



5 December 2025

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PRELIMINARY AND DETAILED SITE INVESTIGATION - DRY CREEK - BELMONT QUARRY

1.0 Introduction

Winstone Aggregates Limited (Winstone -the client) owns and operates the Belmont Quarry in Lower Hutt, Wellington. Pattle Delamore Partners Limited (PDP) has been engaged by Winstone to undertake a preliminary site investigation (PSI) for the Belmont Quarry Parcels (Firth Block and Northern Gully) and a preliminary and detailed site investigation (PSI/DSI) of a portion of Dry Creek Quarry ('the site') in support of Winstone's Belmont Quarry land exchange with the Department of Conservation (DoC), which in turn will support Winstone's Belmont Quarry Fast-Track Approval Application (FAA).

This report pertains to the Dry Creek Quarry only. The findings of the PSI for the Belmont Quarry Parcels are presented in a separate report (PDP, 2025).

As part of the FAA, Winstone proposes to exchange approximately 23.2 hectares of Belmont Regional Park land with up to 34.06 hectares of land owned by Fletcher Construction and Infrastructure Limited (FCIL, Winstone's parent company). We understand that the FCIL land consists of four parcels of Winstone's land (Dry Creek area and Belmont Quarry Parcels). Dry Creek comprises approximately 7.94 ha of the land to be exchanged and will form part of the conservation estate.

This PSI/DSI has been undertaken at the direction of and supervised by a Suitably Qualified and Experienced Practitioner (a SQEP) for Contaminated Land and has been undertaken in accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines No.1 (CLMG No.1) - *Reporting on Contaminated Sites in New Zealand* (MfE, 2021a) and CLMG No. 5 – *Site Investigation and Analysis of Soils* (MfE, 2021b). A certifying statement to this effect is provided in Appendix A.

Those authors confirm that, in their capacity as authors of this report, they have read and agree to abide by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses Practice Note 2023. A copy of the authors CV, setting out necessary qualifications is at Appendix A.



2.0 Objectives and Scope

The objectives of this PSI/DSI are to:

- ✦ Determine whether any Hazardous and Industrial List (HAIL)¹ or other potentially contaminating activities, either from historical or current activities, have been undertaken at Dry Creek.
- ✦ Assess, by means of soil sampling and analysis, for the presence of any residual contamination impacts to surface and near-surface soils from these current or historical activities.
- ✦ Identify any consenting requirements under the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011 (NESCS) and the contaminated land rules within the Greater Wellington Regional Council's (GWRC) *Proposed Natural Resources Plan (PNRP)*².
- ✦ Provide recommendations of further investigations, if required.

The scope of work included:

- ✦ Undertaking a detailed review of information provided by the client and publicly available historical information to identify any actual or potential HAIL land use from current or historical land use.
- ✦ Undertaking a site walkover.
- ✦ Soil sampling at ground surface level and 0.3 m below ground level (bgl) with surface soil samples analysed for heavy metals, polycyclic aromatic hydrocarbons (PAHs) and selectively for presence/absence asbestos in soil (P/A AsblnS).
- ✦ Comparison of the results against the relevant criteria.
- ✦ Assessing the requirements of the NESCS and the contaminated land rules within the GWRC's PNRP².
- ✦ Assessing whether any further investigation work is necessary to inform site management and/or consenting and/or soil disturbance requirements.
- ✦ Preparation of this report.

3.0 Site Description and Background

The property, legally described as Part Lot 1 DP 28205 F2/1438 is located within Dry Creek Quarry, owned by Winstone. Part of the property is to be exchanged with the Department of Conservation (DoC) and is outlined in Figure 1, herein referred to as the site, comprising approximately 7.94 ha.

The site is zoned as 'Extraction' under Hutt City Council's (HCC) District Plan.

The surrounding land use is as follows:

- ✦ North: Dense bush within Belmont Regional Park.
- ✦ East: Dense bush within Belmont Regional Park.

¹ The Hazardous Activities and Industries List (HAIL) 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.

² While consenting under the Resource Management Act 1991 is not directly relevant to the land exchange, these consenting assessments have been undertaken to inform DoC of any potential liabilities/obligations and responsibilities arising from the land exchange.

- ∴ South: Hebden Crescent then State Highway 2 (Western Hutt Road).
- ∴ West: Dense bush within Belmont Regional Park, including Dry Creek campsite.

Site photographs showing the current layout/conditions of the site are provided in Appendix C.

4.0 Geology and Hydrogeology

The geological map of the area (Begg and Johnson, 2000) indicates that the site is underlain by undifferentiated Rakaia Terrane Triassic sandstone and mudstone, comprising alternating sandstone and mudstone, poorly bedded sandstone with minor coloured mudstone, conglomerate, basalt, chert and limestone.

The nearest active fault is the Wellington Fault approximately 200 m south of the site.

An onsite surface water body is present in the northeastern corner of the site and flows in a southeasterly direction. The surface water body becomes culverted shortly after entering the site.

Based on this, local groundwater in the fractured or weathered greywacke beneath the site is inferred to flow in a southeastern direction, discharging into the Hutt River.

A search was undertaken of the GWRC map viewer on 15 August 2025 identified several bores with 500 m. However, the search did not identify any information relating to groundwater depth of use. No water take consents were noted within 500 m of the site. A map is provided in Appendix D.

5.0 Information Review

The purpose of the information review is to establish past land uses at the property and therefore the potential for soil contamination to have arisen from those uses.

5.1 Historical Aerial Photographs

A review was taken of the available historical aerial photographs for the site, which are located in Appendix E. A total of five images were obtained from Retrolens³, one from the HCC GIS Portal⁴ and eight from Google Earth Images. A summary is provided below:

Table 1: Historical Aerial Photograph Review		
Date	Reference	Description
1947	Historical Aerial Photograph 1	The site is undeveloped and appears to be vegetated with a stream in the northern area of the site. The wider property appears to have an access track present, entering the site from Hebden Crescent to the south.
1957	Historical Aerial Photograph 2	The site remains undeveloped with some access tracks present bisecting the northern corner of the site. Quarrying has begun on the wider property.
1967	Historical Aerial Photograph 3	There is now an established access track around the northwestern area of the site. The majority of the site is still covered with vegetation.

³ <https://retrolens.co.nz/>

⁴ <https://maps.huttcity.govt.nz/HistoricAerials/index.html>

Table 1: Historical Aerial Photograph Review

		Quarrying activities are now present across the majority of the wider property.
1979	Historical Aerial Photograph 4	There is minor soil disturbance around the central northern boundary. The access track observed in 1967 is no longer visible. The areas along the northern, eastern and western boundaries are still vegetated.
1988	Historical Aerial Photograph 5	An established access road is present between the quarried portion of the property and the centre of the northwestern site boundary. No other significant changes observed from the previous aerial image.
1995	Historical Aerial Photograph 6	There is increased soil disturbance within the northwestern portion of the site, with the access road reestablished.
2005	Historical Aerial Photograph 7	Most of the site is now revegetated with no soil disturbance taking place. An access road within the northwestern area of the site is still visible. Some parts of the quarry/cleanfill in the wider property have been revegetated.
2009	Historical Aerial Photograph 8	The gully towards the northern corner of the site has been partially cleared. No other significant changes observed from the previous aerial image.
2013	Historical Aerial Photograph 9	The northern area of the site has been excavated and possible filling is evident and a circular pit observed in the northern corner of the site, the exact use of the circular pit is not clear. The access road in the western area of the site is still present. More parts of the cleanfill in the wider property have been revegetated with the earlier revegetation becoming denser/established.
2014	Historical Aerial Photograph 10	The pit, present in 2013 is no longer visible. No other significant changes observed from the previous aerial image.
2016	Historical Aerial Photograph 11	The northern corner of the site appears to have been revegetated and recontoured with some bare, exposed areas and access ways.
2017	Historical Aerial Photograph 12	The majority of the site has been revegetated. The access tracks in the western portion of the site no longer appear accessible.
2019	Historical Aerial Photograph 13	Increased revegetation is present across the site, no other significant changes observed from the previous aerial image.
2022	Historical Aerial Photograph 14	The site is predominately covered with vegetation, the access track to in the northern portion of the site appears to have been reestablished. The cleanfill operation in the wider property appear to have been scaled back and started to be revegetated.
2024	Historical Aerial Photograph 15	The site is predominantly covered in vegetation, the access road present within the central northern area of the site appears to be overgrown. The cleanfill operation in the wider property appear to have ceased completely with the exception of the southeast corner, which appears to be still used for commercial/industrial purposes.

