SS27_0.05	BLK1_SS27_0.2	BLK1_SS28_0.05	BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3843460.13	3843460.14	3843460.16	3956642.19	3956642.18	3956642.14	3956642.15	3956642.17				
Sample Location	Block 1											
Sample Depth (m bgl)	0.2	0.05	0.05	0.05	0.05	0.05	0.2	0.05				
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	-	-	-	-
Description of Asbestos Form	Loose fibres	ACM debris and Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	-	-	-	-
Asbestos as ACM ³	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	<0.001	<0.001	0.010	<0.001	0.001	<0.001	0.002	<0.001	0.001	1		0.001

Sample Name	BLK1_SS28_0.2	BLK1_SS29_0.2	BLK1_SS35_0.05	BLK1_SS39_0.05	BLK1_SS40_0.05	BLK1_SS41_0.05	BLK1_SS42_0.05	BLK1_SS45_0.05	BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3956642.16	3956642.12	3956642.9	3956642.4	3956642.1	3957537.19	3957537.20	3957537.23				
Sample Location	Block 1											
Sample Depth (m bgl)	0.2	0.2	0.05	0.05	0.05	0.05	0.05	0.05				
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	-	-	-	-
Description of Asbestos Form	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	-	-	-	-
Asbestos as ACM ³	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.010	<0.001	0.001	1		0.001

Sample Name	BLK1_SS46_0.05	BLK1_SS47_0.05	BLK1_SS48_0.05						BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3957537.24	3957537.25	3957537.26									
Sample Location	Block 1											
Sample Depth (m bgl)	0.05	0.05	0.05									
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected						-	-	-	-
Description of Asbestos Form	Loose fibres	Loose fibres	Loose fibres						-	-	-	-
Asbestos as ACM ³	<0.001	<0.001	<0.001						0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	0.003	<0.001	<0.001						0.001	1		0.001

Sample Name	BLK2_SS12_0.05	BLK2_SS15_0.05	BLK2_SS18_0.05	BLK2_SS18_0.2	BLK2_SS21_0.05	BLK2_SS22_0.05	BLK2_SS23_0.05	BLK2_SS24_0.05	BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3842103.1	3842103.6	3842103.11	3842103.12	3957537.1	3957537.2	3957537.3	3957537.4				
Sample Location	Block 2											
Sample Depth (m bgl)	0.05	0.05	0.05	0.2	0.05	0.05	0.05	0.05				
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	-	-	-	-
Description of Asbestos Form	ACM debris and loose fibres	Loose fibres	ACM debris and loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres	-	-	-	-
Asbestos as ACM ³	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	0.007	<0.001	<0.001	<0.001	0.004	0.009	<0.001	<0.001	0.001	1		0.001

Sample Name	BLK2_SS25_0.05	BLK2_SS26_0.05	BLK2_SS27_0.05	BLK2_SS28_0.05	BLK2_SS29_0.05	BLK2_SS30_0.05	BLK2_SS32_0.05	BLK2_SS34_0.05	BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3957537.5	3957537.6	3957537.7	3957537.8	3957537.9	3957537.10	3957537.12	3957537.14				
Sample Location	Block 2											
Sample Depth (m bgl)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05				
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	Y - Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected	-	-	-	-
Description of Asbestos Form	Loose fibres	Loose fibres	Loose fibres	ACM debris and loose fibres	Loose fibres	Loose fibres	ACM debris and loose fibres	ACM debris and loose fibres	-	-	-	-
Asbestos as ACM ³	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	0.004	0.018	0.056	0.042	<0.001	0.007	0.004	0.005	0.001	1		0.001

Sample Name	BLK2_SS35_0.05								BRANZ Commercial and Industrial ¹	Protranz Leggett Rd Managed Landfill	Frews Hororata Managed Landfill	Taiko Landfill Acceptance Criteria
Laboratory Reference	3957537.15											
Sample Location	Block 2											
Sample Depth (m bgl)	0.05											
Asbestos in Soil												
Asbestos presence (Y/N) ²	Y - Chrysotile (White Asbestos) detected								-	-	-	-
Description of Asbestos Form	Loose fibres								-	-	-	-
Asbestos as ACM ³	<0.001								0.05	5	5	0.05
Asbestos fines + Fibrous Asbestos ⁴	<0.001								0.001	1		0.001

0.013	Concentration above soil guideline values for asbestos for commercial and industrial areas and Taiko Landfill Acceptance Criteria. ECan consent CRC224661 Table 1 states if concentrations above the acceptance criteria then air monitoring criterion set at 0.01											
-------	--	--	--	--	--	--	--	--	--	--	--	--

0.013

Concentration above soil guideline values for asbestos for commercial and industrial areas and Taiko Landfill Acceptance Criteria. ECan consent CRC224661 Table 1 states if concentrations above the acceptance criteria then air monitoring criterion set at 0.1 f/mL.

- Notes:
- Criteria from New Zealand Guidelines for Assessing and Managing Asbestos in Soil - Commercial and Industrial (BRANZ guidelines, 2024).
 - Asbestos presence / absence from analytical testing (Y = yes or N = no).
 - Weight of asbestos in ACM as a percent of the total sample (weight for weight percent (w/w%).
 - Combined fibrous asbestos and asbestos fines as weight for weight percentage (w/w %) of the total sample.
 - ECan consent CRC224661 Table 1 states if concentrations above the acceptance criteria then air monitoring criterion set at 0.1 f/mL.
 - All other soil samples analysed for asbestos across Block 1 and Block 2 had results that were less than the laboratory limit of detection and therefore have not been tabulated. All laboratory reports are attached.

Table 2: Soil Analytical Results - Heavy Metals - Foodstuffs DC, 17 Hickory Place, Islington, Christchurch

Sample Name	BLK1_SS1_0.05	BLK1_SS2_0.2	BLK1_SS3_0.05	BLK1_SS4_0.2	BLK1_SS5_0.05	BLK1_SS7_0.05	BLK1_SS7_0.2	BLK1_SS8_0.2	Human Health Based Soil Contaminant Standard	Protranz Leggett Rd Acceptance Criteria ³	Taiko Landfill Acceptance Criteria	Frews Hororata Acceptance Criteria
Laboratory Reference	3843459.1	3843459.2	3843459.3	3843459.4	3843459.5	3843459.6	3843459.7	3843459.8				
Sample Location	Block 1								Commercial/Industrial Outdoor Worker (Unpaved)			
Sample Depth (m bgl)	0.05	0.2	0.05	0.2	0.05	0.05	0.2	0.2				
Heavy Metals (Total)												
Arsenic	3	3	4	4	3	4	4	4	20 ¹	12.58	70	140
Cadmium	0.10	0.21	0.22	0.15	0.22	0.13	0.14	0.15	3 ^{1,4}	0.19	10	55
Chromium	12	15	15	13	18	15	14	14	460 ^{1,5}	22.70	150	375
Copper	10	13	11	9	15	12	12	10	>10,000 ¹	20.30	280	500
Lead	11.1	18.3	20	67	23	29	32	37	210 ¹	40.96	460	500
Manganese	162	210	240	240	210	260	240	250	40,000 ²	594.5	-	600
Nickel	8	11	11	10	12	10	11	11	400 ²	20.70	320	2,000
Zinc	56	95	113	99	100	84	78	98	7,400 ²	93.94	1,200	1,800

Sample Name	BLK1_SS9_0.05	BLK1_SS11_0.05	BLK1_SS13_0.05	BLK1_SS14_0.05		Human Health Based Soil Contaminant Standard Commercial/Industrial Outdoor Worker (Unpaved)	Protranz Leggett Rd Acceptance Criteria ³	Taiko Landfill Acceptance Criteria	Frews Hororata Acceptance Criteria
Laboratory Reference	3843459.9	3843459.10	3843459.11	3843459.12					
Sample Location	Block 1								
Sample Depth (m bgl)	0.05	0.05	0.05	0.05					
Heavy Metals (Total)									
Arsenic	3	3	4	4		20 ¹	12.58	70	140
Cadmium	0.13	0.19	0.15	0.14		3 ^{1,4}	0.19	10	55
Chromium	17	15	14	14		460 ^{1,5}	22.70	150	375
Copper	16	11	9	9		>10,000 ¹	20.30	280	500
Lead	19.2	22	26	19.5		210 ¹	40.96	460	500
Manganese	172	230	260	270		40,000 ²	594.5	-	600
Nickel	11	11	11	11		400 ²	20.70	320	2,000
Zinc	69	113	104	95		7,400 ²	93.94	1,200	1,800

Sample Name	BLK2_SS1_0.05	BLK2_SS3_0.05	BLK2_SS4_0.05	BLK2_SS5_0.05	BLK2_SS8_0.05	BLK2_SS12_0.05	BLK2_SS12_0.2	BLK2_SS14_0.05	Human Health Based Soil Contaminant Standard	Protranz Leggett Rd Acceptance Criteria ³	Taiko Landfill Acceptance Criteria	Frews Hororata Acceptance Criteria
Laboratory Reference	3822455.1	3822455.2	3822455.3	3822455.4	3822455.6	3841985.1	3841985.2	3841985.3				
Sample Location	Block 2								Commercial/Industrial Outdoor Worker (Unpaved)			
Sample Depth (m bgl)	0.05	0.05	0.05	0.05	0.05	0.05	0.2	0.05				
Heavy Metals (Total)												
Arsenic	4	3	4	3	3	3	4	4	20 ¹	12.58	70	140
Cadmium	0.17	0.15	0.18	0.16	0.14	0.19	0.20	0.19	3 ^{1,4}	0.19	10	55
Chromium	16	14	15	14	14	18	16	17	460 ^{1,5}	22.70	150	375
Copper	11	9	12	10	10	14	12	14	>10,000 ¹	20.30	280	500
Lead	27	15.9	37	15.1	15.3	26	30	30	210 ¹	40.96	460	500
Manganese	290	210	360	270	230	240	260	280	40,000 ²	594.5	-	600
Nickel	12	10	13	10	10	12	12	13	400 ²	20.70	320	2,000
Zinc	113	95	115	95	91	116	112	121	7,400 ²	93.94	1,200	1,800

Sample Name	BLK2_SS16_0.05	BLK2_SS16_0.2	BLK2_SS18_0.05	BLK2_SS18_0.2	BLK2_SS19_0.2	BLK2_SS20_0.05			Human Health Based Soil Contaminant Standard Commercial/Industrial Outdoor Worker (Unpaved)	Protranz Leggett Rd Acceptance Criteria ³	Taiko Landfill Acceptance Criteria	Frews Hororata Acceptance Criteria
Laboratory Reference	3841985.4	3841985.5	3841985.60	3841985.7	3841985.8	3841985.9						
Sample Location	Block 2											
Sample Depth (m bgl)	0.05	0.2	0.05	0.2	0.2	0.05						
Heavy Metals (Total)												
Arsenic	3	4	3	4	3	3			20 ¹	12.58	70	140
Cadmium	0.21	0.14	0.18	0.19	0.17	0.20			3 ^{1,4}	0.19	10	55
Chromium	18	15	17	16	16	16			460 ^{1,5}	22.70	150	375
Copper	13	9	12	11	11	10			>10,000 ¹	20.30	280	500
Lead	18.0	14.7	19.4	26	19.3	17.0			210 ¹	40.96	460	500
Manganese	230	240	185	220	210	210			40,000 ²	594.5	-	600
Nickel	12	11	10	12	11	11			400 ²	20.70	320	2,000
Zinc	113	81	93	110	108	105			7,400 ²	93.94	1,200	1,800

95

Concentration above Typical Christchurch Cleanfill Acceptance Criteria - i.e. for Protranz Leggett Rd disposal option.

Notes

- All results in mg/kg.
- Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (MfE, 2011) - Commercial/Industrial Outdoor Worker (Unpaved)
 - Guideline on Investigation Levels for Soil and Groundwater (Assessment of Site Contamination Amendment Measure 2013) (NEPC, 2013) - Residential A Land Use.
 - Acceptance Criteria for typical Chrstrhuch Cleanfills (western Christchuch) based on Environment Canterbury Regional Background Concentrations for Regional - Recent soil type. Background concentration value based on maximum plus half inter-quartile range.
 - Based on a default pH of 5.
 - Soil contaminant standard for Cr VI used as a conservative approach.



Laboratory Reports

Certificate of Analysis

Page 1 of 3

Client:	Pattle Delamore Partners Limited	Lab No:	3822454	A2Pv1.1
Contact:	Mr G Knoyle	Date Received:	20-Mar-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	22-Aug-2025	
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:	C03812100	
		Client Reference:	C03812100	
		Submitted By:	Miriam Clark	

Sample Type: Soil

Sample Name:	BLK2_SS1_0.05 20-Mar-2025	BLK2_SS1_0.2 20-Mar-2025	BLK2_SS2_0.05 20-Mar-2025	BLK2_SS2_0.2 20-Mar-2025	BLK2_SS3_0.05 20-Mar-2025
Lab Number:	3822454.1	3822454.2	3822454.3	3822454.4	3822454.5
Asbestos Presence / Absence	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form	-	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
As Received Weight	g 703.9	g 815.9	g 666.7	g 783.0	g 702.7
Dry Weight	g 532.0	g 659.5	g 499.7	g 633.3	g 573.7
Moisture*	% 24	% 19	% 25	% 19	% 18
Sample Fraction >10mm	g dry wt 0.4	g dry wt < 0.1	g dry wt 0.6	g dry wt < 0.1	g dry wt 0.6
Sample Fraction <10mm to >2mm	g dry wt 5.3	g dry wt 8.9	g dry wt 11.1	g dry wt 2.8	g dry wt 12.1
Sample Fraction <2mm	g dry wt 524.9	g dry wt 649.3	g dry wt 486.8	g dry wt 629.5	g dry wt 559.9
<2mm Subsample Weight	g dry wt 50.2	g dry wt 51.0	g dry wt 51.9	g dry wt 51.1	g dry wt 50.2
Weight of Asbestos in ACM (Non-Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001

Sample Name:	BLK2_SS3_0.2 20-Mar-2025	BLK2_SS4_0.05 20-Mar-2025	BLK2_SS5_0.05 20-Mar-2025	BLK2_SS6_0.05 20-Mar-2025	BLK2_SS7_0.05 20-Mar-2025
Lab Number:	3822454.6	3822454.7	3822454.8	3822454.9	3822454.10
Asbestos Presence / Absence	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form	-	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
As Received Weight	g 776.6	g 670.7	g 703.6	g 677.8	g 695.7
Dry Weight	g 646.4	g 500.6	g 484.5	g 522.0	g 515.0
Moisture*	% 17	% 25	% 31	% 23	% 26



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.

