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Project Number 28842.000.001

Preliminary and Detailed Site Investigation

Mt Pokaka Sawmill, Kerikeri, Northland

Submitted to:
Mt Pokaka Timber Products C/- B&A
Level 1, 62 Kerikeri Road
Kerikeri
Northland

ENGEO Document Control:

Report Title	Preliminary and Detailed Site Investigation – Mt Pokaka Sawmill, Kerikeri			
Project No.	28842.000.001	Doc ID	06	
Client	Mt Pokaka Timber Products C/- B&A	Client Contact	Tracy Goss	
Distribution (PDF)	Tracy Goss			
Date	Revision Details / Status	Author	Reviewer	WP
15/09/2025	Issued to Client	TP	LL	HO
19/12/2025	Minor edits at Planner's request	TP	LL	BK
21/01/2026	Minor edits at Planner's request	TP	LL	JT

SQEP Certifying Statement

I certify that the site has been assessed in accordance with current New Zealand Regulations and guidance documents and that this report has been prepared in general accordance with the Ministry for the Environment's Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand, 2021.

I am considered by ENGEO Limited to be a suitably qualified and experienced practitioner (SQEP) able to certify reports pursuant to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011, based on the company's definition of a SQEP as given below.



Lotta Liddell

21 January 2026

ENGEO Limited requires that a SQEP has the following Qualifications / Experience:

- *Tertiary science or engineering qualification relevant to environmental assessment.*
- *A minimum of ten years of relevant experience.*
- *Registration with a professional body that assess and certifies environmental professionals in the competency criteria of training, experience, professional conduct, and ethical behaviour.*

Contents

1	Introduction.....	1
1.1	Objectives of the Assessment.....	1
2	Site Information	2
3	Site History.....	3
3.1	Aerial Photographs.....	3
3.2	Far North District Council Consent Database and Property File Review	4
3.3	Northland Regional Council Selected Land-use Register (SLuR)	7
3.4	Information Provided by the Client.....	8
4	Site Walkover	9
4.1	Site Observations.....	9
4.2	Limitations of Site Visit	12
5	Potential HAIL Activities.....	12
5.1	Summary of Findings	12
5.2	HAIL Activities.....	13
6	Preliminary Conceptual Site Model	13
7	Intrusive Investigation	18
8	Investigation Findings	20
8.1	Ground Conditions	20
8.2	Laboratory Results	21
8.2.1	Assessment Criteria	21
8.2.2	Assessment of Results	23
8.3	Discussion of Results	24
8.4	Laboratory Quality Assurance and Quality Control.....	24
9	Conceptual Site Model.....	25
10	Discussion.....	29
10.1	Regulatory Context.....	29
10.1.1	The NESCS.....	29
10.1.2	Regional Plan.....	30
11	Conclusions.....	31

12	Recommendations.....	31
13	Limitations	33
14	References.....	34

Tables

Table 1:	Site Information
Table 2:	Aerial Photograph Summary
Table 3:	Property File Summary
Table 4:	HAIL Activities
Table 5:	Preliminary Conceptual Site Model
Table 6:	Investigation Rationale
Table 7:	Conceptual Site Model
Table 8:	NESCS Restricted Discretionary Activity Criteria

Figures (appended)

Figure 1:	Site Location Plan
Figure 2:	Key Site Features and Investigation Location Plan

Appendices

Appendix 1:	NRC Resource Consent Document
Appendix 2:	Historical Aerial Photographs
Appendix 3:	Site Photographs
Appendix 4:	Results Summary Table (Soil)
Appendix 5:	Results Summary Table (Water)
Appendix 6:	Laboratory Reports

1 Introduction

ENGEО Ltd was requested by Mt Pokaka Timber Products C/- B&A to undertake a Preliminary and Detailed Site Investigation at Mt Pokaka Sawmill, Kerikeri (herein referred to as ‘the site’, shown in (Figure 1). This work has been carried out in accordance with our signed agreement dated 27 June 2025.