5.2 Greater Wellington Regional Council

A review of the GWRC Selected Land Use Register (SLUR) map viewer showed no record of HAIL activities at the site. Email correspondence dated 19 August 2025 confirmed there is no evidence of contamination at the site. The email from GWRC went on to state that *“this does not mean the site is not contaminated and part of the wider property may be classified as HAIL Category E – 4: Commercial concrete manufacture or commercial cement storage”*.

5.3 Hutt City City Council

An information request was made to HCC pertaining to contaminated land. HCC had no record of potential contamination at the site.

The property files for the wider property were also obtained from HCC. A summary of the pertinent points are outlined below with relevant documents included in Appendix F.

Table 2: Property File Summary		
Document	Date	Comments
Cleanfill Management Plan	2020	<p>Pg 5 outlines the consents associated with the property in regard to land use, groundwater takes, discharge to air, discharge to land and stormwater discharge.</p> <p>Pg 9 outlines acceptable materials to the cleanfill are clay, soil (non-contaminated), rock, asphalt (no evidence of hydrocarbons) and bricks.</p> <p>Pg 10 outlines the unacceptable materials for the clean fill.</p>
Cleanfill Management Plan	1999	<p>Winstone intend to establish and operate a cleanfill at Dry Creek.</p> <p>Material to be accepted at the cleanfill is restricted to clay, soil, rock, asphalt, brick or concrete (including reinforcing steel).</p> <p>Waste material from service stations, timber treatment sites, chemical industry sites, dry cleaning sites, gaswork sites, electrical substations or railway yards must be tested prior to being disposed of.</p> <p>Material is to be visually screened by the cleanfill controller to ensure that unsuitable material (including stained material, hydrocarbon impacted material, putrescible material or asbestos) is not disposed of at the cleanfill.</p>
APPLICATION-Vol 2 - Part 4	1998	Pg 14 outlines that the proposed cleanfill will have an approximate capacity of 500,000 m ³ .
APPLICATION-Vol 2 - Part 5	1998	Pg 11 discusses ecological effects. It is noted that the cleanfill will not adversely affect ecosystem/water quality and may provide increased flora and fauna.
APPLICATION-Vol 2 - Part 9	1998	Certificates of Title: dated 1967 pertaining to 40 acres comprising the site and wider quarry. The site originally belonging to J.E Feast Holdings Limited with the mortgage transferred to Union Oil Company Limited 1974 and then to UDC Finance Limited in 1985. The lease was transferred in 1987 to Construction Service Company. The registered proprietor was listed as Dry Creek Properties in 1993 and was transferred to DHL Resources Limited later that year with the mortgage

Table 2: Property File Summary

Document	Date	Comments
		to Dry Creek Holdings Limited. This was transferred to Winstone Aggregated Limited in 1997.
APPLICATION-Vol 2 - Part 15	1998	Part of the file contains information pertaining to the Resource Consent Application, to “establish, maintain, operate and manage a 500,000 m ³ clean fill at Dry Creek Quarry”. It also outlines concerns raised by Transpower regarding dust control.

5.4 Site Reconnaissance

A site walkover was undertaken on 13 August 2025, photographs from this visit are provided in Appendix C. The site was reflective of the most recent aerial photograph (Historical Aerial Photograph 15) and comprised steep, vegetated slopes.

The site was accessed via Hebden Crescent and then following the road through Holcom Concrete Plant (outside of the site boundary), exiting through the northeast corner. PDP followed the road to the furthest accessible point and then continued on foot. The northern most point accessed was the tip of the cleanfill area, within the northern gully at the site. A small onsite stream is present at the head of the gully, which becomes culverted running in a southern direction. The general coverage of the area is densely vegetated, with the access track surrounded by steep slopes to the north, east and west.

The western portion of the site where previous access roads were present was mostly inaccessible with visual observations made from the available access roads, which were made of compacted gravel. The slopes across the site were very steep and covered in dense vegetation, predominantly gorse.

The eastern and southern boundaries were inaccessible due to steep slopes and dense vegetation. A visual assessment was made of these areas from the access track adjacent to the eastern boundary, which noted the dense vegetation to be predominantly gorse with some areas of exposed rock face.

There was no visual evidence of historical filling activities due to the relandscaping of the site and dense vegetation.

No evidence of HAIL activities was present.

A Winstone site representative during the site visit did not hold any pertinent information relating to the site.

6.0 Summary of Information

The review of historical information identified that the wider property has been used for quarrying from at least 1947 to the late 1990s. The site however has remained largely unchanged until 1967 when an access track was present in the northwestern area of the site, by 1979 minor soil disturbance was noted around the central area of the site until 1995. By 2005 the site was predominantly revegetated. The 2009 historical aerial photograph indicates soil clearance in the gully located in the northern corner of the site followed by periodic infilling from 2013 (where a circular pit is visible from 2013 until 2014) to 2019 after which the site appears to be revegetated.

Two cleanfill management plans, dated 1999 and 2020, have been produced for the wider property.

The site is not listed on GWRC’s SLUR.

7.0 Potential Contaminants of Concern

HAIL Category E7 pertains to mineral extraction, refining and reprocessing, storage and use which can include quarrying. However, rock quarrying for aggregate or building stone, such as Dry Creek Quarry, is an activity that is excluded from the MfE HAIL as the likelihood of soil contamination from gravel or rock materials is considered low.

Class 5 landfills (cleanfills) are also excluded from the MfE HAIL as long as they comply with the requirements of the *Technical Guidelines for Disposal to Land* (WasteMINZ, 2022). However, should inappropriate materials have been disposed of at the cleanfill there is the potential for soil contaminants to include heavy metals, polycyclic aromatic hydrocarbons and asbestos. (It should be noted that the consent and clean fill management plan specifically excluded fill materials which could contain these)

8.0 Preliminary Conceptual Site Model

A risk to human health can only occur if there is a hazard (e.g. contaminated soil), a receptor (e.g. people) and an exposure pathway between the hazard and receptor. The absence of any of these components means no risk can exist.

A preliminary conceptual site model (CSM) is set out in Table 3 below. The table presents the potential contaminant sources at the site (determined by the historical information review), the future receptors (such as future site users and maintenance workers) and potential pathways whereby the receptors could be exposed either directly or indirectly to soil contaminants. The likelihood of soil contamination based on the history, and the likelihood of exposure based on the proposed site use can then be assessed to determine whether a complete exposure pathway is likely to exist.

The ability for this contaminant pathway to negatively impact the receptor can be assessed by qualitative assessment (when the proposed site use is well understood) and/or comparison of the source with appropriate guideline values and/or standards.

Table 3: Preliminary Conceptual Site Model			
Source	Pathway	Receptor	Pathway Linkage
Heavy Metals and Polycyclic Aromatic Hydrocarbons (PAH) if present in fill material	Dermal contact with soil and dust	Site workers (DoC workers installing footpaths ⁵)	Potentially Complete: Short term exposure may occur during soil disturbance works if contaminants are present at concentrations that could pose a risk to human health and are accessible following the land exchange.
	Inhalation and ingestion of soil and dust	Future site users	
	Run off to surface water	Surface water receptors	Potentially Complete: If contaminants are present in shallow soils there is potential for run off to enter the onsite stream in the northern corner of the site, prior to it becoming culverted.
	Infiltration to groundwater	Down gradient groundwater users	Likely Incomplete: Depending on the potential contaminants present and their mobility and the depth to groundwater, it is possible that downward migration of contaminants may occur. However, groundwater in the area is not in potable use and the large dilution factor

⁵ No tracks are currently proposed; however, it may be a future activity.

Table 3: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Pathway Linkage
			associated with the Hutt River and Wellington Harbour would mitigate any potential contaminants.
Asbestos if present in fill material	Inhalation of asbestos fibres in the air mobilised during soil disturbance	Site workers (DoC workers installing footpaths) Future Users	<p>Potentially Complete: Short term exposure may occur during soil disturbance works if contaminants are present at concentrations that could pose a risk to human health and are accessible following the land exchange.</p> <p>Asbestos containing material (ACM) may have been deposited into the cleanfill and may be present in exposed soils.</p>
	Inhalation and ingestion of soil and dust		

9.0 Soil Sampling Plan

The sampling strategy was designed to assess the risk to maintenance workers (for example DoC workers installing walking tracks in the future) and future site users (e.g. hikers) for recreational use from potentially contaminated cleanfill material.