Sample Type: Soil						
Sample Name:		BLK2_SS3_0.2 20-Mar-2025	BLK2_SS4_0.05 20-Mar-2025	BLK2_SS5_0.05 20-Mar-2025	BLK2_SS6_0.05 20-Mar-2025	BLK2_SS7_0.05 20-Mar-2025
Lab Number:		3822454.6	3822454.7	3822454.8	3822454.9	3822454.10
Sample Fraction >10mm	g dry wt	0.1	1.6	< 0.1	0.7	1.0
Sample Fraction <10mm to >2mm	g dry wt	0.8	30.0	5.6	8.6	15.3
Sample Fraction <2mm	g dry wt	644.4	467.7	478.1	511.8	497.5
<2mm Subsample Weight	g dry wt	53.0	50.2	50.7	53.4	51.4
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

Sample Name:		BLK2_SS8_0.05 20-Mar-2025				
Lab Number:		3822454.11				
Asbestos Presence / Absence		Asbestos NOT detected.				
Description of Asbestos Form		-				
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001				
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w	< 0.001				
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001				
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001				
As Received Weight	g	635.4				
Dry Weight	g	468.6				
Moisture*	%	26				
Sample Fraction >10mm	g dry wt	0.8				
Sample Fraction <10mm to >2mm	g dry wt	9.7				
Sample Fraction <2mm	g dry wt	457.1				
<2mm Subsample Weight	g dry wt	50.3				
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001				
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt	< 0.00001				
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 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.

Analyst's Comments
This certificate of analysis contains information extracted from 3822454-A2Pv1 issued on 25-Mar-2025 at 1:39 pm.

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	1-11
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	1-11
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-11
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	1-11
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	1-11
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	1-11
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%	1-11
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-11
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	1-11
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	1-11
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	1-11
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	1-11
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	1-11
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	1-11
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	1-11

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

Testing was completed on 25-Mar-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.

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John Keneth Paglingayan BApSc
Laboratory Technician - Asbestos

Certificate of Analysis

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Client:	Pattle Delamore Partners Limited	Lab No:	3842103	A2Pv1.1
Contact:	Mr G Knoyle	Date Received:	02-Apr-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	22-Aug-2025	
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:		
		Client Reference:	C03812100	
		Submitted By:	Miriam Clark	

Sample Type: Soil

Sample Name:	BLK2_SS12_0.05	BLK2_SS12_0.2	BLK2_SS13_0.05	BLK2_SS13_0.2	BLK2_SS14_0.05
	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025
Lab Number:	3842103.1	3842103.2	3842103.3	3842103.4	3842103.5
Asbestos Presence / Absence	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form	ACM debris and Loose fibres	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w 0.007	< 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	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w 0.007	< 0.001	< 0.001	< 0.001	< 0.001
As Received Weight	g 613.6	605.8	501.0	634.9	593.0
Dry Weight	g 518.1	516.0	409.0	532.8	471.6
Moisture*	% 16	15	18	16	20
Sample Fraction >10mm	g dry wt < 0.1	8.5	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt 0.4	2.1	0.4	1.6	0.2
Sample Fraction <2mm	g dry wt 516.4	503.7	407.0	529.5	470.3
<2mm Subsample Weight	g dry wt 51.7	53.5	58.0	55.3	54.1
Weight of Asbestos in ACM (Non-Friable)	g dry wt < 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt 0.03414	< 0.00001	< 0.00001	< 0.00001	< 0.00001

Sample Name:	BLK2_SS15_0.05	BLK2_SS15_0.2	BLK2_SS16_0.05	BLK2_SS16_0.2	BLK2_SS17_0.05
	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025
Lab Number:	3842103.6	3842103.7	3842103.8	3842103.9	3842103.10
Asbestos Presence / Absence	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form	Loose fibres	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	< 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	< 0.001
As Received Weight	g 566.7	641.7	585.3	787.7	460.0
Dry Weight	g 461.7	528.1	473.5	676.4	366.8



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.

Sample Type: Soil						
Sample Name:		BLK2_SS15_0.05 02-Apr-2025	BLK2_SS15_0.2 02-Apr-2025	BLK2_SS16_0.05 02-Apr-2025	BLK2_SS16_0.2 02-Apr-2025	BLK2_SS17_0.05 02-Apr-2025
Lab Number:		3842103.6	3842103.7	3842103.8	3842103.9	3842103.10
Moisture*	%	19	18	19	14	20
Sample Fraction >10mm	g dry wt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt	0.2	0.1	10.2	< 0.1	0.6
Sample Fraction <2mm	g dry wt	459.7	526.9	461.4	674.9	365.2
<2mm Subsample Weight	g dry wt	54.9	51.4	58.8	57.5	54.5
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	0.00084	< 0.00001	< 0.00001	< 0.00001	< 0.00001

Sample Name:		BLK2_SS18_0.05 02-Apr-2025	BLK2_SS18_0.2 02-Apr-2025	BLK2_SS19_0.05 02-Apr-2025	BLK2_SS19_0.2 02-Apr-2025	BLK2_SS20_0.05 02-Apr-2025
Lab Number:		3842103.11	3842103.12	3842103.13	3842103.14	3842103.15
Asbestos Presence / Absence		Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form		ACM debris and Loose fibres	Loose fibres	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
As Received Weight	g	666.3	700.0	559.5	627.1	631.6
Dry Weight	g	551.3	597.6	446.7	520.0	534.8
Moisture*	%	17	15	20	17	15
Sample Fraction >10mm	g dry wt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt	0.3	8.1	< 0.1	0.2	0.6
Sample Fraction <2mm	g dry wt	549.4	587.6	445.4	518.5	533.1
<2mm Subsample Weight	g dry wt	58.6	53.7	51.1	58.4	59.8
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	0.00418	0.00055	< 0.00001	< 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.

Analyst's Comments

This certificate of analysis contains information extracted from 3842103-A2Pv1 issued on 07-Apr-2025 at 3:13 pm.

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	1-15
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	1-15
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-15
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	1-15
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	1-15
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	1-15
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%	1-15
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-15
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	1-15
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	1-15
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	1-15
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	1-15
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	1-15
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	1-15
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	1-15

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

Testing was completed between 04-Apr-2025 and 07-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.

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A handwritten signature in blue ink, appearing to read 'John Keneth Paglingayen', with a stylized flourish at the end.

John Keneth Paglingayen BApSc
Laboratory Technician - Asbestos

Certificate of Analysis

Page 1 of 4

Client:	Pattle Delamore Partners Limited	Lab No:	3843460	A2Pv1
Contact:	Mr G Knoyle C/- Pattle Delamore Partners Limited PO Box 389 Christchurch 8140	Date Received:	03-Apr-2025	
		Date Reported:	08-Apr-2025	
		Quote No:	81087	
		Order No:		
		Client Reference:	C03812100	
		Submitted By:	Miriam Clark	

Sample Type: Soil

Sample Name:	BLK1_SS1_0.05 03-Apr-2025	BLK1_SS1_0.2 03-Apr-2025	BLK1_SS2_0.05 03-Apr-2025	BLK1_SS2_0.2 03-Apr-2025	BLK1_SS3_0.05 03-Apr-2025
Lab Number:	3843460.1	3843460.3	3843460.4	3843460.5	3843460.6
Asbestos Presence / Absence	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Asbestos NOT detected.
Description of Asbestos Form	ACM debris and Loose fibres	ACM debris and Loose fibres	Loose fibres	Loose fibres	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w 0.013	% w/w 0.006	% w/w 0.004	% w/w 0.002	% w/w < 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w 0.013	% w/w 0.006	% w/w 0.004	% w/w 0.002	% w/w < 0.001
As Received Weight	g 651.2	g 752.3	g 604.0	g 643.3	g 566.9
Dry Weight	g 485.1	g 605.5	g 534.5	g 547.6	g 468.0
Moisture*	% 26	% 20	% 12	% 15	% 17
Sample Fraction >10mm	g dry wt 10.2	g dry wt 42.7	g dry wt 4.4	g dry wt < 0.1	g dry wt 5.5
Sample Fraction <10mm to >2mm	g dry wt 37.7	g dry wt 87.0	g dry wt 64.3	g dry wt 55.4	g dry wt 43.9
Sample Fraction <2mm	g dry wt 435.0	g dry wt 473.1	g dry wt 463.2	g dry wt 489.2	g dry wt 417.8
<2mm Subsample Weight	g dry wt 56.0	g dry wt 51.7	g dry wt 52.4	g dry wt 56.9	g dry wt 52.0
Weight of Asbestos in ACM (Non-Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt 0.06231	g dry wt 0.03730	g dry wt 0.02312	g dry wt 0.01206	g dry wt < 0.00001

Sample Name:	BLK1_SS4_0.05 03-Apr-2025	BLK1_SS4_0.2 03-Apr-2025	BLK1_SS5_0.05 03-Apr-2025	BLK1_SS5_0.2 03-Apr-2025	BLK1_SS6_0.05 03-Apr-2025
Lab Number:	3843460.7	3843460.8	3843460.9	3843460.10	3843460.11
Asbestos Presence / Absence	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form	Loose fibres	Loose fibres	Loose fibres	-	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001



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Sample Type: Soil						
Sample Name:		BLK1_SS4_0.05 03-Apr-2025	BLK1_SS4_0.2 03-Apr-2025	BLK1_SS5_0.05 03-Apr-2025	BLK1_SS5_0.2 03-Apr-2025	BLK1_SS6_0.05 03-Apr-2025
Lab Number:		3843460.7	3843460.8	3843460.9	3843460.10	3843460.11
As Received Weight	g	838.4	751.9	643.5	710.7	557.6
Dry Weight	g	664.3	643.7	516.4	593.3	453.2
Moisture*	%	21	14	20	17	19
Sample Fraction >10mm	g dry wt	7.4	4.1	5.5	5.4	21.3
Sample Fraction <10mm to >2mm	g dry wt	122.3	18.4	135.2	122.8	82.3
Sample Fraction <2mm	g dry wt	532.5	619.9	372.4	463.1	348.7
<2mm Subsample Weight	g dry wt	57.1	52.6	58.9	52.3	57.5
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	0.00563	0.00020	0.00020	< 0.00001	< 0.00001
Sample Name:		BLK1_SS7_0.05 03-Apr-2025	BLK1_SS7_0.2 03-Apr-2025	BLK1_SS8_0.05 03-Apr-2025	BLK1_SS8_0.2 03-Apr-2025	BLK1_SS9_0.05 03-Apr-2025
Lab Number:		3843460.12	3843460.13	3843460.14	3843460.15	3843460.16
Asbestos Presence / Absence		Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.
Description of Asbestos Form		Loose fibres	Loose fibres	ACM debris and Loose fibres	-	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	0.010
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 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	0.010
As Received Weight	g	644.0	745.2	782.9	836.6	590.8
Dry Weight	g	535.5	658.0	643.6	746.0	449.0
Moisture*	%	17	12	18	11	24
Sample Fraction >10mm	g dry wt	120.4	88.0	42.4	< 0.1	2.6
Sample Fraction <10mm to >2mm	g dry wt	178.0	108.7	178.8	77.4	86.2
Sample Fraction <2mm	g dry wt	236.3	459.8	421.2	667.1	359.0
<2mm Subsample Weight	g dry wt	52.3	54.7	51.1	51.8	53.3
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	0.00404	0.00010	0.00252	< 0.00001	0.04584
Sample Name:		BLK1_SS10_0.05 03-Apr-2025	BLK1_SS11_0.05 03-Apr-2025	BLK1_SS12_0.05 03-Apr-2025	BLK1_SS13_0.05 03-Apr-2025	BLK1_SS14_0.05 03-Apr-2025
Lab Number:		3843460.17	3843460.18	3843460.19	3843460.20	3843460.21
Asbestos Presence / Absence		Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form		-	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
As Received Weight	g	512.3	666.9	515.7	655.2	663.0
Dry Weight	g	417.3	517.3	390.3	502.2	511.3

Sample Type: Soil					
Sample Name:		BLK1_SS10_0.05	BLK1_SS11_0.05	BLK1_SS12_0.05	BLK1_SS13_0.05
		03-Apr-2025	03-Apr-2025	03-Apr-2025	03-Apr-2025
Lab Number:		3843460.17	3843460.18	3843460.19	3843460.20
		3843460.21			
Moisture*	%	19	22	24	23
Sample Fraction >10mm	g dry wt	3.3	< 0.1	0.2	2.7
Sample Fraction <10mm to >2mm	g dry wt	35.9	19.0	12.5	79.9
Sample Fraction <2mm	g dry wt	376.7	496.9	376.8	418.4
<2mm Subsample Weight	g dry wt	58.9	51.2	52.0	55.6
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	< 0.00001	< 0.00001	< 0.00001

Sample Name:		BLK1_SS15_0.05 03-Apr-2025			
Lab Number:		3843460.22			
Asbestos Presence / Absence		Asbestos NOT detected.			
Description of Asbestos Form		-			
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001			
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w	< 0.001			
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001			
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001			
As Received Weight	g	580.2			
Dry Weight	g	455.8			
Moisture*	%	21			
Sample Fraction >10mm	g dry wt	0.5			
Sample Fraction <10mm to >2mm	g dry wt	66.7			
Sample Fraction <2mm	g dry wt	387.4			
<2mm Subsample Weight	g dry wt	52.6			
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001			
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt	< 0.00001			
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 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, 3-22
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, 3-22
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22

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

Testing was completed between 07-Apr-2025 and 08-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.