The purpose of these services is to support development for both Laminata (house manufacturing facility) and Mt Pokaka (timber treatment, sawmill and processing facility), and a 4-lot subdivision to subdivide off land that has not been used for timber treatment or manufacturing. The proposed development includes:

- Expansions to operations associated with Mt Pokaka including a 1,500 m² manufacturing factory, a new pressure treatment process for Micronized Copper Azole (MCA) and Copper, Chromium, and Arsenate (CCA) and CCA fixation process, and expansions to the sawmill, treatment plant, and dry storage.
- Improved stormwater management and water treatment, disposal, and discharge.

This investigation has been undertaken to satisfy both national and regional regulations aimed at protecting human health and the environment, namely:

- The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS, 2011); and
- Proposed Regional Plan for Northland (Operative in part 2024) – Northland Regional Council 2024 (NRC, 2024)

This investigation has also been undertaken to investigate compliance with the current resource consent (AUT.007298.01-10, dated 18.01.2022) for the site. This document is attached as Appendix 1.

This investigation was undertaken in general accordance with the Ministry for the Environment (MfE) Contaminated Land Management Guidelines (CLMG) No. 1: Reporting on Contaminated Sites in New Zealand (MfE, 2021a) and CLMG No 5: Site Investigation and Analysis of Soils (MfE, 2021b). The investigation was supervised, and the report reviewed and approved by a suitably qualified and experienced contaminated land practitioner in accordance with national environmental regulations for soil contamination.

1.1 Objectives of the Assessment

The objective of the preliminary site investigation (PSI) was to gather information relating to current and historical land uses to identify potentially contaminating activities included on the Ministry for the Environment’s (MfE’s) Hazardous Activities and Industries List (HAIL; MfE, 2021c), and to develop a preliminary conceptual site model (PCSM) to assess the potential exposure pathways present at the site.

The objective of the detailed site investigation (DSI) was to obtain data relating to the type, extent and concentration of contaminants of potential concern identified during the desktop assessment. The information gathered has been used to assess whether the identified contaminants of concern pose a potential unacceptable risk to human health or identified environmental receptors and soil is suitable to remain on-site.

2 Site Information

Site information is summarised in Table 1.

Table 1: Site Information

Item	Description
Site Address	1213 State Highway 10, Kerikeri
Legal Description	Lot 3 DP 525313
Current Land Use	The site is currently occupied by Mt Pokaka Timber Products (which includes both a housing manufacturing factory [Laminata] and a sawmill, timber treatment, and processing facility [Mt Pokaka]). Residential properties and native bush are present in the northern portion of the site.
Proposed Land Use	No change
Site Area	66.24 hectares (ha)
Territorial Authority	Northland Regional Council and Far North District Council
Geology	GNS maps the site as generally underlain by Waipapa Group sandstone and siltstone, comprising ' <i>massive to thin bedded lithic volcanoclastic metasandstone and argillite, with tectonically enclosed basalt, chert and siliceous argillite</i> '. An area in the southwest of the site is mapped as being underlain by Waipapa Group chert (Waipapa Composite Terrane) comprising ' <i>beds dominated by chert and siliceous argillite</i> '.
Topography	The site slopes in all directions from the central north portion of the site (peak of Mt Pokaka), with an elevation of 205 metres above sea level to elevations of between 75 and 130 metres above sea level at the site boundaries. The lowest elevation is present at the southern site boundary.
Zoning	Zoned as "Rural Production Zone" under the Operate and Proposed Far North District Plans.
Hydrology	The nearest surface water is the Waihaua Stream which runs along the western boundary of the site.
Hydrogeology	Groundwater was not encountered during the intrusive investigation works. Based on the nearest surface water and topography of the site, shallow groundwater is anticipated to flow south towards the Waihaua Stream. New Zealand Geotechnical Database (NZGD) indicates test pits were advanced near the site (to the west), to a maximum depth of 5.0 metres below ground level (m bgl). Groundwater was not encountered, suggesting groundwater in the vicinity of the site may be more than 5 m bgl.