The original sampling plan intended to sample across a broad grid. However, due to the steep topography and dense vegetation the sampling plan was adapted. The adapted plan was undertaken to target accessible areas of the site where filling activities were undertaken, identified in the historical aerial photographs. Therefore, targeted soil sampling was undertaken along the periphery of the observed cleanfill boundary with the Belmont Regional Park to determine the presence of heavy metals, PAHs and asbestos associated with fill material. The sampling locations are outlined in Figure 1 (Appendix B).

Due to the nature of the site, there are some areas of the site that were unable to be accessed, such as the northwestern area of the site, which was previously occupied by access roads. However, a review of historical information⁶ indicates that this area was unlikely to be subject to cleanfill operations and therefore the risk of contamination is considered to be low.

Samples were not taken along the southern boundary of the site due to accessibility issues, and it should also be noted that this part of the site appears to have been undisturbed throughout the site history.

10.0 Site Investigation Activities

10.1 Intrusive Investigation

Soil sampling was undertaken on 13 August 2025 by two PDP environmental scientists using hand excavation methods. All locations were backfilled upon completion.

Sampling was undertaken at six targeted locations at surface level (0.0 m bgl) and to 0.3 m bgl to investigate potential contaminants associated with historical cleanfill and to characterise the soils.

A fresh pair of nitrile gloves were worn to transfer the material from the test pit/drill core to a glass sample jar and plastic pottle. The jars were placed into a chilly bin containing ice and sent via courier to Hill Laboratories under PDP’s Chain of Custody (COC) procedures.

⁶ Including the *Geotechnical Appraisal Report – Land Exchange Belmont Quarry Development Project* (Baseline Geotechnical [BG], 2025) provided by Harbour Chambers.

10.2 Field Observations

The lithology across the site was generally comparable and photographs are located in Appendix C. The topsoil encountered at TP1 (0.0 m and 0.3 m bgl) comprised a brown sandy gravel (Fill), the gravel was medium, angular to sub angular. A brown silty slightly gravelly clay was encountered within TP2 (0.0 m and 0.3 m bgl), TP3 (0.0 m bgl) and TP4 (0.0 m and 0.3 m bgl). TP3_0.3 encountered a dark grey gravelly sandy clay with occasional brick fragments observed. TP5 (0.0 m and 0.3 m bgl) comprised a brown silty sandy clay matrix with large bricks and asphalt noted. TP6 comprised a grey silty clayey gravel, the gravel was noted to be hardfill overlying weathered rock at 0.3 m bgl.

During soil sampling, the following were observed:

- ∴ No staining or olfactory evidence of contamination was noted on any soil material.
- ∴ No ACM or fragments of asbestos.
- ∴ No specific evidence of material unsuitable for the cleanfill – the asphalt and bricks that were encountered are acceptable cleanfill material (in accordance with the Cleanfill Management Plan as indicated in Section 5.3). Groundwater was not encountered within any of the test pits.

10.3 Laboratory Analysis

All surface soil samples were submitted for laboratory analysis and were analysed for a suite of heavy metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc) and polycyclic aromatic hydrocarbons (PAHs). In addition, three soil samples where brick fragments were identified (see Section 10.2) were analysed for presence/absence asbestos to determine if any of the surface soils contain ACM.

The remaining soil samples were placed on hold at the laboratory pending review of the initial results.

11.0 Soil Sampling Results

The laboratory results of the soil analyses, and comparison to applicable assessment criteria, are presented in Table 4 (Appendix G). The laboratory reports and associated chain of custody documentation are included in Appendix H. Only results above the laboratory method detection limit have been tabulated.

Generally, the results across the sampling area were consistent for heavy metals.

- ∴ Arsenic was present between 4 mg/kg (TP1_0.0) and 7 mg/kg (TP5_0.0 and TP6_0.0).
- ∴ Cadmium was below the laboratory detection limit in all samples.
- ∴ Chromium was present between 17 mg/kg (TP2_0.0) and 20 mg/kg (TP6_0.0).
- ∴ Copper was present between 12 mg/kg (TP1_0.0 and TP2_0.0) and 25 mg/kg (TP5_0.0).
- ∴ Lead was present between 16.3 mg/kg (TP1_0.0) and 29 mg/kg (TP5_0.0 and TP6_0.0).
- ∴ Nickel was present between 12 mg/kg (TP5_0.0) and 15 mg/kg (TP6_0.0).
- ∴ Zinc was present between 61 mg/kg (TP1_0.0 and TP2_0.0) and 80 mg/kg (TP3_0.0).

Various PAH compounds were reported at low concentrations in four of the analysed soil samples above the laboratory's level of detection (LOD). Based on the visual presence of asphalt at some test pit locations it is possible that the low level detections of PAHs are attributed to the asphalt.

Asbestos was not detected in any of the analysed soil samples.

12.0 Applicable Soil Acceptance Criteria

In accordance with MfE's *Contaminated Land Management Guidelines No.2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (MfE, 2011a)*, New Zealand risk based standards or guidelines should be used where the exposure assumptions and exposure scenarios are relevant to the site. Where New Zealand guidelines do not exist, overseas risk-based guidelines may be used.

There are soil contaminant standards (SCS) contained in MfE's *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (2011b)* for all heavy metals analysed, with the exception of nickel and zinc. For nickel and zinc, the results have been compared to soil guidelines contained in the *Australian National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013 (NEPM, 2013)* criteria. Samples were compared to the values associated with Recreational land use.

13.0 Comparison of Results to Applicable Criteria and Human Health Risk Assessment

All samples analysed for heavy metals and PAH contained concentrations below the utilised human health SCS for recreational land use. No asbestos was detected in any of the analysed samples. Therefore, soils at the site are not considered to pose an unacceptable risk to human health for recreational use or for short term exposure for DoC workers installing footpaths. On this basis the potentially complete pathways identified in the CSM are subsequently incomplete.

14.0 Environmental Risk Assessment

The ecological risk is also considered to be low due to the generally low concentrations of metals and PAHs identified in the analysed samples. Additionally, the culverted nature of the surface water and the potential for groundwater to be relatively deep will mitigate any potential impacts from run off or infiltration.

15.0 Consideration of the NESCS and GWRC PNRP Assessment⁷

15.1 NESCS

The NESCS seeks to control activities on contaminated land so as to protect human health. The regulations apply to a "piece of land" which is described by one of the following (regulation 5(7)):

- (a) an activity or industry described in the HAIL is being undertaken on it.
- (b) an activity or industry described in the HAIL has been undertaken on it.
- (c) it is more likely than not that an activity or industry described in the HAIL is being or has been undertaken on it.

The review of historical information and analytical results indicates that it is unlikely that an activity which falls within the MfE's Hazardous Activities and Industries List has been undertaken on the site. It is therefore not considered "a piece of land" as described in regulation 5(7) of the NESCS, and therefore these regulations do not apply to the proposed change in land use.

⁷ While consenting under the Resource Management Act 1991 is not directly relevant to the land exchange, these consenting assessments have been undertaken to inform DoC of any potential liabilities/obligations and responsibilities arising from the land exchange.

15.2 GWRC PNRP Assessment

The GWRC PNRP has three rules relating to contaminated land. An assessment of the two relevant rules is shown below.

R81: The production of this DSI report is a permitted activity provided the report is submitted to GWRC within two months following the completion of the investigation.

R82: The results of the DSI indicate that contaminant concentrations are not significantly elevated and do not present a human health or environmental risk.

16.0 Conclusions

Pattle Delamore Partners Limited (PDP) have been engaged by Winstone Aggregates Limited (the client) to undertake a Preliminary and Detailed Site Investigation (PSI/DSI) of a portion of Dry Creek Quarry in support of the land exchange with the Department of Conservation (DoC).

Key findings of this investigation are summarised as follows:

- ∴ A review of historical information indicated that the site was predominantly vacant, vegetated land with some access roads through the northwestern area until 1979 after which minor soil disturbance is noted along the central northern boundary of the site. The next significant change to the site is the revegetation of the site in 2005 followed by excavations in the gully in the northern corner of the site in 2009. The gully is then periodically infilled until 2019. The site is then revegetated and has remained so to the present day.
- ∴ Property file records indicated that the site was part of a consented cleanfill from the late 1990's to around 2019. A Cleanfill Management Plan (CMP) on the file allowed for the filling of clay, soil, rock, asphalt, brick or concrete (including reinforcing steel).
- ∴ Based on the resource consent to operate a cleanfill, the presence of a CMP and review of historical aerial photographs, a limited DSI soil sampling investigation was undertaken.
- ∴ The site walkover identified that much of the site was inaccessible due to steep slopes and covered in dense vegetation, primarily gorse.
- ∴ During the soil sampling the underlying shallow soils were noted to comprise predominantly of silty and clayey matrix with some large bricks and asphalt (Fill) noted, consistent with materials allowed for in the CMP.
- ∴ No groundwater was encountered.
- ∴ Analytical results were generally comparable across the site with no exceedances against the applicable criteria. Low level detections of selected polycyclic aromatic hydrocarbons may be consistent with observations of asphalt within the fill material.
- ∴ No asbestos was identified in the analysed samples.