Dexter Paguirigan Dip Chem Engineering Tech
Laboratory Technician - Asbestos

Certificate of Analysis

Page 1 of 5

Client:	Pattle Delamore Partners Limited	Lab No:	3956642	A2Pv1
Contact:	Mr G Knoyle	Date Received:	07-Aug-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	12-Aug-2025	
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:		
		Client Reference:	C038120001	
		Submitted By:	Finn Seeds	

Sample Type: Soil

Sample Name:	BLK1_SS40_0.05	BLK1_SS30_0.05	BLK1_SS33_0.05	BLK1_SS39_0.05	BLK1_SS32_0.05
	07-Aug-2025	07-Aug-2025	07-Aug-2025	07-Aug-2025	07-Aug-2025
Lab Number:	3956642.1	3956642.2	3956642.3	3956642.4	3956642.5
Asbestos Presence / Absence	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Asbestos NOT detected.
Description of Asbestos Form	Loose fibres	-	-	Loose fibres	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	< 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	< 0.001
As Received Weight	g 718.8	819.2	721.3	755.2	665.0
Dry Weight	g 587.8	693.9	547.3	606.9	543.2
Moisture*	% 18	15	24	20	18
Sample Fraction >10mm	g dry wt 7.5	5.1	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt 9.4	41.0	23.4	5.8	30.4
Sample Fraction <2mm	g dry wt 568.4	645.6	521.3	598.7	510.8
<2mm Subsample Weight	g dry wt 55.5	53.6	54.0	57.8	56.7
Weight of Asbestos in ACM (Non-Friable)	g dry wt < 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt 0.00007	< 0.00001	< 0.00001	0.00346	< 0.00001

Sample Name:	BLK1_SS34_0.05	BLK1_SS34_0.2	BLK1_SS31_0.05	BLK1_SS35_0.05	BLK1_SS29_0.05
	07-Aug-2025	07-Aug-2025	07-Aug-2025	07-Aug-2025	07-Aug-2025
Lab Number:	3956642.6	3956642.7	3956642.8	3956642.9	3956642.10
Asbestos Presence / Absence	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.
Description of Asbestos Form	-	-	-	Loose fibres	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	< 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	< 0.001
As Received Weight	g 553.2	658.4	800.6	577.3	702.1



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Sample Type: Soil						
Sample Name:		BLK1_SS34_0.05 07-Aug-2025	BLK1_SS34_0.2 07-Aug-2025	BLK1_SS31_0.05 07-Aug-2025	BLK1_SS35_0.05 07-Aug-2025	BLK1_SS29_0.05 07-Aug-2025
Lab Number:		3956642.6	3956642.7	3956642.8	3956642.9	3956642.10
Dry Weight	g	370.1	498.3	686.0	409.3	568.5
Moisture*	%	33	24	14	29	19
Sample Fraction >10mm	g dry wt	< 0.1	< 0.1	20.8	< 0.1	15.6
Sample Fraction <10mm to >2mm	g dry wt	5.0	2.2	89.4	15.5	62.7
Sample Fraction <2mm	g dry wt	363.3	494.4	573.0	391.6	487.6
<2mm Subsample Weight	g dry wt	52.0	57.9	56.6	50.8	52.0
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	< 0.00001	< 0.00001	0.00031	< 0.00001
Sample Name:		BLK1_SS26_0.05 07-Aug-2025	BLK1_SS29_0.2 07-Aug-2025	BLK1_SS1_0.2 07-Aug-2025	BLK1_SS27_0.05 07-Aug-2025	BLK1_SS27_0.2 07-Aug-2025
Lab Number:		3956642.11	3956642.12	3956642.13	3956642.14	3956642.15
Asbestos Presence / Absence		Asbestos NOT detected.	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.
Description of Asbestos Form		-	Loose fibres	Loose fibres	Loose fibres	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	0.002
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 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	0.002
As Received Weight	g	591.6	649.1	679.2	753.3	698.6
Dry Weight	g	433.7	525.8	504.8	585.3	548.6
Moisture*	%	27	19	26	22	21
Sample Fraction >10mm	g dry wt	< 0.1	8.4	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt	0.3	56.3	6.6	1.8	12.8
Sample Fraction <2mm	g dry wt	432.0	458.9	496.2	581.6	533.5
<2mm Subsample Weight	g dry wt	50.1	59.6	56.7	54.1	58.6
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	0.00010	0.00067	0.00257	0.01081
Sample Name:		BLK1_SS28_0.2 07-Aug-2025	BLK1_SS28_0.05 07-Aug-2025	BLK1_SS25_0.05 07-Aug-2025	BLK1_SS22_0.05 07-Aug-2025	BLK1_SS16_0.05 07-Aug-2025
Lab Number:		3956642.16	3956642.17	3956642.18	3956642.19	3956642.20
Asbestos Presence / Absence		Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.
Description of Asbestos Form		Loose fibres	Loose fibres	Loose fibres	Loose fibres	-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
As Received Weight	g	716.6	704.9	602.3	619.5	763.8
Dry Weight	g	587.3	563.0	443.4	454.2	637.5
Moisture*	%	18	20	26	27	17

Sample Type: Soil						
Sample Name:		BLK1_SS28_0.2 07-Aug-2025	BLK1_SS28_0.05 07-Aug-2025	BLK1_SS25_0.05 07-Aug-2025	BLK1_SS22_0.05 07-Aug-2025	BLK1_SS16_0.05 07-Aug-2025
Lab Number:		3956642.16	3956642.17	3956642.18	3956642.19	3956642.20
Sample Fraction >10mm	g dry wt	10.1	15.6	< 0.1	< 0.1	7.2
Sample Fraction <10mm to >2mm	g dry wt	114.1	27.0	0.6	4.6	67.0
Sample Fraction <2mm	g dry wt	460.9	518.0	441.0	448.5	560.4
<2mm Subsample Weight	g dry wt	56.1	58.2	51.3	54.6	58.4
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	0.00026	0.00089	0.00510	0.00009	< 0.00001

Sample Name:		BLK1_SS18_0.05 07-Aug-2025	BLK1_SS21_0.05 07-Aug-2025	BLK1_SS19_0.05 07-Aug-2025	BLK1_SS23_0.05 07-Aug-2025	BLK1_SS24_0.05 07-Aug-2025
Lab Number:		3956642.21	3956642.22	3956642.23	3956642.24	3956642.25
Asbestos Presence / Absence		Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form		-	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 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	< 0.001
As Received Weight	g	783.7	556.3	749.1	596.5	588.2
Dry Weight	g	644.7	410.3	620.0	475.8	447.3
Moisture*	%	18	26	17	20	24
Sample Fraction >10mm	g dry wt	115.1	28.8	96.6	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt	183.0	67.1	175.4	25.0	48.4
Sample Fraction <2mm	g dry wt	345.6	313.6	346.9	450.1	397.8
<2mm Subsample Weight	g dry wt	55.1	56.6	54.5	53.4	52.1
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001

Sample Name:		BLK1_SS17_0.05 07-Aug-2025		BLK1_SS20_0.05 07-Aug-2025	
Lab Number:		3956642.26		3956642.27	
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	783.0		767.2	
Dry Weight	g	673.5		660.7	
Moisture*	%	14		14	
Sample Fraction >10mm	g dry wt	92.4		60.3	
Sample Fraction <10mm to >2mm	g dry wt	182.5		67.4	
Sample Fraction <2mm	g dry wt	396.6		531.5	
<2mm Subsample Weight	g dry wt	51.0		51.2	
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001		< 0.00001	

Sample Type: Soil			
Sample Name:		BLK1_SS17_0.05 07-Aug-2025	BLK1_SS20_0.05 07-Aug-2025
Lab Number:		3956642.26	3956642.27
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	1-27
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	1-27
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-27
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	1-27
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	1-27
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	1-27
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%	1-27
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-27
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	1-27
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	1-27
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	1-27

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-27
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	1-27
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	1-27
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	1-27

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

Testing was completed between 11-Aug-2025 and 12-Aug-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.



Dexter Paguirigan Dip Chem Engineering Tech
Laboratory Technician - Asbestos

Certificate of Analysis

Page 1 of 5

Client:	Pattle Delamore Partners Limited	Lab No:	3957537	A2Pv1
Contact:	Mr G Knoyle	Date Received:	08-Aug-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	13-Aug-2025	
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:		
		Client Reference:	C038120001	
		Submitted By:	Finn Seeds	

Sample Type: Soil

Sample Name:	BLK2_SS21_0.05	BLK2_SS22_0.05	BLK2_SS23_0.05	BLK2_SS24_0.05	BLK2_SS25_0.05
	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:	3957537.1	3957537.2	3957537.3	3957537.4	3957537.5
Asbestos Presence / Absence	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.
Description of Asbestos Form	Loose fibres	Loose fibres	Loose fibres	Loose fibres	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w 0.004	% w/w 0.009	% w/w < 0.001	% w/w < 0.001	% w/w 0.004
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w 0.004	% w/w 0.009	% w/w < 0.001	% w/w < 0.001	% w/w 0.004
As Received Weight	g 635.3	g 625.8	g 695.8	g 654.7	g 674.0
Dry Weight	g 470.5	g 466.3	g 527.0	g 498.3	g 492.6
Moisture*	% 26	% 25	% 24	% 24	% 27
Sample Fraction >10mm	g dry wt < 0.1	g dry wt < 0.1	g dry wt < 0.1	g dry wt 2.3	g dry wt < 0.1
Sample Fraction <10mm to >2mm	g dry wt 54.8	g dry wt 95.3	g dry wt 87.3	g dry wt 98.3	g dry wt 109.1
Sample Fraction <2mm	g dry wt 414.5	g dry wt 369.5	g dry wt 438.5	g dry wt 396.9	g dry wt 382.4
<2mm Subsample Weight	g dry wt 53.9	g dry wt 53.5	g dry wt 58.2	g dry wt 55.0	g dry wt 56.9
Weight of Asbestos in ACM (Non-Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt 0.01941	g dry wt 0.04374	g dry wt 0.00401	g dry wt 0.00010	g dry wt 0.01945

Sample Name:	BLK2_SS26_0.05	BLK2_SS27_0.05	BLK2_SS28_0.05	BLK2_SS29_0.05	BLK2_SS30_0.05
	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:	3957537.6	3957537.7	3957537.8	3957537.9	3957537.10
Asbestos Presence / Absence	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.
Description of Asbestos Form	Loose fibres	Loose fibres	ACM debris and Loose fibres	Loose fibres	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w 0.018	% w/w 0.056	% w/w 0.042	% w/w < 0.001	% w/w 0.007
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001



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.

Sample Type: Soil						
Sample Name:		BLK2_SS26_0.05	BLK2_SS27_0.05	BLK2_SS28_0.05	BLK2_SS29_0.05	BLK2_SS30_0.05
		08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:		3957537.6	3957537.7	3957537.8	3957537.9	3957537.10
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	0.018	0.056	0.042	< 0.001	0.007
As Received Weight	g	640.8	625.7	594.0	601.7	650.5
Dry Weight	g	493.8	436.3	435.8	417.2	472.4
Moisture*	%	23	30	27	31	27
Sample Fraction >10mm	g dry wt	4.8	0.6	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt	28.6	4.6	6.4	5.2	7.6
Sample Fraction <2mm	g dry wt	459.4	429.6	428.0	410.1	463.2
<2mm Subsample Weight	g dry wt	59.6	59.1	58.0	59.4	57.6
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	0.08706	0.2464	0.18215	0.00123	0.03435

Sample Name:		BLK2_SS31_0.05	BLK2_SS32_0.05	BLK2_SS33_0.05	BLK2_SS34_0.05	BLK2_SS35_0.05
		08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:		3957537.11	3957537.12	3957537.13	3957537.14	3957537.15
Asbestos Presence / Absence		Asbestos NOT detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Chrysotile (White Asbestos) detected.
Description of Asbestos Form		-	ACM debris and Loose fibres	-	ACM debris and Loose fibres	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w	< 0.001	0.004	< 0.001	0.005	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001	0.004	< 0.001	0.005	< 0.001
As Received Weight	g	600.0	632.6	578.7	621.7	696.6
Dry Weight	g	404.7	461.2	428.0	454.6	489.2
Moisture*	%	33	27	26	27	30
Sample Fraction >10mm	g dry wt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sample Fraction <10mm to >2mm	g dry wt	0.4	3.4	0.8	3.5	1.9
Sample Fraction <2mm	g dry wt	403.1	456.5	426.0	449.7	485.1
<2mm Subsample Weight	g dry wt	53.9	59.2	53.3	56.8	59.7
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	0.01786	< 0.00001	0.02183	0.00092

Sample Name:		BLK1_SS36_0.05	BLK1_SS37_0.05	BLK1_SS38_0.05	BLK1_SS41_0.05	BLK1_SS42_0.05
		08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:		3957537.16	3957537.17	3957537.18	3957537.19	3957537.20
Asbestos Presence / Absence		Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.
Description of Asbestos Form		-	-	-	Loose fibres	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	0.003	0.010
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

Sample Type: Soil						
Sample Name:		BLK1_SS36_0.05	BLK1_SS37_0.05	BLK1_SS38_0.05	BLK1_SS41_0.05	BLK1_SS42_0.05
		08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:		3957537.16	3957537.17	3957537.18	3957537.19	3957537.20
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	0.003	0.010
As Received Weight	g	736.4	692.0	778.4	765.8	723.5
Dry Weight	g	659.3	576.8	676.3	605.1	565.7
Moisture*	%	10	17	13	21	22
Sample Fraction >10mm	g dry wt	29.7	27.1	27.1	8.6	1.9
Sample Fraction <10mm to >2mm	g dry wt	284.2	166.0	64.3	34.4	48.6
Sample Fraction <2mm	g dry wt	342.2	382.5	583.8	559.6	512.6
<2mm Subsample Weight	g dry wt	54.8	56.0	53.3	56.0	56.3
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	< 0.00001	< 0.00001	0.01552	0.05570

Sample Name:		BLK1_SS43_0.05	BLK1_SS44_0.05	BLK1_SS45_0.05	BLK1_SS46_0.05	BLK1_SS47_0.05
		08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025	08-Aug-2025
Lab Number:		3957537.21	3957537.22	3957537.23	3957537.24	3957537.25
Asbestos Presence / Absence		Asbestos NOT detected.	Asbestos NOT detected.	Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.	Amosite (Brown Asbestos) and Chrysotile (White Asbestos) detected.
Description of Asbestos Form		-	-	Loose fibres	Loose fibres	Loose fibres
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 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	0.003	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	0.003	< 0.001
As Received Weight	g	768.0	745.0	782.4	684.9	682.2
Dry Weight	g	627.3	612.7	660.2	550.0	539.1
Moisture*	%	18	18	16	20	21
Sample Fraction >10mm	g dry wt	3.1	1.6	7.2	3.6	2.0
Sample Fraction <10mm to >2mm	g dry wt	75.6	4.2	46.7	23.9	55.1
Sample Fraction <2mm	g dry wt	546.2	604.1	604.6	520.4	478.6
<2mm Subsample Weight	g dry wt	55.3	53.5	54.6	53.2	55.2
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 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	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	< 0.00001	0.00049	0.01614	0.00060

Sample Name:		BLK1_SS48_0.05 08-Aug-2025	BLK1_SS49_0.05 08-Aug-2025
Lab Number:		3957537.26	3957537.27
Asbestos Presence / Absence		Chrysotile (White Asbestos) detected.	Asbestos NOT detected.
Description of Asbestos Form		Loose fibres	-
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	701.8	804.9
Dry Weight	g	546.1	694.9

Sample Type: Soil			
Sample Name:		BLK1_SS48_0.05 08-Aug-2025	BLK1_SS49_0.05 08-Aug-2025
Lab Number:		3957537.26	3957537.27
Moisture*	%	22	14
Sample Fraction >10mm		20.5	4.0
Sample Fraction <10mm to >2mm		49.0	86.2
Sample Fraction <2mm		473.8	601.8
<2mm Subsample Weight		55.8	54.0
Weight of Asbestos in ACM (Non-Friable)		< 0.00001	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)		< 0.00001	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*		0.00264	< 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	1-27
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	1-27
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-27
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	1-27
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	1-27
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	1-27
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%	1-27
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-27

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	1-27
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	1-27
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	1-27
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	1-27
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	1-27
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	1-27
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	1-27

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

Testing was completed between 12-Aug-2025 and 13-Aug-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.