3 Site History

ENGEO reviewed historical aerial photographs and available information from Northland Regional Council (NRC) and Far North District Council (FNDC). Relevant information obtained during this review is summarised below.

3.1 Aerial Photographs

Aerial photographs dating from 1968 to 2024 have been reviewed (refer to Appendix 2). The aerial photographs were sourced from Far North District Council GeoMaps and Retrolens. Relevant features on the site and surrounding area are summarised in Table 2 below.

Table 2: Aerial Photograph Summary

Date	Description
1968	The site generally comprises forested / grassed land. A small area of land disturbance can be observed in the central northern portion of the site, with tracks positioned to allow access to this portion of the site.
1979	The site is similar in land use to the previous image. Areas of land disturbance can be observed in the central part (same area as previous image) and west / north-western portion of the site. The tracks are more evident (with a track also constructed from State Highway 10), along the eastern site boundary, south of the site and extending off site to the southeast. The land to the north of the site appears to be used for rural residential purposes (with evidence of horticulture on the land to the north of State Highway 10).
1981	No significant changes are observed to the site or surrounding area. Trees may have been cleared in the western portion of the site.
2000	The current timber mill is visible in the southern portion of the site. A large portion of land has been cleared, with multiple buildings constructed and what appears to be a storage area present to the south of the buildings. The track along the eastern portion of the site has been modified to allow access to the southern portion of the site. Residential buildings have been constructed close to the northern and eastern site boundaries.
2005/06	Additional development has been undertaken in the southern portion of the site, with further clearance of land, and construction of buildings and storage areas observed. A small area of ground disturbance is visible in the north-western part of the site.
2016	<p>The timber mill operations have been extended along the western site boundary with what appears to be a storage area constructed in the western portion of the site and four long buildings between this and the main timber mill operations area. Additional buildings have been constructed in the south-western portion of the site. Quarrying activities appear to be occurring in the north-western portion of the site.</p> <p>A small area of hardstand appears to have been constructed at the southern extent of the site (on a parcel of land surrounded by the site but not a part of the site itself).</p>
2024	A building has been constructed in the central northern portion of the site, with several tracks on the slope between this building and the timber mill. Further construction of buildings associated with the timber mill can be observed in the southern portion of the site. This image is considered generally representative of the current site conditions.

3.2 Far North District Council Consent Database and Property File Review

Far North District Council's online database was used to search for building consents and resource consents associated with the site.

Additional information relating to consents, permits, and plans was received from the client (5 May 2025), and a property file was received from Far North District Council (8 July 2025).

Relevant consents reviewed from the online database and relevant documents included in the property file, and supplied by the client, have been summarised in Table 3.

Table 3: Property File Summary

Date	Application / Consent No.	Description
January 1974	631017	Application for, and building permit granted for, construction of a hay shed.
October 1990	PA2155	Resource consent granted to install and operate a timber treatment plant at the site. Of relevance to this report, we note the consent required: <ul style="list-style-type: none"> The drip pad area to be covered to protect it from rainfall causing runoff. That bunded areas should be able to accommodate 120 % of the nominal volume of all solutions and concentrate storage vessels fixed or mobile. That the perimeter bund be constructed of impermeable material. That sufficient storage for a minimum of 48 hours past treatment storage of timber be contained within the bunded area. Coper-chromium-arsenic (CCA) treatment was proposed.
January 1991	BP1743	Application for a building permit for a timber treatment plant. Permit was granted in January 1991. The application included plans for a proposed timber treatment plant comprising one treatment cylinder, two working tanks, and one concentrate tank within the building.
August 1993	BC 930136	Building consent application for a steam conditioning plant. Code of compliance certificate issued March 1994.
February 1994	BC940076	Building consent application for timber plant extension. Code of compliance certificate issued June 1994.
April 1994	BC 940364	Building consent application for a "conveyor belt and post peeler shelter" associated with a treatment plant. Code of compliance certificate issued June 1994.