The information review and soil testing did not identify evidence that HAIL activities have occurred at the site and therefore the NESCS does not apply. The limited site investigation work undertaken did not identify the presence of material beyond that allowed for in the CMP.

As per Rule 81 of the Greater Wellington Regional Council's Protection Natural Resources Plan, this DSI must be provided to the council within two months following completion of the investigation.

An area of historically disturbed land related to site access tracks in the northwest area of the site was unable to be sampled due to access constraints associated with topography and thick vegetation cover. However, review of the available information suggests that the risk of contamination in this area is considered to be low.

17.0 References

- BG, 2025. *Geotechnical Appraisal Report – Land Exchange Belmont Quarry Development Project*. Baseline Geotechnical Limited.
- MfE, 2011a. *Contaminated Land Management Guidelines No. 2 – Hierarchy and Application in New Zealand of Environmental Guideline Values*. Ministry for the Environment, Wellington.
- MfE, 2011b. *Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health*. Ministry for the Environment, Wellington.
- MfE, 2021a. *Contaminated Land Management Guidelines No. 1 – Guidelines for Reporting on Contaminated Sites in New Zealand revised 2021*. Ministry for the Environment, Wellington.
- MfE, 2021b. *Contaminated Land Management Guidelines No. 5 – Site Investigation and Analysis of Soils revised 2021*. Ministry for the Environment, Wellington.
- NEPM, 2013. *Australian National Environmental Protection (Assessment of Site Contamination) Amendment Measure 2013* (NEPM, 2013)
- PDP, 2025. *Preliminary Site Investigation – Belmont Quarry – Firth Block and Northern Gully*. Pattle Delamore Partners Limited.

18.0 Limitations

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Winstone Aggregates Limited (Winstone) and Hill Laboratories and others not directly contracted by PDP for the work including Hutt City Council, Greater Wellington Regional Council, Retrolens and Harbour Chambers. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

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.

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.

The information contained within this document applies to sampling undertaken on the dates 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.

This report has been prepared by PDP on the specific instructions of Winstone for the limited purposes described in the report. PDP acknowledges that this report may be used and relied upon by the Expert Panel appointed under the Fast-track Approvals Act 2024. PDP accepts no liability if the report 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

Prepared by



Senior Environmental Scientist - Geology

Reviewed by



Service Leader – Contaminated Land

Approved by



Technical Director – Contaminated Land

Appendix A: Certifying Statement

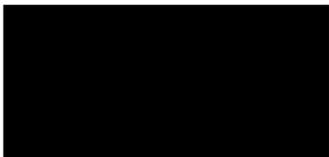
I,  of Pattle Delamore Partners certify that:

1. This combined preliminary and detailed site investigation meets the requirements of the Resource Management (*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*) Regulations 2011 (the NESCS) because it has been:
 - a. Completed by a suitably qualified and experienced practitioner;
 - b. Completed in accordance with the current edition of *Contaminated land management guidelines No. 5 – Site investigation and analysis of soils*;
 - c. Reported on in accordance with the current edition of *Contaminated land management guidelines No. 1 – Reporting on contaminated sites in New Zealand*; and
 - d. Certified by a suitably qualified and experienced practitioner.
2. This combined preliminary and detailed site investigation concludes that the NESCS does not apply as it is more likely than not that no HAIL activities have been undertaken at the site and that the proposed change in land use is highly unlikely to be a risk to human health as they do not exceed the applicable standard in Regulation 7 of the NESCS.

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) who have done this investigation and certified this report is provided below.

This certification applies to the date of this report.

Signed,



Technical Director – Contaminated Land

██████████ - Approver

██████████ is an environmental engineer with over 26 years of experience in undertaking environmental and contaminated land assessments. ██████████ has a BE in Civil and Resource Engineering from the University of Auckland. ██████████ has experience with undertaking and managing site investigations, environmental assessments, and monitoring programmes for a range of environmental issues, across a broad range of media including soil, sediment, surface water, groundwater, and ground gas; and for a wide range of contaminants including heavy metals, petroleum hydrocarbons, and asbestos. ██████████ has experience in the assessment of data (including statistical analysis) to undertake risk assessments, including Tier 2 risk assessments. He has familiarity with and understanding of the current contaminated land regulation and practice in New Zealand including assessments against the NES-CS; and in the consenting of contaminated sites.

██████████ - Reviewer

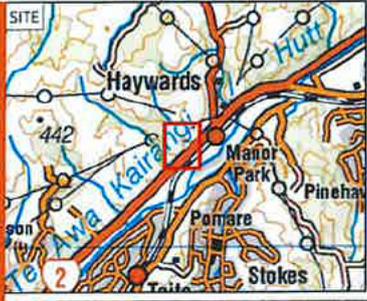
██████████ is an Environmental Scientist with a Master of Science in Physical Geography. ██████████ has a background in environmental site investigations and contaminated land assessments. She is an experienced project manager with over 10 years' experience and is competent in risk identification, mitigation and problem solving. Her involvement in projects includes project management, technical input, risk assessments and liaison with stakeholders.

██████████ - Author

██████████ is an Environmental Geologist with 6 years' experience in undertaking contaminated land assessments across New Zealand and the UK. She has a MESci in Geology and Physical Geography from the University of Liverpool. ██████████ has practical experience in undertaking and managing investigations and ongoing monitoring of soil and groundwater for industrial, commercial and residential land development projects. ██████████ has experience in the interpretation and implementation of the NES-CS, project management, risk assessments and liaison with stakeholders.



Appendix B: Figure



KEY:

- SAMPLING LOCATION
- SITE BOUNDARY



SCALE: 1:12,500 (A3)

0 30 60 METRES

FOR DISCUSSION
28/08/2025

A ISSUED FOR REVIEW AUG 26 25
BY KEVINSON DATE BY

NOTE: 1. ALL DATA IS BASED ON THE BEST AVAILABLE INFORMATION AND IS SUBJECT TO CHANGE WITHOUT NOTICE. 2. THE CLIENT IS RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED. 3. THE CLIENT IS RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED. 4. THE CLIENT IS RESPONSIBLE FOR THE ACCURACY OF THE DATA PROVIDED.



FIGURE 1: DETAILED SITE INVESTIGATION - DRY CREEK - BELMONT QUARRY

PROJECT: Detailed Site Investigation - Dry Creek Quarry



Appendix C: Site Photographs



Photograph 1: Overview of slope and vegetation from TP1.



Photograph 2: General overview of the site looking east from central site boundary.



Photograph 3: Overview of the site looking west from central site boundary.



Photograph 4: General overview of soil conditions.



Photograph 5: Example of brick encountered.



Photograph 6: Overview of an access track looking north towards TP1 – TP4.