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Dexter Paguirigan Dip Chem Engineering Tech
Laboratory Technician - Asbestos

Certificate of Analysis

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3822455	SPV2.2
Contact:	Mr G Knoyle	Date Received:	20-Mar-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	26-Aug-2025	
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:	C03812100	
		Client Reference:	C03812100	
		Submitted By:	Miriam Clark	

Sample Type: Soil

Sample Name:		BLK2_SS1_0.05	BLK2_SS3_0.05	BLK2_SS4_0.05	BLK2_SS5_0.05	BLK2_SS7_0.05
		20-Mar-2025	20-Mar-2025	20-Mar-2025	20-Mar-2025	20-Mar-2025
Lab Number:		3822455.1	3822455.2	3822455.3	3822455.4	3822455.5
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	-	-	73
Total Recoverable Manganese	mg/kg dry wt	290	210	360	270	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	3	4	3	-
Total Recoverable Cadmium	mg/kg dry wt	0.17	0.15	0.18	0.16	-
Total Recoverable Chromium	mg/kg dry wt	16	14	15	14	-
Total Recoverable Copper	mg/kg dry wt	11	9	12	10	-
Total Recoverable Lead	mg/kg dry wt	27	15.9	37	15.1	-
Total Recoverable Nickel	mg/kg dry wt	12	10	13	10	-
Total Recoverable Zinc	mg/kg dry wt	113	95	115	95	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	-	-	< 0.014
alpha-BHC	mg/kg dry wt	-	-	-	-	< 0.014
beta-BHC	mg/kg dry wt	-	-	-	-	< 0.014
delta-BHC	mg/kg dry wt	-	-	-	-	< 0.014
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	-	< 0.014
cis-Chlordane	mg/kg dry wt	-	-	-	-	< 0.014
trans-Chlordane	mg/kg dry wt	-	-	-	-	< 0.014
2,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.014
4,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.014
2,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.014
4,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.014
2,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.014
4,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.014
Total DDT Isomers	mg/kg dry wt	-	-	-	-	< 0.09
Dieldrin	mg/kg dry wt	-	-	-	-	< 0.014
Endosulfan I	mg/kg dry wt	-	-	-	-	< 0.014
Endosulfan II	mg/kg dry wt	-	-	-	-	< 0.014
Endosulfan sulphate	mg/kg dry wt	-	-	-	-	< 0.014
Endrin	mg/kg dry wt	-	-	-	-	< 0.014
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.014
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.014
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.014
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.014
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.014
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.014



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.

Sample Type: Soil		
Sample Name:		BLK2_SS8_0.05 20-Mar-2025
Lab Number:		3822455.6
Individual Tests		
Total Recoverable Manganese	mg/kg dry wt	230
Heavy Metals, Screen Level		
Total Recoverable Arsenic	mg/kg dry wt	3
Total Recoverable Cadmium	mg/kg dry wt	0.14
Total Recoverable Chromium	mg/kg dry wt	14
Total Recoverable Copper	mg/kg dry wt	10
Total Recoverable Lead	mg/kg dry wt	15.3
Total Recoverable Nickel	mg/kg dry wt	10
Total Recoverable Zinc	mg/kg dry wt	91

Analyst's Comments

This certificate of analysis contains information extracted from 3822455-SPv2 issued on 25-Aug-2025 at 4:44 pm.

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).	-	1-4, 6
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	1-4, 6
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	5
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	5
Total Recoverable Manganese	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	1.0 mg/kg dry wt	1-4, 6

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

Testing was completed between 21-Mar-2025 and 25-Aug-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.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental

Certificate of Analysis

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3841985	SPV2.3
Contact:	Mr G Knoyle	Date Received:	02-Apr-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	26-Aug-2025	
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:		
		Client Reference:	C03812100	
		Submitted By:	Miriam Clark	

Sample Type: Soil

Sample Name:	BLK2_SS12_0.05	BLK2_SS12_0.2	BLK2_SS14_0.05	BLK2_SS16_0.05	BLK2_SS16_0.2
	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025
Lab Number:	3841985.1	3841985.2	3841985.3	3841985.4	3841985.5

Individual Tests

Total Recoverable Manganese	mg/kg dry wt	240	260	280	230	240
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Heavy Metals, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	3	4	4	3	4
Total Recoverable Cadmium	mg/kg dry wt	0.19	0.20	0.19	0.21	0.14
Total Recoverable Chromium	mg/kg dry wt	18	16	17	18	15
Total Recoverable Copper	mg/kg dry wt	14	12	14	13	9
Total Recoverable Lead	mg/kg dry wt	26	30	30	18.0	14.7
Total Recoverable Nickel	mg/kg dry wt	12	12	13	12	11
Total Recoverable Zinc	mg/kg dry wt	116	112	121	113	81

Sample Name:	BLK2_SS18_0.05	BLK2_SS18_0.2	BLK2_SS19_0.2	BLK2_SS20_0.05
	02-Apr-2025	02-Apr-2025	02-Apr-2025	02-Apr-2025
Lab Number:	3841985.6	3841985.7	3841985.8	3841985.9

Individual Tests

Total Recoverable Manganese	mg/kg dry wt	185	220	210	210
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Heavy Metals, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	3	4	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.18	0.19	0.17	0.20
Total Recoverable Chromium	mg/kg dry wt	17	16	16	16
Total Recoverable Copper	mg/kg dry wt	12	11	11	10
Total Recoverable Lead	mg/kg dry wt	19.4	26	19.3	17.0
Total Recoverable Nickel	mg/kg dry wt	10	12	11	11
Total Recoverable Zinc	mg/kg dry wt	93	110	108	105

Analyst's Comments

This certificate of analysis contains information extracted from 3841985-SPV2 issued on 26-Aug-2025 at 11:39 am.

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



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.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-9
Total Recoverable Manganese	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	1.0 mg/kg dry wt	1-9

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

Testing was completed between 03-Apr-2025 and 26-Aug-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.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental

Certificate of Analysis

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3843459	SPV2
Contact:	Mr G Knoyle	Date Received:	03-Apr-2025	
	C/- Pattle Delamore Partners Limited	Date Reported:	25-Aug-2025	(Amended)
	PO Box 389	Quote No:	81087	
	Christchurch 8140	Order No:		
		Client Reference:	C03812100	
		Submitted By:	Miriam Clark	

Sample Type: Soil

Sample Name:	BLK1_SS1_0.05	BLK1_SS2_0.2	BLK1_SS3_0.05	BLK1_SS4_0.2	BLK1_SS5_0.05
	03-Apr-2025	03-Apr-2025	03-Apr-2025	03-Apr-2025	03-Apr-2025
Lab Number:	3843459.1	3843459.2	3843459.3	3843459.4	3843459.5

Individual Tests

Total Recoverable Manganese	mg/kg dry wt	162	210	240	240	210
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Heavy Metals, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	3	3	4	4	3
Total Recoverable Cadmium	mg/kg dry wt	0.10	0.21	0.22	0.15	0.22
Total Recoverable Chromium	mg/kg dry wt	12	15	15	13	18
Total Recoverable Copper	mg/kg dry wt	10	13	11	9	15
Total Recoverable Lead	mg/kg dry wt	11.1	18.3	20	67	23
Total Recoverable Nickel	mg/kg dry wt	8	11	11	10	12
Total Recoverable Zinc	mg/kg dry wt	56	95	113	99	100

Sample Name:	BLK1_SS7_0.05	BLK1_SS7_0.2	BLK1_SS8_0.2	BLK1_SS9_0.05	BLK1_SS11_0.05
	03-Apr-2025	03-Apr-2025	03-Apr-2025	03-Apr-2025	03-Apr-2025
Lab Number:	3843459.6	3843459.7	3843459.8	3843459.9	3843459.10

Individual Tests

Total Recoverable Manganese	mg/kg dry wt	260	240	250	172	230
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Heavy Metals, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	4	4	4	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.13	0.14	0.15	0.13	0.19
Total Recoverable Chromium	mg/kg dry wt	15	14	14	17	15
Total Recoverable Copper	mg/kg dry wt	12	12	10	16	11
Total Recoverable Lead	mg/kg dry wt	29	32	37	19.2	22
Total Recoverable Nickel	mg/kg dry wt	10	11	11	11	11
Total Recoverable Zinc	mg/kg dry wt	84	78	98	69	113

Sample Name:	BLK1_SS13_0.05 03-Apr-2025	BLK1_SS14_0.05 03-Apr-2025
Lab Number:	3843459.11	3843459.12

Individual Tests

Total Recoverable Manganese	mg/kg dry wt	260	270
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Heavy Metals, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	4	4
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.14
Total Recoverable Chromium	mg/kg dry wt	14	14
Total Recoverable Copper	mg/kg dry wt	9	9
Total Recoverable Lead	mg/kg dry wt	26	19.5
Total Recoverable Nickel	mg/kg dry wt	11	11
Total Recoverable Zinc	mg/kg dry wt	104	95



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.

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3843459-SPv1' issued on 08-Apr-2025 at 4:00 pm.
Reason for amendment: Manganese added.

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).	-	1-12
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	1-12
Total Recoverable Manganese	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	1.0 mg/kg dry wt	1-12

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

Testing was completed between 04-Apr-2025 and 25-Aug-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.

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Martin Cowell - BSc
Client Services Manager - Environmental



Chain of Custody Documentation

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

To: Hill Labs
Quote No.:
PDP Job No.: C03812100

Quote No.: _____
PDP Job No.: C03812100

Additional Information

Job No: _____ Date Recv: 20-Mar-25 14:38

382 2454

Received by: Brianna McLachlan



Priority: ☐ Normal ☒ High ☐ Urgent

Results required by: / /

Sample type:	S Soil	GW Groundwater	SAL Saline	FW Freshwater	GEO Geothermal	SW Stormwater
	SED Sediment	BIO Biota	WW Wastewater	P Potable	O Other:	

Note: Samples may contain dangerous or hazardous substances

PDP Christchurch
Tel: +64 3 345 7100

Page 1 of 1

Job Information Summary

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3822454
Contact:	Mr G Knoyle	Date Registered:	20-Mar-2025 3:58 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	C03812100
		Client Reference:	C03812100
		Add. Client Ref:	
		Submitted By:	Miriam Clark
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	24-Mar-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK2_SS1_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
2	BLK2_SS1_0.2 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
3	BLK2_SS2_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
4	BLK2_SS2_0.2 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
5	BLK2_SS3_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
6	BLK2_SS3_0.2 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
7	BLK2_SS4_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
8	BLK2_SS5_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
9	BLK2_SS6_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
10	BLK2_SS7_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
11	BLK2_SS8_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
12	BLK2_SS9_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
13	BLK2_SS10_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
14	BLK2_SS11_0.05 20-Mar-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

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	1-14
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	1-14
Moisture	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-14

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-14
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	1-14
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	1-14
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%	1-14
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-14
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	1-14
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	1-14
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	1-14
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	1-14
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	1-14
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	1-14
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	1-14



PATTLE DELAMORE PARTNERS LTD

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

Office: ☐ Auckland ☐ Tauranga ☐ Wellington ☒ ChristchurchSubmitted by: Miriam Clark Ph No.: 0224519662To: Hill LabsQuote No.: PDP Job No.: C03812100

Chain of Custody Record

Sent:

Name: Miriam ClarkSignature: [Signature]Date and time: 12/4/25Received: ☐ Room temp. ☐ Chilled Temp.: °C
☐ FrozenName: Signature: Date and time: Addit Job No: Date Recv: 02-Apr-25 16:07**384 2103**Received by: Kate Sullivan

3138421039

Results to:

☐ lab.samples@pdp.co.nz☒ Email submitter: miriam.clark

@pdp.co.nz

☒ Email other: guy-knoyle

@pdp.co.nz

Priority: ☐ Normal ☒ High ☐ UrgentResults required by: / /

Invoice to:

☒ PDP☐ Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
BLK2-SS12-0.05	2/4/25		S	"semi-quant asbestos"	
-0.2					
BLK2-SS13-0.05					
-0.2					
BLK2-SS14-0.05					
BLK2-SS15-0.05					
-0.2					
BLK2-SS16-0.05					
-0.2					
BLK2-SS17-0.05					
BLK2-SS18-0.05					
-0.2					
BLK2-SS19-0.05					
-0.2					
BLK2-SS20-0.05					
BLK2-SS10A-0.05					
-0.2					
BLK2-SS10B-0.05					
BLK2-SS10C-0.05					
-0.2					
BLK2-SS10D-0.05					

Sample type: S Soil GW Groundwater SAL Saline FW Freshwater GEO Geothermal SW Stormwater
SED Sediment BIO Biota WW Wastewater P Potable O Other:

For physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page 1 of 2PDP Auckland
Tel: +64 9 523 6900PDP Tauranga
Tel: +64 7 985 6440PDP Wellington
Tel: +64 4 471 4130PDP Christchurch
Tel: +64 3 345 7100

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

Office: ☐ Auckland ☐ Tauranga ☐ Wellington ☒ Christchurch

Submitted by: Miriam Clark

Ph No.:

To: Bill Lab5

Quote No.:

PDP Job No.: 003812100

Chain of Custody Record

Additional Information

Sent:

Name: Miriam Clark

Signature: [Signature]

Date and time: 12/4/25

Received: ☐ Room temp. ☐ Chilled Temp.: ____°C
☐ Frozen

Name: _____

Signature: _____

Date and time: _____

Results to:

☐ lab.samples@pdp.co.nz

☒ Email submitter: mingim.clark

@pdp.co.nz

☒ Email other: am.khouri

_@pdp.co.nz

Priority: ☐ Normal ☒ High ☐ Urgent

Results required by: / /

Invoice to:☒ PDP☐ Other: _____[illegible]

Sample type:	S Soil	GW Groundwater	SAL Saline	FW Freshwater	GEO Geothermal	SW Stormwater
	SED Sediment	BIO Biota	WW Wastewater	P Potable	O Other:	

For physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page 2 of 2

PDP Auckland
Tel: +64 9 523 6900

PDP Tauranga
Tel: +64 7 985 6440

PDP Wellington
Tel: +64 4 471 4130

PDP Christchurch
Tel: +64 3 345 7100

Job Information Summary

Page 1 of 3

Client:	Pattle Delamore Partners Limited	Lab No:	3842103
Contact:	Mr G Knoyle	Date Registered:	02-Apr-2025 4:27 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	
		Client Reference:	C03812100
		Add. Client Ref:	
		Submitted By:	Miriam Clark
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	04-Apr-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK2_SS12_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
2	BLK2_SS12_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
3	BLK2_SS13_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
4	BLK2_SS13_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
5	BLK2_SS14_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
6	BLK2_SS15_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
7	BLK2_SS15_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
8	BLK2_SS16_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
9	BLK2_SS16_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
10	BLK2_SS17_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
11	BLK2_SS18_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
12	BLK2_SS18_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
13	BLK2_SS19_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
14	BLK2_SS19_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
15	BLK2_SS20_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
16	BLK2_SS10A_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
17	BLK2_SS10A_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
18	BLK2_SS10B_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
19	BLK2_SS10C_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
20	BLK2_SS10C_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
21	BLK2_SS10D_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
22	BLK2_SS10E_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