Appendix D: Bore Search





Appendix E: Historical Aerial Images



Historical Aerial Photograph 1 (Retrolens): 1947



Historical Aerial Photograph 2 (Retrolens): 1957



Historical Aerial Photograph 3 (Hutt City Council: 1967)



Historical Aerial Photograph 4 (Retrolens): 1979



Historical Aerial Photograph 5 (Retrolens): 1988



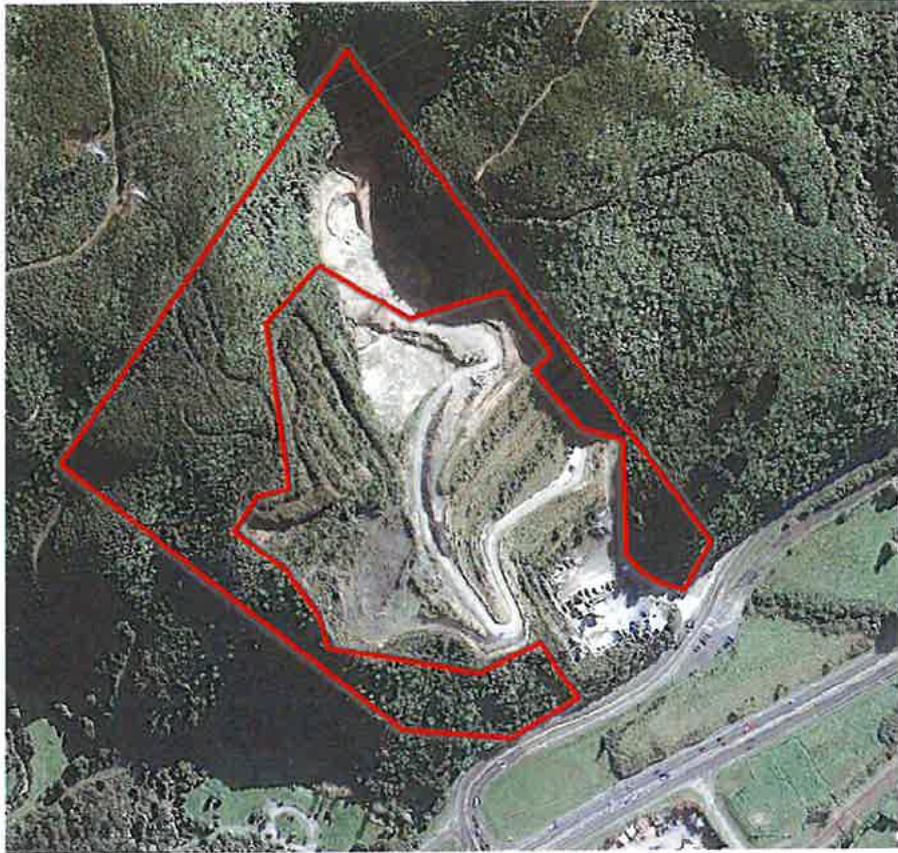
Historical Aerial Photograph 6 (Retrolens): 1995



Historical Aerial Photograph 7 (Google Earth): 2005



Historical Aerial Photograph 8 (Google Earth): 2009



Historical Aerial Photograph 9 (Google Earth): 2013



Historical Aerial Photograph 10 (Google Earth): 2014



Historical Aerial Photograph 11 (Google Earth): 2016



Historical Aerial Photograph 12 (Google Earth): 2017



Historical Aerial Photograph 13 (Google Earth): 2019



Historical Aerial Photograph 14 (Google Earth): 2022



Historical Aerial Photograph 15 (Google Earth): 2024



Appendix F: Property Files

Submission on an Application for Resource Consent under Section 96 of the Resource Management Act 1991

1. To:
Hutt City Council
2. From:
Winstone Aggregates Ltd
3. Address for Service:
Montgomery Watson New Zealand Ltd
PO Box 9624,
Wellington.
Attn: [REDACTED]

HUTT CITY COUNCIL
- 4 JUL 1998

REFERRED TO	Date	Initials	Action
J. Stearns			
Original [unclear]			
FILE	RECALL		

4. Legal Description of subject land:
More or less situated in Block IV of the Belmont Survey District being part Section 200 Hutt District and also Lot 1 on DP 28205
5. Description of Activity to which the application relates:
To establish, maintain, operate and manage a 500,000m³ cleanfill at Dry Creek quarry.
6. Transpower New Zealand Limited does not oppose the above-mentioned application but requires certain conditions be imposed on the consent before it is granted:

The reason for this is that there are two high voltage transmission lines, the Oteranga Bay - Haywards A 350 kV DC Double Circuit Line and the Haywards - Khandallah A 110 kV AC, traversing the subject land. The Oteranga Bay - Haywards A line is extremely important as it is part of the only DC transmission line which connects the North and South Islands. The security of this line is therefore a priority for Transpower.

7. The main reasons why this raises concerns for Transpower:
 - A. The activities associated with cleanfill operations near or underneath the conductors or supporting structures could:
 - result in the loosening of the surrounding soils and subsequently the stability of the supporting structures
 - cause vibration to loosen the soils and subsequently the stability of the supporting structures
 - result in the stockpiling of materials underneath conductors on which earth moving / processing equipment can be situated and lead to possible breaches of safety clearance distances
 - B. The activities associated with cleanfill operations cause dust to rise that can stick to insulators on the transmission lines which can lead to shorting of electrical current across the insulators resulting in unsafe conditions and power shut-downs. Recent examples of this have occurred in North Canterbury on Main Power 66 kV lines. This effect can be accelerated by the presence of diesel or diesel fumes.

WHT0101.DOC

1199/8396

C. The location of haul routes can cause equipment to breach the electrical safety distances required by the NZBCP34:1993 that may result in the risk of "flash-overs". A flash-over is the leaping of electrical current across a gap between live conductors and nearby physical objects. This Code of Practice outlines clearances for equipment which must be observed to protect the people from the risk of electrocution and the integrity of electricity supply through transmission lines. In this case it particularly applies to over height loads and gravel trucks travelling with their decks in a raised position.

D. It is noted that there is a proposal to plant trees around the cleanfill. The requirements to keep physical objects clear of live conductors also apply to any trees which are planted in the vicinity of the line.

Transpower wishes to point out to the applicant that any tree planting which is likely to infringe the safety clearance distances around live overhead conductors and thereby pose a flash-over risk will need to be kept trimmed by the landowner.

If trees are not kept adequately trimmed, then the transmission line Maintenance Contractor will have to arrange to remove or trim them, under statutory authority. If trees have to be felled, compensation will be paid only if they were planted before the line was built.

8. Transpower wishes Hutt City Council to make the following decisions;

A. That a condition be attached to the land use consent which requires that any excavation or interference within 20 metres of any part of a pylon owned by Transpower shall not commence without consultation with the Transpower Environmental Planning Manager.

B. That a condition be attached to the land use consent which requires compliance with the Code of Practice for Electrical Safety Distances, NZBCP34:1993 for any works or activities associated with the cleanfill.

9. Transpower does not wish to be heard in support of this submission.

Moreover, eucalypts are renowned for their demands on water supply, thereby creating the potential to deprive the other species planted as part of the revegetation project of water.

In addition, there would be significant adverse landscape effects associated with the planting of eucalypts on this highly visible site. The eucalypts would not blend in with the rest of the surrounding vegetation.

There are a number of indigenous plants which grow well in the Wellington region and are more appropriate than eucalypts. These include:

- Akeake (fast growing and suitable for erosion control)
- Pōpopō (fast growing and attracts birds)
- Hebe stricta (Koromiko - very fast growing in Wellington region and possum hardy)
- Manuka (fast growing and suitable for erosion control)
- Kāmuka (fast growing and suitable for erosion control)
- Pterisporium (all species are fast growing to at least 6 metres, they are wind tolerant, possum hardy, and suitable for erosion control)
- Olearia species (fast growing and suitable for erosion control)

We submit that it would be more appropriate to use the above mentioned species and other locally sourced indigenous plant species instead of the proposed eucalypts. Thank you.

We do not wish to be heard in support of this submission.

Yours sincerely




Environmental Planner
for Conservation Director

Reference:
Peter C/T. 169/101
Transfer No. 701268
N/C. Order No.

Search Copy 49 / Land and Deeds 60
18 FEB 1988
REGISTER

No. F2/1438

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 6th day of March 1988 one thousand nine hundred and eighty-seven under the seal of the District Land Registrar of the Land Registration District of WELLINGTON

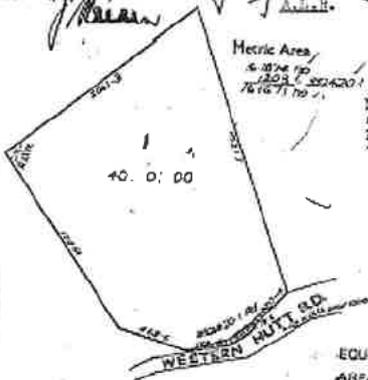
WITNESSETH that J.E. PEASE HOLDINGS LIMITED at Wellington

is seized of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by marginal underwriting or entered hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several addressors named a limb more or less, that is to say: All that parcel of land containing 40 ACRES more or less situate in Block IV of the Belmont Survey District being part Section 200 Hutt District and being also Lot 1 on Proposed Plan 28205----



Subject as to the part shown coloured yellow on plan 28205 to a right of way appurtenant to part Section 200 Hutt District (C.T. F2/1439) see Easement Certificate 701267.

Mortgage 701269 to George Swan Scott and George Kenneth MacMorran - O.J. 1967
Produced 27/1/1988



Mortgage 202107 to Atlantic Union Oil Company (N.Z.) Limited - 24.7.1984 at 11.52 a.m.

Mortgage 104869 to Atlantic Union Oil Company (N.Z.) Limited - 17.7.1974 at 2.55 p.m.

178455.7 Discharge Certificate under Section 17 of the Public Works Amendment Act 1968 - 29.6.1977 at 2.12 p.m.

No. 189067 Discharge Certificate affecting part Section 17 of the Public Works Amendment Act 1968 - 15.12.1977 at 6.44 a.m.

No. 332420.1 Gazette Notice taking part (1200m2) of the within land (hatched black hereon) for road - 22.6.1979 at 10.55 a.m.

716181.2 Mortgage to the Mortgagee Limited - 7.11.1985 at 2.00 p.m.

EQUIVALENT METRIC AREA IS 1618.14 ha

No. F2/1438

The principal objectives to be met by the Dry Creek Cleanfill Management Plan are as follows;

1. PRINCIPAL OBJECTIVES

- For Winstone Aggregates Limited (WAL) to establish and operate a cleanfill in accordance with all requirements of the Resource Management Act 1991 (RMA) & the Health & Safety Act 1993 (HAS), and the Hutt City and Wellington Regional Council's,
- The Wellington Regional Council has issued three Resource Consents for Cleanfill development as listed below and appended;
 - consent no. WGN 980178(01) Land Use (Streambed culverts)
 - consent no. WGN 980178(02) Land Use (Cleanfill)
 - consent no. WGN 980178(03) Discharge to Air

The Hutt City Council Planning Decision for Land Use consent, which imposes additional requirements to those of the Wellington Regional Council, is also appended.

- To allow WAL to rehabilitate the worked areas of Dry Creek Quarry to a high standard, acceptable to WAL and Hutt City Council.

This plan is divided into three sections:

1. management – organisational and general issues
2. operations - day to day operational issues, and
3. development - preparatory works and staged developments.

3. OPERATIONS

3.1 CONTROL OF FILL QUALITY

3.1.1 Unacceptable Waste Types

Material disposed of in the Cleanfill is restricted to clay, soil, rock, asphalt, brick or concrete including reinforcing steel (with no more than 5% of attached timber). None of the following materials are to be disposed of in the cleanfill:

- combustible and organic material,
- organic or hazardous wastes,
- materials subject to biological, physical or chemical breakdown,
- glass,
- metals,
- pesticides,
- vegetation,
- plastics,
- drums,
- rubber tyres,
- exposed reinforcing steel,
- household refuse,
- asbestos, and
- any hazardous materials.

The Cleanfill manager must only accept cleanfill from commercial operators who are generally aware of site requirements.

3.1.2 Assessing Cleanfill Suitability

(a) Identification Of Source:

All trucks are to report in the first instance to the site office. The carrier is required to describe the contents of the load and its place of origin.

Wastes from the following types of sites are unacceptable without testing:

- Service station site re-developments
- Timber treatment sites
- Chemical industry sites
- Dry-cleaning sites
- Gasworks sites

3 Operations – Control of Hill Quality

3.1 Acceptable materials

Cleanfill is defined in the Regional Plan for Discharges to Land and the Regional Air Quality Management Plan as:

Materials such as clay, soil, rock, concrete, or brick, that are free of combustible or putrescible components or hazardous substances or materials likely to create a hazardous leachate by means of biological or chemical breakdown.

In general terms cleanfill brought onto the Dry Creek site will be limited to:

9

- Clay
- Soil – excluding soils from sites contaminated by site activities including horticultural activity;
- Rock
- Asphalt – which has no visible or olfactory evidence of volatile hydrocarbons;
- Bricks, and concrete including encased reinforcing steel (with no more than 5 % of attached timber)

NOTE: - Some materials used in the construction of the cleanfill infrastructure, such as asphalt planings for cleanfill roads and hardstands, will be subject to the approval of the Dry Creek Site Manager.

3.2 Unacceptable Waste Types

The following is a list of materials that are considered unacceptable at Dry Creek Cleanfill. Such materials should be disposed of at a landfill authorised to accept that material.

- Combustible and organic material
- Organic and hazardous wastes
- Materials subject to biological, physical or chemical breakdown
- Metals
- Glass
- Pesticides
- Vegetation
- Plastic
- Drums
- Rubber Tyres
- Exposed reinforcing steel
- Household refuse
- Asbestos
- Any hazardous materials

If a substance or waste is not included in this list it does not imply it is suitable for acceptance at Dry Creek Cleanfill.

The Site Manager will only accept cleanfill from commercial operators who are aware of site requirements.

Ecosystem/Water Quality Effects

- 8.12 The applicant commissioned an ecological site assessment to be undertaken. The results were that the water in the area is of a reasonably high quality, and inhabited by a number of invertebrate species. The site also has lowland forest vegetation, but its habitat value is not considered to be regionally significant. The cleanfill will not have any adverse effects on these qualities, but rather, will provide a complementary increase in habitat for native flora and fauna, and potentially an improvement in biological diversity.
- 8.13 The proposed stormwater system will improve water quality and decrease overland runoff. Again any potential effects on water bodies have been worked through in the pre-hearing processes and appropriate conditions have been agreed upon between the Regional Council, submitters, and the applicant. Issue raised with respect to ecology were related to the species of trees to be used and possible restriction of fish passage up the creek after it is piped. Both of these matters have been worked through with the applicant to use native species for landscaping on site, and the culvert to be installed at the current level of the stream bed. This will ensure that any effect will be no more than minor.

western Hutt hills. The proposed cleanfill will assist in providing managed space for the deposition of cleanfill material in the Hutt Valley, simultaneously remedying the actual and potential adverse effects of the worked quarry. The approximate capacity of the proposed cleanfill is 500,000m³. A Landscape Plan has been prepared as part of the proposal, which will assist in the mitigation of many of the potential adverse effects generally associated with cleanfill activities.

1 Introduction and Principal Objectives

This Cleanfill Management Plan has been prepared in accordance with resource consent requirements for the deposition of cleanfill at Winstone Aggregates Dry Creek site.

This plan records all management, monitoring and operational procedures necessary to comply with the following consents:

District Council Consents currently held:

Consent Ref:	Activity	Expiry Date
Land Use (RM20-W30-WRM)	To operate a cleanfill.	Unlimited as to duration.

Regional Council Consents currently held:

Consent Ref:	Activity	Expiry Date
Groundwater Take WGN120077 [31406]	To take and use groundwater from a spring for dust suppression and quarry activities.	12 October 2021
Discharge to Air WGN200272 [36912]	Discharge permit to discharge dust to air associated with the ongoing operation of a cleanfill site.	23 July 2030
Discharge to Land and Stormwater Discharge WGN200272 [36801]	Discharge permit to discharge cleanfill material and sediment laden stormwater to land where it may enter an unnamed tributary of the Hutt River.	23 July 2030
Land Use 980178(02)	To deposit cleanfill in the bed of an unnamed tributary of the Hutt River.	23 July 2033
Land Use 980178(01)	For works in, on, under or over the stream bed of an unnamed tributary of the Hutt River in association with placing of a culvert.	23 July 2033

The objective of the cleanfill operation is to allow Winstone Aggregates to rehabilitate the worked areas of Dry Creek Quarry to a high standard, acceptable to Winstone Aggregates and Hutt City Council.

This plan is divided into three sections:

1. Management – organisational and general issues
2. Operations – day to day operational issues, and
3. Development – preparatory works and staged developments

A copy of this management plan will be kept on site and will be available for use by site personnel at all times.