Samples				
No	Sample Name	Sample Type	Containers	Tests Requested
23	BLK2_SS10E_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
24	BLK2_SS10F_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
25	BLK2_SS10G_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
26	BLK2_SS10G_0.2 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
27	BLK2_SS10H_0.05 02-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
28	BLK2_SS10B_0.2 02-Apr-2025	Soil	PSoil500Asb	Hold Cold
29	BLK2_SS10D_0.2 02-Apr-2025	Soil	PSoil500Asb	Hold Cold
30	BLK2_SS10F_0.2 02-Apr-2025	Soil	PSoil500Asb	Hold Cold
31	BLK2_SS10H_0.2 02-Apr-2025	Soil	PSoil500Asb	Hold Cold

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	1-27
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	1-27
Moisture	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-27
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	1-27
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	1-27
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	1-27
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%	1-27
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-27
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	1-27
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	1-27
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	1-27
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	1-27

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-27
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	1-27
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	1-27



PATTLE DELAMORE PARTNERS LTD

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

To: Hill Labs

Office: ☐ Auckland ☐ Tauranga ☐ Wellington ☒ Christchurch

Quote No.:

Submitted by: Miriam Clark

Ph No.: 0224519662

PDP Job No.: C03812100

Chain of Custody Record

Additional Job No: Date Recv: 03-Apr-25 14:34

Sent:

Name: Miriam Clark

Signature: [Signature]

Date and time: 3/4/25

Received: ☐ Room temp. ☐ Chilled Temp.: °C
☐ Frozen

Name:

Signature:

Date and time:

384 3460

Received by: Findabair Joynes



3138434606

Results to:

☐ lab.samples@pdp.co.nz☒ Email submitter:

miriam.clark

@pdp.co.nz

☒ Email other:

guy- knoyie

@pdp.co.nz

Priority: ☐ Normal ☒ High ☐ Urgent

Results required by: / /

Invoice to:

☒ PDP☐ Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
BLK1-SS1-0.05	3/4/25		S	"semi-quant asbestos"	
-0.1				"hold cold"	
-0.2				"semi-quant asbestos"	
BLK1-SS2-0.05					
-0.2					
BLK1-SS3-0.05					
BLK1-SS4-0.05					
-0.2					
BLK1-SS5-0.05					
-0.2					
BLK1-SS6-0.05					
BLK1-SS7-0.05					
-0.2					
BLK1-SS8-0.05					
-0.2					
BLK1-SS9-0.05					
BLK1-SS10-0.05					
BLK1-SS11-0.05					
BLK1-SS12-0.05					
BLK1-SS13-0.05					
BLK1-SS14-0.05					
BLK1-SS15-0.05					
Sample type: ☒ Soil ☐ GW Groundwater ☐ SAL Saline ☐ FW Freshwater ☐ GEO Geothermal ☐ SW Stormwater ☐ SED Sediment ☐ BIO Biota ☐ WW Wastewater ☐ P Potable ☐ O Other:					

Job Information Summary

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3843460
Contact:	Mr G Knoyle	Date Registered:	03-Apr-2025 3:28 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	
		Client Reference:	C03812100
		Add. Client Ref:	
		Submitted By:	Miriam Clark
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	07-Apr-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK1_SS1_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
2	BLK1_SS1_0.1 03-Apr-2025	Soil	PSoil500Asb	Hold Cold
3	BLK1_SS1_0.2 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
4	BLK1_SS2_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
5	BLK1_SS2_0.2 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
6	BLK1_SS3_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
7	BLK1_SS4_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
8	BLK1_SS4_0.2 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
9	BLK1_SS5_0.05 03-Apr-2025	Soil	cPSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
10	BLK1_SS5_0.2 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
11	BLK1_SS6_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
12	BLK1_SS7_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
13	BLK1_SS7_0.2 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
14	BLK1_SS8_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
15	BLK1_SS8_0.2 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
16	BLK1_SS9_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
17	BLK1_SS10_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
18	BLK1_SS11_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
19	BLK1_SS12_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
20	BLK1_SS13_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
21	BLK1_SS14_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
22	BLK1_SS15_0.05 03-Apr-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

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, 3-22
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, 3-22
Moisture	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22
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, 3-22



PATTLE DELAMORE PARTNERS LTD

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

To: Hill Labs

Office: ☐ Auckland ☐ Hamilton ☐ Tauranga ☐ Wellington ☒ Christchurch ☐ Invercargill

Quote No.:

Submitted by: Finn Seeds

Ph No.: 021 812 962

PDP Job No.: C038120001

Chain of Custody Record

Sent:

Name: Finn Seeds

Signature: F. Seeds

Date and time: 7/8/25

Received: ☐ Room temp. ☐ Chilled Temp.: °C☐ Frozen

Name:

Signature:

Date and time:

Ad Job No: Date Recv: 07-Aug-25 16:57

395 6642

Received by: Danielle McNeilly



3139566420

16.4

Results to: ☐ lab.samples@pdp.co.nz☒ Email submitter: Finn.Seeds@pdp.co.nz☒ Email other: guy.knoyle@pdp.co.nzPriority: ☐ Normal ☒ High ☐ Urgent

Results required by: / /

Invoice to: ☒ PDP☐ Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
Blk1-SS40-0.05	7/8/25		S	"semi-quant asbestos"	
Blk1-SS30-0.05					
Blk1-SS33-0.05					
Blk1-SS39-0.05					
Blk1-SS32-0.05					
Blk1-SS34-0.05					
-0.2					
Blk1-SS31-0.05					
Blk1-SS35-0.05					
Blk1-SS29-0.05					
Blk1-SS26-0.05					
Blk1-SS29-0.05					
Blk1-SS1-0.2					
Blk1-SS27-0.05					
-0.2					
Blk1-SS28-0.2					
-0.05					
Blk1-SS25-0.05					
Blk1-SS22-0.05					
Blk1-SS16-0.05					
Blk1-SS18-0.05					
Sample type: ☒ S Soil ☐ GW Groundwater ☐ SAL Saline ☐ FW Freshwater ☐ GEO Geothermal ☐ SW Stormwater					
☐ SED Sediment ☐ BIO Biota ☐ WW Wastewater ☐ P Potable ☐ O Other:					

For physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page 1 of 2

PDP Auckland
Tel: +64 9 523 6900PDP Hamilton
Tel: +64 7 949 7880PDP Tauranga
Tel: +64 7 985 6440PDP Wellington
Tel: +64 4 471 4130PDP Christchurch
Tel: +64 3 345 7100PDP Invercargill
Tel: +64 3 422 1690

Job Information Summary

Page 1 of 3

Client:	Pattle Delamore Partners Limited	Lab No:	3956642
Contact:	Mr G Knoyle	Date Registered:	08-Aug-2025 9:51 am
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	
		Client Reference:	C038120001
		Add. Client Ref:	
		Submitted By:	Finn Seeds
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	12-Aug-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK1_SS40_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
2	BLK1_SS30_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
3	BLK1_SS33_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
4	BLK1_SS39_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
5	BLK1_SS32_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
6	BLK1_SS34_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
7	BLK1_SS34_0.2 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
8	BLK1_SS31_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
9	BLK1_SS35_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
10	BLK1_SS29_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
11	BLK1_SS26_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
12	BLK1_SS29_0.2 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
13	BLK1_SS1_0.2 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
14	BLK1_SS27_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
15	BLK1_SS27_0.2 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
16	BLK1_SS28_0.2 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
17	BLK1_SS28_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
18	BLK1_SS25_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
19	BLK1_SS22_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
20	BLK1_SS16_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
21	BLK1_SS18_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
22	BLK1_SS21_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

Samples				
No	Sample Name	Sample Type	Containers	Tests Requested
23	BLK1_SS19_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
24	BLK1_SS23_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
25	BLK1_SS24_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
26	BLK1_SS17_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
27	BLK1_SS20_0.05 07-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

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	1-27
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	1-27
Moisture	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-27
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	1-27
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	1-27
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	1-27
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%	1-27
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-27
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	1-27
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	1-27
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	1-27
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	1-27
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	1-27
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	1-27

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-27



PATTLE DELAMORE PARTNERS LTD

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

To: Hill Labs

Office: ☐ Auckland ☐ Hamilton ☐ Tauranga ☐ Wellington ☒ Christchurch ☐ Invercargill

Quote No.:

Submitted by: Finn Seeds

Ph No.: 021 812 962

PDP Job No.: C038120001

Chain of Custody Record

Additional Information

Sent:

Name: Finn Seeds

Signature: [Signature]

Date and time: 8/8/25 15:15

Received:

☐ Room temp. ☐ Chilled Temp.: °C
☐ Frozen

Name:

Signature:

Date and time:

Please email
cec + summary to
submitter + other.

Results to:

☐ lab.samples@pdp.co.nz

☒ Email submitter: finn.seeds

@pdp.co.nz

☒ Email other: guy.knoyle

@pdp.co.nz

Priority:

☐ Normal

☒ High

☐ Urgent

Results required by: / /

Invoice to:

☒ PDP

☐ Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
Blk2-SS21-0.05	8/8/25		S	"Semi-quant asbestos"	
Blk2-SS22-0.05					
Blk2-SS23-0.05					
Blk2-SS24-0.05					
Blk2-SS25-0.05					
Blk2-SS26-0.05					
Blk2-SS27-0.05					
Blk2-SS28-0.05					
Blk2-SS29-0.05					
Blk2-SS30-0.05					
Blk2-SS31-0.05					
Blk2-SS32-0.05					
Blk2-SS33-0.05					
Blk2-SS34-0.05					
Blk2-SS35-0.05					
Blk1-SS36-0.05					
Blk1-SS37-0.05					
Blk1-SS38-0.05					
Blk1-SS41-0.05					
Blk1-SS42-0.05					
Blk1-SS43-0.05					
Job No: 395 7537 Date Recv: 08-Aug-25 15:20 Received by: Ella-Rose Jones 3139575379					
Sample type: ☒ S Soil ☐ GW Groundwater ☐ SAL Saline ☐ FW Freshwater ☐ GEO Geothermal ☐ SW Stormwater ☐ SED Sediment ☐ BIO Biota ☐ WW Wastewater ☐ P Potable ☐ O Other:					

For physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page 1 of 1

PDP Auckland
Tel: +64 9 523 6900

PDP Hamilton
Tel: +64 7 949 7880

PDP Tauranga
Tel: +64 7 985 6440

PDP Wellington
Tel: +64 4 471 4130

PDP Christchurch
Tel: +64 3 345 7100

PDP Invercargill
Tel: +64 3 422 1690

From: Pattle Delamore Partners Ltd

To: Hill Labs

Office: ☐ Auckland ☐ Hamilton ☐ Tauranga ☐ Wellington ☒ Christchurch ☐ Invercargill

Quote No.:

Submitted by: Finn Seeds

Ph No.: 021 812 962

PDP Job No.: C038120001

Chain of Custody Record

Additional Information

Sent:

Received: ☐ Room temp. ☐ Chilled Temp.: ____ °C
☐ Frozen

Name: Finn Seeds

Name:

Signature: [Signature]

Signature:

Date and time: 8/8/25 15:15

Date and time:

Results to: ☐ lab.samples@pdp.co.nz

☒ Email submitter: finn.seeds

@pdp.co.nz

☒ Email other: guy · knyle

@pdp.co.nz

Priority: ☐ Normal ☒ High ☐ Urgent

Results required by: / /

Invoice to: ☒ PDP ☐ Other:

☒ PDP☐ Other:[illegible]

Sample type:	S Soil	GW Groundwater	SAL Saline	FW Freshwater	GEO Geothermal	SW Stormwater
	SED Sediment	BIO Biota	WW Wastewater	P Potable	O Other:	

For physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page of

PDP Auckland
Tel: +64 9 523 6900

PDP Hamilton
Tel: +64 7 949 7880

PDP Tauranga
Tel: +64 7 985 6440

PDP Wellington
Tel: +64 4 471 4130

PDP Christchurch
Tel: +64 3 345 7100

PDP Invercargill
Tel: +64 3 422 1690

Job Information Summary

Page 1 of 3

Client:	Pattle Delamore Partners Limited	Lab No:	3957537
Contact:	Mr G Knoyle	Date Registered:	08-Aug-2025 3:45 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	
		Client Reference:	C038120001
		Add. Client Ref:	
		Submitted By:	Finn Seeds
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	12-Aug-2025 4:30 pm

Samples				
No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK2_SS21_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
2	BLK2_SS22_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
3	BLK2_SS23_0.05 08-Aug-2025	Soil	cPSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
4	BLK2_SS24_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
5	BLK2_SS25_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
6	BLK2_SS26_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
7	BLK2_SS27_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
8	BLK2_SS28_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
9	BLK2_SS29_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
10	BLK2_SS30_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
11	BLK2_SS31_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
12	BLK2_SS32_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
13	BLK2_SS33_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
14	BLK2_SS34_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
15	BLK2_SS35_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
16	BLK1_SS36_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
17	BLK1_SS37_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
18	BLK1_SS38_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
19	BLK1_SS41_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
20	BLK1_SS42_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
21	BLK1_SS43_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
22	BLK1_SS44_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

Samples				
No	Sample Name	Sample Type	Containers	Tests Requested
23	BLK1_SS45_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
24	BLK1_SS46_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
25	BLK1_SS47_0.05 08-Aug-2025	Soil	cPSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
26	BLK1_SS48_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil
27	BLK1_SS49_0.05 08-Aug-2025	Soil	PSoil500Asb	New Zealand Guidelines Semi Quantitative Asbestos in Soil

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	1-27
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	1-27
Moisture	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-27
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	1-27
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	1-27
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	1-27
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%	1-27
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-27
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	1-27
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	1-27
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	1-27
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	1-27
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	1-27
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	1-27

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
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	1-27

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

Office: ☐ Auckland ☐ Tauranga ☐ Wellington ☒ Christchurch

Submitted by: Miriam Clark Ph No.: 0224519662

To: Hill Labs

Quote No.:

PDP Job No.: C03812100

Chain of Custody Record

Sent:

Name: Miriam Clark

Signature: _____

Date and time: 14:30 20/3/25

Received: ☐ Room temp. ☐ Chilled Temp.: 20 °C
☐ Frozen

Name: _____

Signature:

Date and time:

Additional Information

Job No: Date Recv: 20-Mar-25 14:38

382 2455

Received by: **Brianna McLachlan**



3138224551

Results to: ☐ lab.samples@pdp.co.nz

☒ Email submitter: miriam.clark

☒ Email other: guy. knoyle

@pdp.co.nz

@pdp.co.nz

Priority: ☐ Normal ☒ High ☐ Urgent

Results required by: / /

Invoice to: ☒ PDP ☐ Other:

[illegible]

or physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page 1 of 1

DP Auckland
☎: +64 9 523 6900

PDP Tauranga
Tel: +64 7 985 6440

PDP Wellington
Tel: +64 4 471 4130

PDP Christchurch
Tel: +64 3 345 7100

Job Information Summary

Page 1 of 1

Client:	Pattle Delamore Partners Limited	Lab No:	3822455
Contact:	Mr G Knoyle	Date Registered:	20-Mar-2025 3:47 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	C03812100
		Client Reference:	C03812100
		Add. Client Ref:	
		Submitted By:	Miriam Clark
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	25-Aug-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK2_SS1_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
2	BLK2_SS3_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
3	BLK2_SS4_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
4	BLK2_SS5_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
5	BLK2_SS7_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Organochlorine Pesticides Screening in Soil
6	BLK2_SS8_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
7	BLK2_SS10_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
8	BLK2_SS11_0.05 20-Mar-2025	Soil	GSoil300, GSoil300	Organochlorine Pesticides Screening in Soil

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).	-	1-4, 6-7
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	1-4, 6-7
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	5, 8
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	5, 8
Total Recoverable Manganese	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	1.0 mg/kg dry wt	1-4, 6-7



PATTLE DELAMORE PARTNERS LTD

Request for Analyses

NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

From: Pattle Delamore Partners Ltd

Office: ☐ Auckland ☐ Tauranga ☐ Wellington ☒ ChristchurchSubmitted by: Miriam Clark Ph No.: 0224519662To: Hill Labs

Quote No.:

PDP Job No.: C03812100

Chain of Custody Record

Sent:

Name: Miriam ClarkSignature: [Signature]Date and time: 12/4/25Received: ☐ Room temp. ☐ Chilled Temp.: ____ °C
☐ Frozen

Name:

Signature:

Date and time:

Additional Information

Job No. Date Recv: 02-Apr-25 15:34

384 1985Received by: Kate Sullivan

3138419858

17.8

Results to:

☐ lab.samples@pdp.co.nz☒ Email submitter: miriam.clark

@pdp.co.nz

☒ Email other: guy.knoyle

@pdp.co.nz

Priority: ☐ Normal ☒ High ☐ Urgent

Results required by: ____ / ____ / ____

Invoice to:

☒ PDP☐ Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
BLK2-SS12-0.05	2/4/25		S	7HM	
-0.2					
BLK2-SS14-0.05					
BLK2-SS16-0.05					
-0.2					
BLK2-SS18-0.05					
-0.2					
BLK2-SS19-0.2					
BLK2-SS20-0.05					
BLK2-SS10A-0.05					
-0.2					
BLK2-SS10C-0.2					
BLK2-SS10D-0.05					
BLK2-SS10E-0.05					
-0.2					
BLK2-SS10G-0.2					
BLK2-SS10H-0.05					

Sample type:

S Soil

GW Groundwater

SAL Saline

FW Freshwater

GEO Geothermal

SW Stormwater

SED Sediment

BIO Biota

WW Wastewater

P Potable

O Other:

For physical address see www.pdp.co.nz

Note: Samples may contain dangerous or hazardous substances

Page 1 of 1

PDP Auckland
Tel: +64 9 523 6900PDP Tauranga
Tel: +64 7 985 6440PDP Wellington
Tel: +64 4 471 4130PDP Christchurch
Tel: +64 3 345 7100

Job Information Summary

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3841985
Contact:	Mr G Knoyle	Date Registered:	02-Apr-2025 4:18 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	
		Client Reference:	C03812100
		Add. Client Ref:	
		Submitted By:	Miriam Clark
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	25-Aug-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK2_SS12_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
2	BLK2_SS12_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
3	BLK2_SS14_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
4	BLK2_SS16_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
5	BLK2_SS16_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
6	BLK2_SS18_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
7	BLK2_SS18_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
8	BLK2_SS19_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
9	BLK2_SS20_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
10	BLK2_SS10A_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
11	BLK2_SS10A_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
12	BLK2_SS10C_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
13	BLK2_SS10D_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
14	BLK2_SS10E_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
15	BLK2_SS10E_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
16	BLK2_SS10G_0.2 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
17	BLK2_SS10H_0.05 02-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese

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

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).	-	1-17
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	1-17
Total Recoverable Manganese	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	1.0 mg/kg dry wt	1-17



NOTE: Please acknowledge receipt of these samples by signing this form and emailing to submitter.

PDP Job No.: 003812100

PDP Christchurch
T: 04 3 345 7100

Job Information Summary

Page 1 of 1

Client:	Pattle Delamore Partners Limited	Lab No:	3843459
Contact:	Mr G Knoyle	Date Registered:	03-Apr-2025 3:06 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 389	Quote No:	81087
	Christchurch 8140	Order No:	
		Client Reference:	C03812100
		Add. Client Ref:	
		Submitted By:	Miriam Clark
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	25-Aug-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	BLK1_SS1_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
2	BLK1_SS2_0.2 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
3	BLK1_SS3_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
4	BLK1_SS4_0.2 03-Apr-2025	Soil	GSoil300, cGSoil	Heavy Metals, Screen Level, Total Recoverable Manganese
5	BLK1_SS5_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
6	BLK1_SS7_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
7	BLK1_SS7_0.2 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
8	BLK1_SS8_0.2 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
9	BLK1_SS9_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
10	BLK1_SS11_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
11	BLK1_SS13_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese
12	BLK1_SS14_0.05 03-Apr-2025	Soil	GSoil300, GSoil300	Heavy Metals, Screen Level, Total Recoverable Manganese

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).	-	1-12
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	1-12
Total Recoverable Manganese	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	1.0 mg/kg dry wt	1-12



1 September 2025

Rebecca Parish
Senior Property Development Manager
Foodstuffs South Island Limited
167 Main North Road
CHRISTCHURCH 8051

Dear Rebecca

REMEDIAL ACTION PLAN – ELEVATED ASBESTOS Paddock AREAS, 17 HICKORY PLACE, ISLINGTON, CHRISTCHURCH

1.0 Introduction and Background

Pattle Delamore Partners Limited (PDP) has been engaged by Foodstuffs South Island Limited (Foodstuffs) to prepare this Remedial Action Plan (RAP) for the asbestos soil remedial earthworks to be undertaken in the paddock areas to the rear (west) of the currently operational Foodstuffs Distribution Centre at 17 Hickory Place, Islington, Christchurch (i.e., the site). The remedial works are to be undertaken prior to the proposed subdivision (four Lots) of the wider site. Figure 1, Appendix A, shows the areas to be remediated and Figure 2, the proposed subdivision plan.

The site formed part of wider paddock areas that were previously used by Heinz-Wattie's for the discharge by border-dyke flood irrigation of vegetable process water. Detailed Site Investigations (DSIs) carried out by Aurecon¹ (2019) and Eliot Sinclair² (2021/2022) undertaken over the wider property (within and adjacent to the current site) concluded that the surface organic detritus within and bordering the irrigation ditches was contaminated with asbestos fines (AF) and friable asbestos (FA) at concentrations that could pose a risk to human health. It is understood that the asbestos likely manifested through the degradation of the asbestos pipes that fed the bubble-up valves/concrete headstocks located in a general north-east to south-west orientation at four locations over the site.

In addition to the above investigations, PDP has undertaken a number of soil sampling investigations across the site, first to aid in the relocation, burial and aboveground encapsulation of contaminated soils within the northern part of the site fronting State Highway 1, generated from two Christchurch Foodstuffs supermarket development sites and in 2025 to assist as a precursor to the proposed subdivision of the site.

¹ *Hornby Bottling Plant – Balance of Site, Preliminary and Detailed Site Investigation*, dated December 2019, Aurecon.

² *Remedial Action Plan, Mánia, 320 Shands Road and 637 Main South Road, Hornby*, dated March 2021, Eliot Sinclair. *Site Validation Report, 320 Shands Road, Hornby*, dated May 2022, Eliot Sinclair.

In summary, and in specific relation to the proposed remedial works, the PDP soil sampling investigation reports³ confirmed the presence of asbestos in soils in close proximity to the two former bubble-up valves/concrete headstock rows that are located in the proposed subdivision area of the wider site. Some of the tested areas have reported soil asbestos concentrations above the BRANZ (2024)⁴ for all land uses including commercial/industrial land use, as shown in Figure 1. It is understood that Foodstuffs' remedial objectives are to remove those soils containing asbestos above BRANZ (2024) commercial/industrial land use guideline criteria from within the proposed subdivision site area.

As such, this RAP has been prepared to assist with the appropriate management of the identified asbestos impacted soils during the remedial works and to provide guidance to the removal contractor who will be undertaking the works. In particular, this RAP sets out the procedures for:

- ✧ Handling and managing soils across the site to ensure the protection of site workers and the general public during the remedial activities;
- ✧ Ensuring excavated soils do not impact air (i.e. mitigating dust impacts) and surface water through stormwater run-off, as a result of the soil remedial works;
- ✧ Soil disposal and validation soil sampling requirements;
- ✧ Providing a protocol for any additional contaminants that may be accidentally discovered as part of the remedial works; and
- ✧ Health and safety to supplement the contractor's health and safety plans for the soil remedial works.

This RAP has been prepared in general accordance with the Ministry for the Environment (MfE) *Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Revised 2021)* (MfE, 2011) and has been certified by a suitably qualified and experienced practitioner (SQEP) as outlined by the *Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil) Regulations 2011* (referred to as the NESCS).

In addition to this RAP, the licensed asbestos removal contractor will need to prepare an Asbestos Removal Control Plan (ARCP) to provide details on the soil removal methodology, confirming the management measures being implemented during the works and to ensure compliance with the *Health and Safety at Work (Asbestos) Regulations 2016* (the Asbestos Regulations) (refer to Section 6.0).

1.1 Applicability

This RAP provides guidance to site contractors involved in the remedial earthworks for appropriately managing contaminated material (i.e. asbestos impacted soils), which has been confirmed as being present within the surface/near-surface soils in identified areas over the site to be subdivided (refer to Figure 1). In order to protect the health and safety of onsite workers and the general public in the vicinity of the site, the following management procedures and requirements must be adhered to.

1. Observance of this RAP is mandatory during all soil remedial activities at the site.
2. All personnel carrying out or controlling the remedial works on this site are to be familiar with this RAP and must ensure that the requirements of this RAP have been followed.

³ PDP, April 2025. *Soil Sampling Investigation and Indicative Offsite Soil Disposal Costs – Paddock Areas, 17 Hickory Place, Islington, Christchurch.*

PDP, August 2025. *Soil Sampling Investigation – Paddock Areas, 17 Hickory Place, Islington, Christchurch.*

PDP, February 2023. *Soil Sampling Investigation - 17 Hickory Place, Islington, Christchurch.*

PDP, May 2022. *Soil Sampling Investigation at 17 Hickory Place, Islington, Christchurch.*

⁴ BRANZ (2024). *New Zealand Guidelines for Assessing and Managing Asbestos in Soil.*

3. The RAP is intended to assist the owner or lead contractor in meeting their legal obligations related to the asbestos/contaminated soils with respect to health, safety and the environment. It is not intended to cover the general site safety procedures required for a typical excavation and development site. The RAP is not intended to relieve the owner of their legal responsibilities.
4. All site work is to be carried out by contractors acting under the *Health and Safety at Work Act 2015* regulations and guidelines. As a general principle, all measures shall be taken to prevent exposure of workers and the general public by taking appropriate protective measures and by good house-keeping.

2.0 Site Details

The overall Foodstuffs Distribution Centre (DC) is located at 17 Hickory Place, Islington, Christchurch comprising Lot 3 DP 318553, Lot 2 DP 436436 and Lot 51 DP 572509 and covering a total area of 38.45 ha. The proposed four Lot subdivision, located within the western part of the overall DC operation covers a total area of approximately 19.57 ha. For now, the remedial works will be limited to proposed Lots 1, 2 and 3, as shown in Figure 1 and subdivision plan provided by Eliot Sinclair (Appendix A).

At the present time, the proposed subdivision area comprises an approximate 4 m high, 170 m long and 25 m wide grassed encapsulated bund along the northern boundary, fronting State Highway 1. The remainder of the site is level and comprises grassed paddocks with a row of redundant bubble-up valves/concrete headstocks within the southern half of the site. An approximate 580 tonne stockpile comprising surplus soils, concrete blocks and a small volume of waste materials including plastic sheeting that were unable to be accommodated into the northern encapsulation area from two Christchurch Foodstuffs supermarket development sites remains within the north-eastern part of the site. In addition, a smaller stockpile of waste materials is located within the central part of the site, including an empty 210 L drum, fencing wire, timber posts, etc. Both the surplus stockpiled soils and the waste materials are also to be removed from the site as part of the overall remedial works.

An aerial photograph showing the current layout and proposed subdivision boundaries, provided by Eliot Sinclair, is presented in Appendix A, while photographs of the site are presented in Appendix B.

3.0 Roles and Responsibilities

3.1 Contact Details

The following contact details have been provided to ensure clear lines of communication are possible:

Table 1: Contact Details		
Role	Name (Organisation)	Contact Number
Site Owner/Client Representative	Rebecca Parish (Foodstuffs (South Island) Limited)	021 713 273
Lead Contractor	TBC	TBC
Licensed Asbestos Removal Contractor	TBC	TBC
Contaminated Land Specialist/SQEP	Guy Knoyle (PDP)	021 489 234

3.2 Distribution

A copy of this RAP shall be kept onsite at all times during the remedial earthworks. It is the responsibility of the lead contractor and/or asbestos removal contractor to distribute the information contained within this RAP to any sub-contractors and authorised personnel entering the site and ensure compliance. The provisions of this RAP are mandatory for all persons (employees, contractor and sub-contractors) who enter the site during the soil disturbance and removal activities associated with the asbestos impacted soils.

3.3 Implementation

It is the responsibility of the lead contractor and their subcontractors (as applicable) to implement the contents of this RAP and ensure compliance.

The lead contractor and/or asbestos removal contractor shall regularly liaise with the contaminated land specialist/SQEP to ensure that work is being carried out in accordance with the RAP and discuss any contaminated land issues that may arise during the remedial works.

4.0 Proposed Remedial Works

As noted in Section 1.0, the key purpose of the remedial works is to remove the asbestos impacted soils within the proposed subdivision land area (grey shaded areas located within proposed Lots 1, 2 and 3, Figure 1, Appendix A) that have been confirmed to be present above BRANZ (2024) commercial/industrial land use guideline criteria.

The remedial approach is to remove the surficial soils within the identified areas (marked out as two grey shaded oblong shapes) to an average depth of up to 0.25 m below current ground level, based on soil sampling investigations undertaken to date, as shown on Figure 1, Appendix A. The soil disturbance and offsite disposal activities associated with the asbestos remedial works is approximately 1,700 m³, based on best-case scenario where the validation samples are clear and no further remedial excavations are required.

All works associated with the disturbance and removal of the asbestos impacted soils will need to be undertaken in accordance with the *Health and Safety at Work Act 2015*, the Asbestos Regulations, WorkSafe New Zealand's *Approved Code of Practice for the Management and Removal of Asbestos* (ACOP; November 2016) and the BRANZ (2024) soil guideline document. Based on the soil results, the soil disturbance/removal works is classified as 'Class B contamination' and therefore considered 'Asbestos Removal Only' in accordance with the BRANZ (2024) guidance document. A licenced asbestos removal contractor will therefore be required to carry out the works and prepare a ARCP for the soil removal works at the site.