Appendix G: Table



Table 4: Soil Analytical Results - Heavy Metals¹, Polycyclic Aromatic Hydrocarbons (PAHs)¹ and Asbestos² - RECREATIONAL LAND USE³

Sample Name	TP1_0.0	TP2_0.0	TP3_0.0	TP4_0.0	TP5_0.0	TP6_0.0	NES SCSs & SGVs ⁴
Laboratory Reference	3960758.1	3960758.3	3960758.5	3960758.7	3960758.9	3960758.11	
Date Sampled	13 Aug 2025						
Site Location	Dry Creek Quarry						
Soil Type - Field	Topsoil	Silty Clay	Silty Clay	Silty Topsoil	Sandy Clay	Clayey Gravel	Recreational
Soil Type - MFE (2011)	Sandy Silt	Silty Clay	Silty Clay	Sandy Silt	Silty Clay	Sand	
Sample Depth (meters below ground level)	0.0	0.0	0.0	0.0	0.0	0.0	
Heavy Metals							
Arsenic	4	6	6	5	7	7	80
Cadmium	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	400
Chromium	18	17	18	18	18	20	2,700 ^{4a}
Copper	12	12	20	16	25	18	>10,000
Lead	16.3	23.0	29	30	29	29	880 ^{4b}
Nickel	12	12	14	13	12	15	1,200 ⁵
Zinc	61	61	80	75	76	70	30,000 ⁵
Polycyclic Aromatic Hydrocarbons (PAHs)							
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES ⁶	ND	ND	< 0.031	< 0.030	0.066	0.59	40
Naphthalene	ND	ND	< 0.07	< 0.07	< 0.07	< 0.06	NA ⁷
Pyrene	ND	ND	0.021	0.013	0.073	0.29	NA ⁷
Asbestos [Presence / Absence]							
Sample Name	-	-	TP3_0.0	-	TP5_0.0	TP6_0.0	NZGAMAS SGVs
Laboratory Reference			3961581.5		3961581.9	3961581.11	
Present (Y/N) ⁸			Not Detected		Not Detected	Not Detected	Recreational

ND Result below the laboratory limit of detection
 - Analyte not tested for

- Notes.
1. Results in mg/kg.
 2. Results in w/w%.
 3. Based on proposed future, recreational land-use.
 4. NES Soil Contaminant Standards (SCSs) from 'Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health' (MFE, 2011) - Recreational values adopted.
 - 4a. SCS value is for chromium VI.
 - 4b. SCS value is for inorganic lead.
 5. Guideline values from 'Schedule B(1) Guideline on Investigation Levels for Soils and Groundwater National Environment Protection Measure' (NEPM), updated May, 2013 - Recreational values adopted.
 6. BaP Potency Equivalence calculated as the sum of each of the detected concentrations of nine carcinogenic PAHs multiplied by the respective potency equivalency factors.
 7. NA Indicates contaminant not limiting as estimated health-based criterion is significantly higher than that likely to be encountered on site.
 8. Asbestos presence/absence from analytical testing ('Y' = yes or 'N' = no).



Appendix H: Laboratory Results and Chain of Custody



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: Mill Lab

Office: Auckland Hamilton Tauranga Wellington Christchurch Invercargill

Quote No.: 139695

Submitted by: [Redacted] Ph No.: [Redacted]

PDP Job No.: A035680009

Chain of Custody Record		Additional Information
Sent: Name: [Redacted] Signature: [Redacted] Date and time: _____	Received: <input type="checkbox"/> Room temp. <input type="checkbox"/> Chilled Temp.: _____°C <input type="checkbox"/> Frozen Name: _____ Signature: _____ Date and time: _____	<u>2x Chilly Bins</u>

Results to: lab.samples@pdp.co.nz
 Email submitter: [Redacted]@pdp.co.nz
 Email other: [Redacted]@pdp.co.nz

Priority: Normal High Urgent
 Results required by: ___/___/___

Invoice to: PDP Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
TP1-0.0	13/8		S	Analysis via email	
TP2-0.3				Hold Cold	
TP2-0.0					
TP2-0.3					
TP3-0.0					
TP3-0.3					
TP4-0.0					
TP4-0.3					
TP5-0.0					
TP5-0.3					
TP6-0.0					
TP6-0.3					
TP7-0.0					
TP7-0.3					
TP8-0.0					
TP8-0.3					
TP9-0.0					
TP9-0.3					
TP10-0.0					
TP10-0.2					

Sar 4.4

Groundwater SAL Saline FW Freshwater GEO Geothermal SW Stormwater
 Biota WW Wastewater P Potable O Other:

Job Information Summary

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3960758
Contact:	[REDACTED]	Date Registered:	14-Aug-2025 1:51 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 6136	Quote No:	139695
	Wellington 6141	Order No:	
		Client Reference:	A035680009
		Add. Client Ref:	[REDACTED]
		Submitted By:	[REDACTED]
		Charge To:	Pattle Delamore Partners Limited
		Target Date:	18-Aug-2025 4:30 pm

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	TP1_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
2	TP1_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
3	TP2_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
4	TP2_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
5	TP3_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
6	TP3_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
7	TP4_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
8	TP4_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
9	TP5_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
10	TP5_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
11	TP6_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
12	TP6_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
13	TP7_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
14	TP7_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
15	TP8_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
16	TP8_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
17	TP9_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
18	TP9_0.3 13-Aug-2025	Soil	cGSoil, cGSoil	Hold Cold
19	TP10_0.0 13-Aug-2025	Soil	cGSoil, cGSoil	Heavy Metals, Screen Level, Polycyclic Aromatic Hydrocarbons Screening in Soil
20	TP10_0.2 13-Aug-2025	Soil	cGSoil, cGSoil	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
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, 3, 5, 7, 9, 11, 13, 15, 17, 19

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	1, 3, 5, 7, 9, 11, 13, 15, 17, 19
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, 3, 5, 7, 9, 11, 13, 15, 17, 19
Polycyclic Aromatic Hydrocarbons Screening in Soil	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	1, 3, 5, 7, 9, 11, 13, 15, 17, 19
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1, 3, 5, 7, 9, 11, 13, 15, 17, 19
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	1, 3, 5, 7, 9, 11, 13, 15, 17, 19
Benzo[a]pyrene Toxic Equivalence (TEF)	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	1, 3, 5, 7, 9, 11, 13, 15, 17, 19

Certificate of Analysis

Client: Pattle Delamore Partners Limited	Lab No: 3960758	SPV1.1
Contact: [REDACTED]	Date Received: 14-Aug-2025	
C/- Pattle Delamore Partners Limited PO Box 6136 Wellington 6141	Date Reported: 27-Aug-2025	
	Quote No: 139695	
	Order No:	
	Client Reference: A035680009	
	Submitted By: [REDACTED]	

Sample Type: Soil

Sample Name:	TP1_0.0	TP2_0.0	TP3_0.0	TP4_0.0	TP5_0.0
	13-Aug-2025	13-Aug-2025	13-Aug-2025	13-Aug-2025	13-Aug-2025
Lab Number:	3960758.1	3960758.3	3960758.5	3960758.7	3960758.9

Individual Tests					
Dry Matter	g/100g as rcvd	73	67	76	79
Heavy Metals, Screen Level					
Total Recoverable Arsenic	mg/kg dry wt	4	6	6	5
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	18	17	18	18
Total Recoverable Copper	mg/kg dry wt	12	12	20	16
Total Recoverable Lead	mg/kg dry wt	16.3	23	29	30
Total Recoverable Nickel	mg/kg dry wt	12	12	14	13
Total Recoverable Zinc	mg/kg dry wt	61	61	80	75

Polycyclic Aromatic Hydrocarbons Screening in Soil*

Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.3	0.5
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Acenaphthene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Anthracene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Benzo[a]anthracene	mg/kg dry wt	< 0.014	< 0.015	0.013	< 0.013	0.033
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.014	< 0.015	0.019	< 0.013	0.045
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.033	< 0.036	< 0.031	< 0.030	0.066
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.033	< 0.036	< 0.031	< 0.030	0.065
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	< 0.014	< 0.015	0.024	< 0.013	0.051
Benzo[e]pyrene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	0.033
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	< 0.015	0.014	< 0.013	0.037
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	0.023
Chrysene	mg/kg dry wt	< 0.014	< 0.015	0.013	< 0.013	0.031
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Fluoranthene	mg/kg dry wt	< 0.014	< 0.015	0.021	< 0.013	0.076
Fluorene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	< 0.015	0.014	< 0.013	0.035
Naphthalene	mg/kg dry wt	< 0.07	< 0.08	< 0.07	< 0.07	< 0.07
Perylene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	< 0.013
Phenanthrene	mg/kg dry wt	< 0.014	< 0.015	< 0.013	< 0.013	0.059
Pyrene	mg/kg dry wt	< 0.014	< 0.015	0.021	0.013	0.073