The remedial works will therefore include excavation to a depth of approximately 0.25 m under the initial supervision of PDP (who will mark out the remedial areas) to remove the identified asbestos impacted soils. The vertical and lateral extent of the remedial dig-out will be based on the collection of validation soil samples within and adjacent to the remedial excavation area (refer to Section 10.0 for soil sampling requirements).

The remedial excavated areas are to remain restricted (i.e. no free access as is the current situation) and preferably kept damp (i.e. water application) or sprayed with a polymer until the validation results confirm no asbestos is present in the soil samples representing remaining soils within the site.

4.1 Consenting Requirements under the NESCS

It should be noted that the soil disturbance associated with the soil remedial works will require consideration for a resource consent under the NESCS. The primary contamination source/HAIL⁵ activity for the site relates to the identified asbestos impacted soils in close proximity to the bubble-up valves/concrete headstocks, considered as HAIL category E1 (*asbestos products and manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition*).

The NESCS, which is governed by city and district councils (CCC in this instance), seeks to control activities on contaminated land to protect human health. The regulations apply to land which is described as having, has had or is more likely than not to have had an activity or industry described in the HAIL undertaken on it. As noted above, a HAIL activity has occurred at the site relating to the elevated asbestos concentrations identified. Therefore, the NESCS regulations must be taken into consideration for the asbestos remedial works.

Soil disturbance within the site is a permitted activity under regulation 8(3) provided that controls are put in place to minimise contact with soil during the disturbance, that the soil be reinstated to an erosion-resistant state within one month of completion of the works and that disposal of removed soil is at a facility authorised to receive such waste. The NESCS also sets limits on the volume of soil disturbance (no more than 25 m³ per 500 m² is disturbed), soil removal (no more than 5 m³ per 500 m² is removed from the site per year) and duration of works (no longer than two months).

Based on the scale of the asbestos remedial works, the volume of soils requiring disturbance and offsite disposal is greater than the permitted activity volumes. Based on the sampling results showing elevated asbestos concentrations above human health soil standards, the resource consent required from the CCC for soil disturbance activities associated with the asbestos remedial works would be a **restricted discretionary** activity. PDP is currently in the process of the obtaining consent from CCC under the NESCS. The consent conditions will relate to providing controls to prevent exposure to contaminants (i.e. asbestos) by preparing a RAP (i.e. this document) in order to appropriately manage the disturbance of soils during the works to protect human health and to ensure soils are disposed of to an appropriate offsite disposal location. Validation of soils following any soil removal works would also be required to show remaining soils are suitable for the ongoing future commercial/industrial use (refer to Section 10.0).

5.0 Current Identified Health Risk for Excavation Workers

Based on the previous soil sampling investigations undertaken to date, the main contaminant present at the site, which requires implementing special handling, disposal and management measures during the earthworks, is asbestos. The primary risk driver for asbestos exposure is via inhalation of airborne asbestos fibres. If there is no airborne asbestos present, there is no risk to human health.

There is a risk that asbestos fibres can be released during the remedial works, which could present a human health risk not only to workers onsite but also to those on neighbouring commercial properties and the general public. This RAP is therefore directed at controlling site works to avoid fibres becoming airborne during such activities.

⁵ The *Hazardous Activities and Industries List* (HAIL; Ministry for the Environment (MfE), 2011) is a compilation of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal. The HAIL is intended to identify most situations in New Zealand where hazardous substances could cause, and in many cases have caused, land contamination.

6.0 Earthwork Controls during the Remedial Excavation Works

This section discusses measures and controls in relation to potential human health risks associated with exposure to asbestos as a result of remedial excavation works. Based on the soil sampling investigations, the appropriate asbestos management controls will need to be implemented during the soil removal.

It should be noted that all asbestos remedial works will be undertaken in accordance the Asbestos Regulations. In addition, based on the asbestos soil results to date, and as noted above, the remedial earthworks will need to be undertaken as 'Class B' removal works as outlined in the BRANZ (2024) asbestos guidelines document. A licensed asbestos removalist/contractor will need to undertake the remedial works and prepare the ARCP, which will include, but not be limited to, the following:

- ✧ The methodology for undertaking the soil remedial works, including equipment to be used and accounting for the location and condition of the asbestos. The remedial works will need to be undertaken such that plant/vehicles do not track over contaminated soils so as to cross-contaminate previously remediated areas.
- ✧ Definition of the asbestos works removal area.
- ✧ Air monitoring requirements.
- ✧ A recommended work plan to include the asbestos removal area, entry/exit points, signage locations, decontamination procedures for plant and equipment, etc.
- ✧ Confirmation of the off-site disposal location for excavated soils.

Decontamination and appropriate management controls shall be used to avoid tracking or inadvertently removing soils from the work area by site workers or plant and machinery, and good hygiene practices shall be adopted (refer to Section 9.3).

Provided procedures within this RAP, in conjunction to the asbestos removal contractor's ARCP, are adhered to there should not be significant human health effects associated with the presence of asbestos in soil during the remedial works.

6.1 Site Control

It is the responsibility of the licenced asbestos removalist to ultimately control all site works associated with the asbestos remedial excavation works and ensure compliance with the Asbestos Regulations. The specialist asbestos management controls will need to be implemented prior to the commencement of the remedial works.

Only once the soil validation sample results show no asbestos present in remaining soils above BRANZ (2024) commercial/industrial land use guideline criteria, then the specific controls required under this RAP and the ARCP are no longer required, and the area will become accessible. At this point the asbestos removal contractor can sign-off on the works and the site works will be complete.

7.0 Management Measures during the Excavation Works

The disturbance of the asbestos impacted soils from the identified remedial areas has the potential to generate airborne asbestos fibres, which could pose a risk to human health.

The asbestos removal contractor's ARCP will include the appropriate management measures to mitigate the potential generation of airborne asbestos during the earthworks of the asbestos impacted soils, however the key management measures for the asbestos impacted soils are detailed below.

7.1 Dust Control Measures

As with all site works, the soil remedial works are to be carried out in such a way that the generation of dust is kept to an absolute minimum. The following measures are to be implemented for all remedial works undertaken at the site:

- ✧ Advising all site workers of the need to minimise dust by the responsible operation of machinery;
- ✧ Maintaining a water supply on site (i.e. water truck) for the dampening down of soils on a regular basis during the works. If dusty conditions persist, consideration of applying a polymer (soil stabiliser such as Stonewall, or similar product) to the exposed surfaces shall be made by the lead contractor;
- ✧ Avoid the spreading of soil beyond the work area by vehicle movements and tidying up of excavation works;
- ✧ Suspending dust generating activities when dust control measures become ineffective due to increased wind speed. The objective of these measures is to prevent visible dust emissions beyond the site boundary;
- ✧ Limiting vehicle access and speed (<5 km/hr) and controlling traffic movements to minimise dust generation and transport of affected soil on vehicle tyres; and
- ✧ Stockpiling should be avoided (i.e. by placing impacted material directly onto trucks rather than stockpiling impacted soils). However, if stockpiling of asbestos impacted material is required then the material should be kept within the asbestos removal zones and shall be kept damp or covered with a geotextile (or similar) to prevent dust generation.

7.2 Stormwater and Sediment Control Measures

The CCC has provided approval (email dated 3 July 2025) for any stormwater generated as part of the remedial earthworks seeking to be accepted under the CCC comprehensive stormwater network discharge consent (CSNDC).

There is the potential for sediment to be mobilised when entrained in the stormwater during the remedial earthworks. In order to ensure compliance with the CSNDC, stormwater and sediment control measures are to include the following:

- ✧ Water will be allowed to infiltrate through the existing site soils as an initial natural passive means of stormwater disposal;
- ✧ All stormwater shall be contained within the site boundaries and there shall be no discharge offsite;
- ✧ Avoid work in heavy rain;
- ✧ Water applications at the site must also be managed to ensure that sediment does not flow offsite as a result of water control applications or during stormwater events;
- ✧ Daily tidying-up of the site area and excavations to minimise the potential for any leaching or erosion of excavated material by wind or water.
- ✧ Dust suppression measures using a fine mist variable spray nozzle, however ensuring water application does not generate surface flow runoff;
- ✧ Wind speed, including cessation of the remedial works if dust suppression measures cannot effectively control the generation of dust;

- ✧ Management of plant/equipment used within the asbestos contaminated work zone and decontamination procedures prior to leaving the site; and
- ✧ Daily 'house-keeping' including management of inadvertently spilled soils during truck loading process and consideration of truck wheel wash.

7.3 Air Monitoring

The primary risk driver for asbestos exposure is via inhalation of airborne asbestos fibres. If there is no airborne asbestos present, there is no risk to human health (i.e. on-site workers, occupants from the adjacent residential properties or the general public during the remedial works). Therefore, as stated in Sections 7.1 and 7.2, site specific management measures will need to be implemented to mitigate the potential generation of airborne asbestos and subsequent potential risk to human health during the remedial works.

In accordance with the BRANZ (2024) guidelines, air monitoring is recommended based on the soil results and designated Class B asbestos removal works. The air monitoring ultimately provides reassurance that the adopted management controls (e.g. dust suppression measures) are adequate for the works.

The air monitoring is to be carried out by the contaminated land specialist or asbestos consultant using calibrated sampling pumps while the air samples will be analysed by an accredited laboratory in accordance with the National Occupational Health and Safety Commission Australia - NOHSC:3003(2005) *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* 2nd Edition.

If elevated concentrations of fibres are detected (i.e. trigger level of >0.01 fibres/ml of air) then the asbestos removal contractor shall cease all works and the methodologies and dust control measures revised, reviewed and modified where necessary for work to continue.

8.0 Accidental Discovery Protocol

The previous soil sampling has been focused primarily on asbestos within the site. As such, while unlikely, other contaminated soil or contamination sources may be encountered during the remedial excavation works. This section details the Accidental Discovery Protocol in the event obvious contamination sources/waste is encountered during the works.

In addition to asbestos, typical indicators of contaminated soils or other potential sources of contamination include:

- ✧ Stained or discoloured soils (possibly black, grey or green staining);
- ✧ Petroleum hydrocarbon or solvent odours/vapours;
- ✧ Waste material, including putrescible waste and general rubbish; and
- ✧ Chemical containers/drums or tanks.

If these visual or olfactory indicators of contamination are encountered, then the following actions must be taken:

- ✧ Excavation works should cease immediately, and the lead contractor contacted. In the event of an uncontrolled discharge of contaminants (e.g. ruptured drum), take all practical steps to contain the discharge and prevent further discharge;
- ✧ The area of concern must be fenced/barricaded/isolated to prevent other site workers from entering the area;

- ✧ Note that the appropriate asbestos management/control measures will need to be implemented at all times when dealing with the asbestos impacted soils during the remedial works, as discussed in Section 7.0; and
- ✧ The contaminated land specialist shall be contacted immediately to determine the appropriate course of action in relation to the environmental and human health requirements and the need to characterise the soils to assess the risk to site workers both during the site development or once the site has been completed.

9.0 Contaminated Soils Health and Safety

9.1 General

This section discusses safety and subsequent protocols in relation to potential human and environmental hazards associated with exposure during the soil remedial works.

The RAP is not intended to relieve the lead contractor and/or asbestos removal contractor of their responsibility for the health and safety of their workers, contractors and the public, or their responsibility for protection of the environment. It is recommended that the lead contractor develop a site-specific health and safety plan (HASP) to complement this RAP and to address other health and safety requirements that may be applicable to their particular works.

Based on the previous investigations, the likely key contaminant of concern is asbestos within the site. As such, there is a risk that fibres can be released into the air during the soil excavation works, which could present a human health risk to workers onsite and beyond the remedial works area boundary. Provided procedures within this RAP are adhered to there are not expected to be any significant human health effects during the excavation, exposure and movement of the asbestos impacted soils identified over the site.

As a general principle, to mitigate any potential adverse effects to the identified asbestos contaminant, all site workers are to be advised of the potential risks associated with the site and in the use of all safety and PPE and personal hygiene procedures before the commencement of the soil disturbance/excavation works.

Further hazards may be identified during the course of the works (refer to Section 8.0 with regard to the Accidental Discovery protocol). The lead contractor and/or asbestos removal contractor is responsible for reviewing any new work element and assessing whether there are any new associated hazards, and whether these can be eliminated, isolated or minimised. The lead contractor and/or asbestos removal contractor shall then instruct all staff on the health and safety procedures associated with the new hazard and update the site HASP.

9.2 Personal Protection Equipment

Protective and safety equipment must be made available to all site workers during the soil disturbance/excavation works at the site. In particular, during soil remedial works, all contractors will need to wear the appropriate Personal Protection Equipment (PPE) for asbestos related excavation works.

As such, PPE shall include but not be limited to the following:

- ✧ P2 dust masks or half face respirators (the type of mask to be determined by the asbestos removal contractor);
- ✧ Disposable Tyvek suit and gloves;
- ✧ Boot covers or the use of a boot washing system to be established to prevent site workers tracking material outside of the work zone; and

- ✧ Goggles or safety spectacles during windy/dusty conditions.

9.3 Personal Hygiene

Site personnel will be made aware of the importance of personal hygiene. Direct skin contact with potentially affected soils and dust should be avoided but if contact does occur it shall be washed off before eating/leaving site. The following general measures will be implemented during the excavation works undertaken across the site:

- ✧ Establish a designated eating area away from the identified areas containing asbestos impacted soils;
- ✧ Hands and other exposed parts of the body are to be washed prior to entering the designated eating area and on leaving the site. Water will be available on site for hand washing;
- ✧ Any protective gloves worn must be removed prior to eating, drinking or smoking/vaping; and
- ✧ No eating or drinking will be allowed within areas suspected or confirmed to be contaminated outside the designated eating area.

10.0 Soil Sampling Requirements

Additional Soil Sampling:

The current remedial areas have been based on the soil sampling investigations undertaken to date at the site and based on the findings of similar investigations undertaken adjacent to the site with similar contaminant issues (i.e. Ngāi Tahu commercial development to the immediate west).

Validation Soil Sampling:

Given the nature of the soil asbestos contamination (asbestos fines and/or fibrous asbestos) a visual assessment during the remedial works to confirm complete removal will not be conclusive given the microscopic nature of the asbestos present. As such, validation soil samples will need to be collected and analysed by an analytical laboratory to ensure no asbestos is present within the remedial excavation area above BRANZ (2024) commercial/industrial land use guideline criteria.

The required validation soil sampling shall be undertaken by PDP who will be responsible for determining the number of samples to be collected and the testing regime.

11.0 Off-site Disposal Requirements

Asbestos Contaminated Soils:

Based on the previous soil sampling, all asbestos impacted soils removed from site will need to be disposed of at a landfill that is appropriately licenced/consented landfill to receive asbestos waste, such as Frews Quarries managed landfill, Plantation Road, Hororata or the Taiko Road managed landfill, Cave, South Canterbury.

Stockpiled Waste Materials:

The stockpiled soil and waste materials located within the north-eastern and central parts of the site will also need to be removed offsite and disposed of at an appropriately licenced/consented landfill.

PDP will liaise with the receiving landfills to confirm acceptance. Note that the landfill may require additional sampling and testing to meet any specific acceptance criteria.

12.0 Record Keeping

The lead contractor shall provide the following information to the contaminated land specialist at the completion of the remedial works:

- ✧ Copies of the weighbridge receipts for all asbestos contaminated soil and stockpiled waste materials removed from the site and/or copies of the completed soil manifest forms showing its disposal location and volume;
- ✧ Records of the location and dimensions of any excavation where additional sources of site contamination are encountered or whether unusual soil staining and/or odour are observed during the site works. If these soils are to be excavated then details of where they have been relocated to/disposed of will also need to be documented; and
- ✧ Details of any complaints and/or visits from CCC for contaminated land related issues (i.e. discharges from the site).

13.0 Reporting

At the completion of the remedial works the contaminated land specialist shall prepare a **Site Validation Report** outlining the following:

- ✧ Confirmation that the remedial activities have been completed and were carried out in accordance with this RAP (including any variations);
- ✧ Confirmation that the soil/waste materials removed from within the site were transported to the pre-agreed landfills for disposal; and
- ✧ Detail the results of the validation soil sampling confirming the asbestos impacted material above BRANZ (2024) commercial/industrial land use guideline criteria has been removed from site.

The summary report will be made available to CCC to be included on the property file.

14.0 Limitations

This RAP has been prepared by Pattle Delamore Partners (PDP) on the basis of information provided by Foodstuffs (South Island) Limited (and others not directly contracted by PDP for the work). PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the RAP. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This RAP has been prepared by PDP on the specific instructions of Foodstuffs (South Island) Limited for the limited purposes described in the RAP. PDP accepts no liability if the RAP is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

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Yours faithfully

PATTLE DELAMORE PARTNERS LIMITED



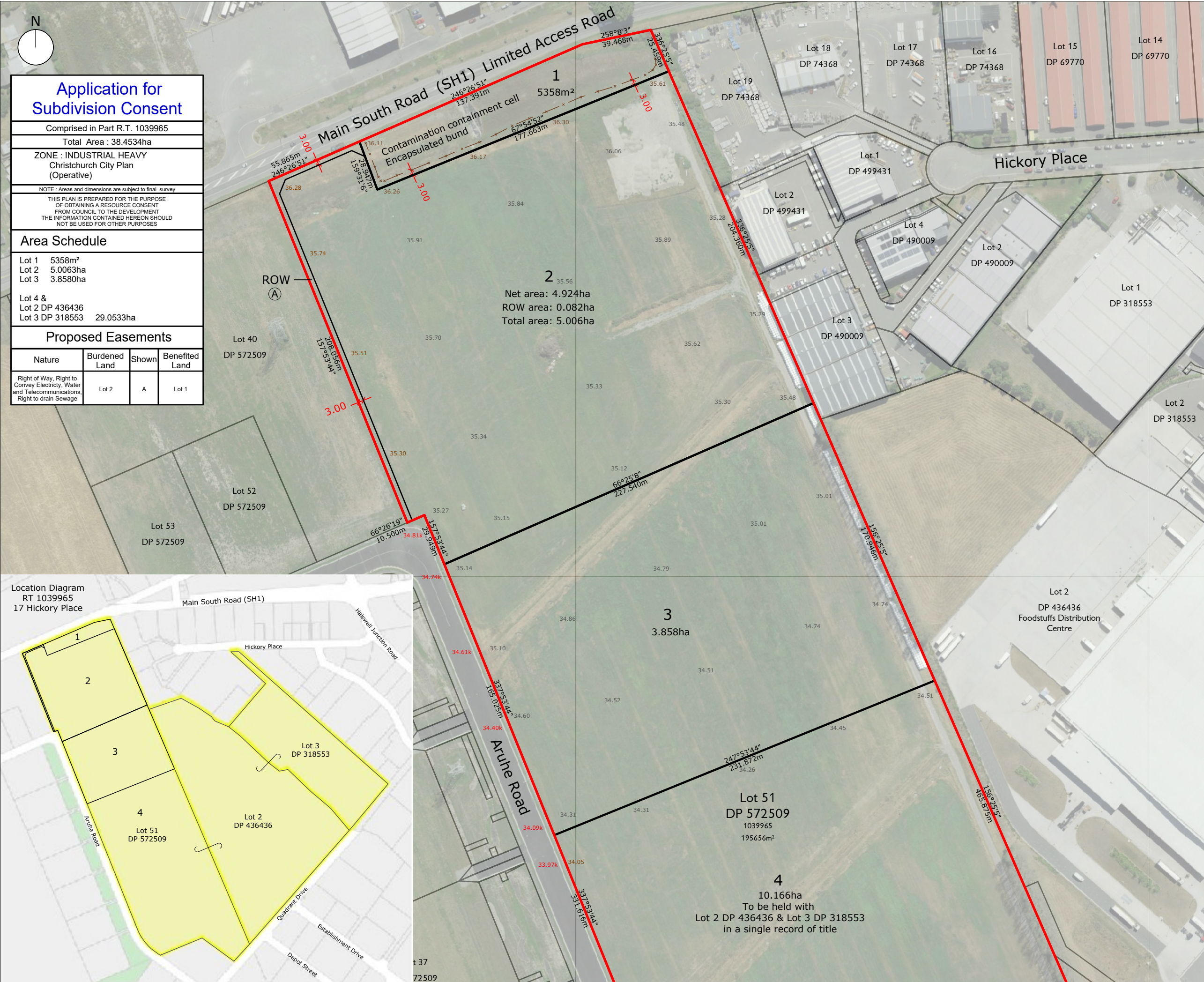
Guy Knoyle

Technical Director – Contaminated Land



Appendix A: Figures





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SURVEY INFORMATION			
SURVEYED		RWT	
SURVEY DATE		12.08.2025	
COORD SYSTEM		NZGD2000	
CIRCUIT		Mt Pleasant	
DATUM		NZVD2016	
ORIGIN OF LEVELS		887T	
		32.816m	

NOTES

A	RWT	25.08.2025	First Issue
REV.	DRAWN	DATE	NOTE

CLIENT

FOODSTUFFS (SOUTH ISLAND) PROPERTIES LTD.

DESIGNED		RWT
DRAWN		WJH
REVIEWED		WJH
APPROVED		WJH

STATUS	FOR INFORMATION
SCALE	1:2000 [A3]

Lot 51 DP 572509
PROPOSED SUBDIVISION
17 HICKORY PLACE, HORNBY
CHRISTCHURCH

SUBDIVISION APPLICATION
PART RT 1039965

PROJECT	SET	SHEET	REV.
600011	V3	V100	A

**eliot
sinclair**



Appendix B: Photographs



Photograph 1: View of Block 2 looking north-west (March/April 2025 Investigation).



Photograph 2: The soil profile of BLK2_SS2 consisting of grass underlain by silty topsoil to 0.2 m bgl. (March/April 2025 Investigation).



Photograph 3: View of the northern end of Block 1 looking north-east, showing the remaining headstocks in the western corner and the encapsulated bund centre picture. (March/April 2025 Investigation).



Photograph 4: A remaining headstock in Block 1. (March/April 2025 Investigation).



Photograph 5: Soil profile of BLK1_SS4 (next to encapsulated bund area) consisting of silty soils with sand down to 0.2 m bgl. (March/April 2025 Investigation).



Photograph 6: Two small pieces of glass and one brick fragment were encountered in BLK1_SS8. (March/April 2025 Investigation).



Photograph 7: Soil sample location BLK1_SS8 comprising of silty with sand soil to 0.2 m bgl. A brick fragment was observed at 0.2 m bgl. (March/April 2025 Investigation).



Photograph 8: View of the encapsulated bund looking east. (March/April 2025 Investigation)



Photograph 9: Southern headstocks Block 2 looking west. (August 2025 Investigation).



Photograph 10: Stockpile in north-eastern part of the site (Block 1), viewed looking west. (August 2025 Investigation).



Photograph11: Stockpile in north-eastern part of the site (Block 1), viewed looking south. (August 2025 Investigation).



Photograph 12: Stockpile in north-eastern part of the site (Block 1), viewed looking east. (August 2025 Investigation).

Appendix D: CCC Acceptance of Construction Stormwater

Isobel Stout

From: StormwaterApprovals <Stormwater.Approvals@ccc.govt.nz>
Sent: Thursday, 3 July 2025 10:53 am
To: Lisa Kamali
Cc: Rebecca Parish; Gerard Stark
Subject: RE: Enquiry into use of global stormwater discharge permit
Attachments: C03812100L001.pdf

You don't often get email from stormwater.approvals@ccc.govt.nz. [Learn why this is important](#)

Hi Lisa,

Metals and organics from all samples appear to be below ANZECC and NES. Asbestos is not soluble. We will cover this site under CCC global consent.

Kind regards,

Ye Wang

Assistant Engineer

Asset Planning - Stormwater & Waterways



03 941 5301



Ye.Wang@ccc.govt.nz



Civic Offices, 53 Hereford Street, Christchurch 8013



PO Box 73015, Christchurch 8154



ccc.govt.nz

Christchurch
City Council 

From: Lisa Kamali <lisa.kamali@pdp.co.nz>
Sent: Monday, 23 June 2025 3:20 pm
To: StormwaterApprovals <Stormwater.Approvals@ccc.govt.nz>
Cc: Rebecca Parish <rebecca.parish@foodstuffs-si.co.nz>; Gerard Stark <gerard.stark@pdp.co.nz>
Subject: Enquiry into use of global stormwater discharge permit

You don't often get email from lisa.kamali@pdp.co.nz. [Learn why this is important](#)

Hi team,

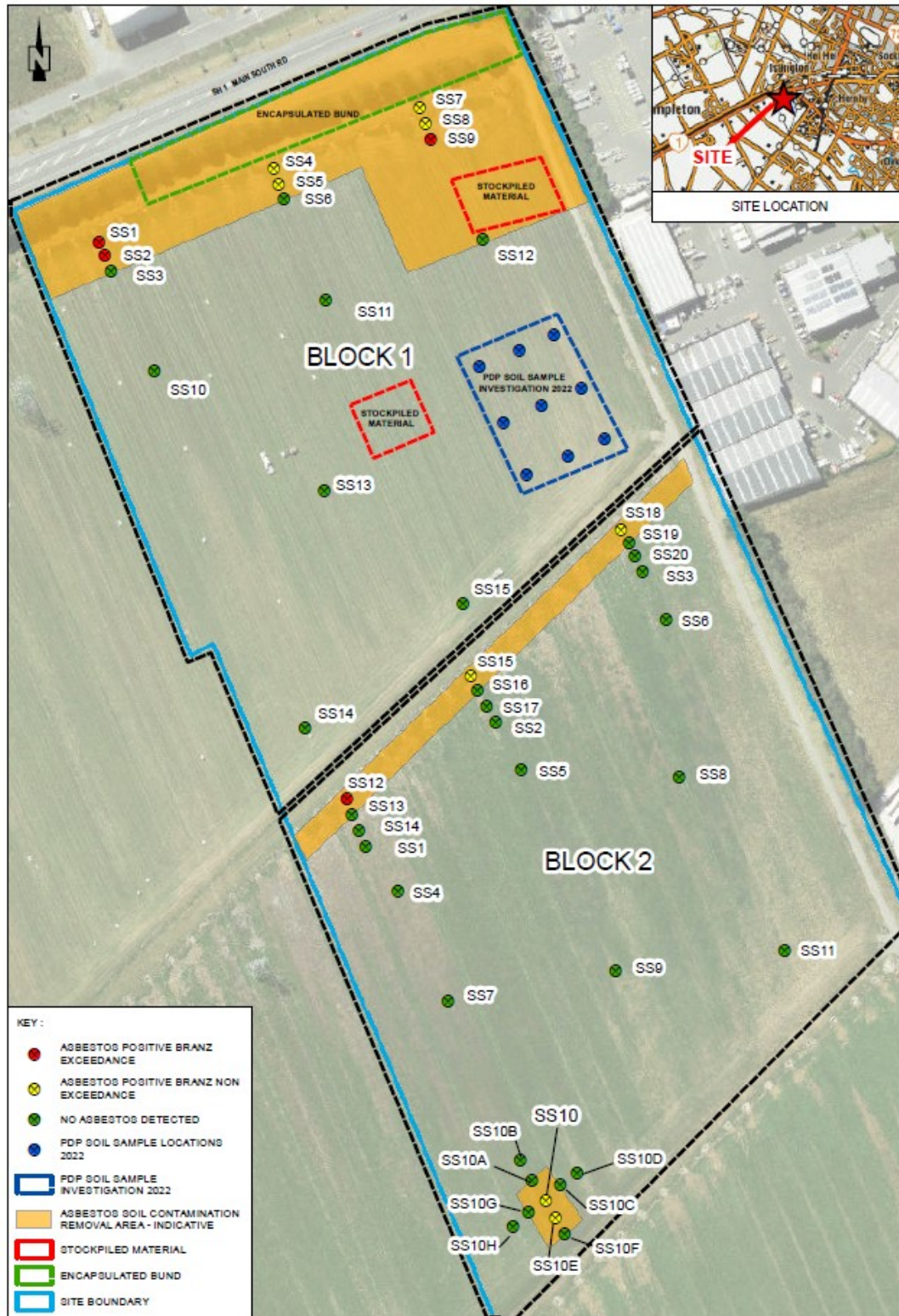
Foodstuffs (South Island) Ltd (FSSI) are seeking an 'in principle' view on whether stormwater can be accepted under the comprehensive stormwater network discharge consent (CSNDC), for proposed asbestos remediation at 17 Hickory Place, Islington.

FSSI seeks to remove asbestos contamination above BRANZ (2024) standards from the site to provide for future commercial/industrial land use and subdivision. Only the soils around the red areas (SS1, 2, 9 and 12) on the below plan will be disturbed with excavation to about 0.5m bgl. Groundwater is around 8-10 m deep in this location.

Testing for heavy metals has been undertaken and all samples were at or around background levels. Full DSI attached.

FSSI will be applying to CCC for consent under the NES-CS for the remedial works, and the works will be done in accordance with a remedial management Plan, with associated ESCP.

A recent DSI is attached. Happy to provide any additional information that may be required.



Kind regards,

Lisa Kamali MNZPI | Technical Director – Environmental Planning
Pattle Delamore Partners Ltd

Mobile: +64 21 225 9579 | Office: +64 3 345 7100
Map - [Christchurch Office](#) | Web - [pdp.co.nz](#)



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