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:		TP6_0.0 13-Aug-2025	
Lab Number:		3960758.11	
Individual Tests			
Dry Matter	g/100g as rcvd	90	
Heavy Metals, Screen Level			
Total Recoverable Arsenic	mg/kg dry wt	7	
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	
Total Recoverable Chromium	mg/kg dry wt	20	
Total Recoverable Copper	mg/kg dry wt	18	
Total Recoverable Lead	mg/kg dry wt	29	
Total Recoverable Nickel	mg/kg dry wt	15	
Total Recoverable Zinc	mg/kg dry wt	70	
Polycyclic Aromatic Hydrocarbons Screening in Soil*			
Total of Reported PAHs in Soil	mg/kg dry wt	3.3	
1-Methylnaphthalene	mg/kg dry wt	< 0.011	
2-Methylnaphthalene	mg/kg dry wt	< 0.011	
Acenaphthylene	mg/kg dry wt	0.046	
Acenaphthene	mg/kg dry wt	0.012	
Anthracene	mg/kg dry wt	0.061	
Benzo[a]anthracene	mg/kg dry wt	0.174	
Benzo[a]pyrene (BAP)	mg/kg dry wt	0.41	
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	0.59	
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	0.59	
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	0.43	
Benzo[e]pyrene	mg/kg dry wt	0.29	
Benzo[g,h,i]perylene	mg/kg dry wt	0.32	
Benzo[k]fluoranthene	mg/kg dry wt	0.176	
Chrysene	mg/kg dry wt	0.163	
Dibenzo[a,h]anthracene	mg/kg dry wt	0.063	
Fluoranthene	mg/kg dry wt	0.30	
Fluorene	mg/kg dry wt	0.014	
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.34	
Naphthalene	mg/kg dry wt	< 0.06	
Perylene	mg/kg dry wt	0.107	
Phenanthrene	mg/kg dry wt	0.119	
Pyrene	mg/kg dry wt	0.29	

Analyst's Comments
 This certificate of analysis contains information extracted from 3960758-SPv1 issued on 18-Aug-2025 at 4:22 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, 3, 5, 7, 9, 11
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	1, 3, 5, 7, 9, 11
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, 3, 5, 7, 9, 11

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	1, 3, 5, 7, 9, 11
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	1, 3, 5, 7, 9, 11
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(i)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	1, 3, 5, 7, 9, 11
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	1, 3, 5, 7, 9, 11

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

Testing was completed between 15-Aug-2025 and 18-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.



██████ BSc (Tech)
Client Services Manager - Environmental



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: Mill Lab

Office: Auckland Hamilton Tauranga Wellington Christchurch Invercargill

Quote No.: 139695

Submitted by: [Redacted] Ph No.: [Redacted]

PDP Job No.: A055680009

Chain of Custody Record Additional Information

Sent:
Name: [Redacted]
Signature: [Redacted]
Date and time: _____

Received: Room temp. Chilled Temp.: _____ °C
 Frozen
Name: _____
Signature: _____
Date and time: _____

2x Chilly Bins

Results to: lab.samples@pdp.co.nz
 Email submitter: [Redacted]@pdp.co.nz
 Email other: [Redacted]@pdp.co.nz

Priority: Normal High Urgent
Results required by: ___/___/___

Invoice to: PDP Other:

Sample ID	Date	Time	Sample type	Analyses Requested	Notes
TP1-0.0	13/8		S	Analysis via email	
TP2-0.3				Hold Cold	
TP2-0.0					
TP1-0.3					
TP3-0.0					
TP3-0.3					
TP4-0.0					
TP4-0.3					
TP5-0.0					
TP5-0.3					
TP6-0.0					
TP6-0.3					
TP7-0.0					
TP7-0.3					
TP8-0.0					
TP8-0.3					
TP9-0.0					
TP9-0.3					
TP10-0.0					
TP10-0.2					

Groundwater SAL Saline FW Freshwater GEO Geothermal SW Stormwater
 Biota WW Wastewater P Potable O Other: _____

Received by: Priyanka Rathi

396 1581
 Date Recv: 14-Aug-25 13:57
 Job No: 97880
 Date Recv: 14-Aug-25 08:51

Note: Samples may contain dangerous or hazardous substances Page ___ of ___
 PDP Tauranga PDP Wellington PDP Christchurch PDP Invercargill
 Tel: +64 7 985 6440 Tel: +64 4 471 4130 Tel: +64 3 345 7100 Tel: +64 3 422 1690

Job Information Summary

Page 1 of 2

Client:	Pattle Delamore Partners Limited	Lab No:	3961581
Contact:	[REDACTED]	Date Registered:	14-Aug-2025 2:02 pm
	C/- Pattle Delamore Partners Limited	Priority:	High
	PO Box 6136	Quote No:	139695
	Wellington 6141	Order No:	
		Client Reference:	A035680009
		Add. Client Ref:	
		Submitted By:	[REDACTED]
		Charge To:	Pattle Delamore Partners Limited
		Target Date*:	19-Aug-2025 4:30 pm

* As the samples require analysis at a Hill Labs location that is different to where they were received, the Target Date for reporting has been extended.

Samples

No	Sample Name	Sample Type	Containers	Tests Requested
1	TP1_0.0 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
2	TP1_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
3	TP2_0.0 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
4	TP2_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
5	TP3_0.0 13-Aug-2025	Soil	cPSoil125Asb	Asbestos in Soil
6	TP3_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
7	TP4_0.0 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
8	TP4_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
9	TP5_0.0 13-Aug-2025	Soil	cPSoil125Asb	Asbestos in Soil
10	TP5_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
11	TP6_0.0 13-Aug-2025	Soil	cPSoil125Asb	Asbestos in Soil
12	TP6_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
13	TP7_0.0 13-Aug-2025	Soil	cPSoil125Asb	Asbestos in Soil
14	TP7_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
15	TP8_0.0 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
16	TP8_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
17	TP9_0.0 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
18	TP9_0.3 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
19	TP10_0.0 13-Aug-2025	Soil	cPSoil125Asb	Hold Cold
20	TP10_0.2 13-Aug-2025	Soil	cPSoil125Asb	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.

Test	Method Description	Default Detection Limit	Sample No
Sample Type: Soil			
Asbestos in Soil			
As Received Weight Presence / Absence Testing	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	5, 9, 11, 13
Dry Weight Presence / Absence Testing	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	5, 9, 11, 13
<2mm Subsample Weight Presence / Absence Testing	Sample dried at 100 to 105°C, weight of <2mm sample fraction taken for asbestos identification if less than entire fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	-	5, 9, 11, 13

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Asbestos Presence / Absence from Presence / Absence Testing	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	5, 9, 11, 13
Description of Asbestos Form Presence / Absence Testing	Description of asbestos form and/or shape if present.	-	5, 9, 11, 13

Certificate of Analysis

Page 1 of 2

Client: Pattle Delamore Partners Limited	Lab No: 3961581	A2Pv1
Contact: [REDACTED]	Date Received: 14-Aug-2025	
C/- Pattle Delamore Partners Limited	Date Reported: 19-Aug-2025	
PO Box 6136	Quote No: 139695	
Wellington 6141	Order No:	
	Client Reference: A035680009	
	Submitted By: [REDACTED]	

Sample Type: Soil

Sample Name	Lab Number	As Received Weight Presence / Absence Testing (g)	Dry Weight Presence / Absence Testing (g)	<2mm Subsample Weight Presence / Absence Testing (g dry wt)	Asbestos Presence / Absence from Presence / Absence Testing	Description of Asbestos Form Presence / Absence Testing
TP3_0.0	3961581.5	235.0	203.0	27.9	Asbestos NOT detected.	-
TP5_0.0	3961581.9	190.3	156.2	27.5	Asbestos NOT detected.	-
TP6_0.0	3961581.11	156.0	140.6	17.1	Asbestos NOT detected.	-
TP7_0.0	3961581.13	140.1	119.8	32.8	Asbestos NOT detected.	-

Glossary of Terms

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

For further details, please contact the Asbestos Team.

Summary of Methods

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

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Asbestos in Soil			
As Received Weight Presence / Absence Testing	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	5, 9, 11, 13
Dry Weight Presence / Absence Testing	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	5, 9, 11, 13
<2mm Subsample Weight Presence / Absence Testing	Sample dried at 100 to 105°C, weight of <2mm sample fraction taken for asbestos identification if less than entire fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	-	5, 9, 11, 13
Asbestos Presence / Absence from Presence / Absence Testing	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	5, 9, 11, 13
Description of Asbestos Form Presence / Absence Testing	Description of asbestos form and/or shape if present.	-	5, 9, 11, 13



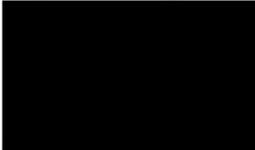
This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported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

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

Testing was completed on 19-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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John Thomas Eggington BApSc
Laboratory Technician - Asbestos