Date	Application / Consent No.	Description
February 1996	961145	Building consent application for a new implement shed associated with the timber processing building. Attached plans also indicate new slab and in-ground tank and proposed use of Antibu 246 timber preservative (contains Chlorothalonil and Carbendazim). Code of compliance certificate issued May 1996.
March 1997	971266	Building consent application for a timber processing shed. Code of compliance certificate issued March 1998.
November 1997	980741	Building consent application for an office / admin block and lunchroom. Documents in the property file indicate a final inspection of the building was carried out in July 1999 but no code of compliance certificate has been located in the property file.
July 2001	20011788	Building consent application for a dry store. Code of compliance certificate issued October 2001.
September 2002	CON20000729801 (01 – 05)	<p>Consent granted to undertake the following activities associated with sawmilling and timber treatment at the site:</p> <ul style="list-style-type: none"> • To discharge stormwater to land. • To discharge stormwater to the Waihaua Stream. • To divert stormwater. • To discharge timber treatment chemicals to land. • To discharge steamer condensate to land. <p>The consent includes maximum allowable concentrations for total arsenic, chromium, copper, and carbendazim at two specified monitoring locations in the Waihaua Stream.</p> <p>The consent states the only timber treatment chemicals allowed to be used at the site are:</p> <ul style="list-style-type: none"> • Water soluble timber tanalising solutions containing salts and / or acids of copper, chromium, and arsenic (CCA). • Antisapstain chemicals that have Carbendazim and Copper-8-hydroxyquinolite as active ingredients. <p>This consent expired 31 March 2012.</p>
September 2003	RC 2040153	Land use consent to replace and increase the size of an existing building (storage building / drip pad area) granted. The file documents include a copy of the 2002 resource consent for the site.
February 2017	2150179	Subdivision Consent creating two allotments in the Rural Production Zone.

Date	Application / Consent No.	Description
November 2017	2180098	Consent granted for subdivision and landuse, to create one additional lot and carry out a boundary adjustment in the Rural Production Zone and to allow existing buildings to breach the permitted activity rules for Setback from Boundaries and proposed Lot 1 to breach the permitted activity rules for Stormwater Management in the Rural Production zone.
May 2018	AUT.039974.01.01	Resource consent granted to: Discharge secondary treated wastewater to land.
	AUT.039974.02.01	Discharge contaminants (primarily odour) to air.
January 2022	AUT.007298.01.04	Resource consent granted to: Discharge timber treatment chemicals to land within a timber treatment and processing plant and in timber storage areas.
	AUT.007298.02.04	Discharge stormwater to the Waihaua Stream.
	AUT.007298.03.04	Divert stormwater within a timber treatment and processing plant and timber storage areas.
	AUT.007298.04.03	Discharge steamer condensate to land at or about location co-ordinates 1684964E 6095894N.
	AUT.007298.05.03	Discharge contaminants (odour) from a drying kiln to air.
	AUT.007298.06.01	Discharge contaminants (leachate) to land from an untreated sawdust stockpile at or about location co-ordinates 1684810E 6096458N.
	AUT.007298.07.01	Extract rock and remove and place overburden (quarrying) at or about location co-ordinates 1684593E 6096553N.
	AUT.007298.08.01	Divert stormwater associated with land disturbance activities.
	AUT.007298.09.01	Discharge stormwater to land during land disturbance activities.
	AUT.007298.10.01	Divert stormwater within 100 metres of a natural wetland. The consent includes maximum allowable concentrations for total arsenic, chromium VI, copper, chlorothalonil, and carbendazim at two specified monitoring locations in the Waihaua Stream. The consent includes maximum allowable concentrations in sediment for arsenic, chromium, and copper at two specified monitoring locations in the Waihaua Stream. The consent includes maximum allowable concentrations in soil and other substrate at the site for arsenic, chromium III, chromium VI, and copper.

		<p>The consent states the only timber treatment chemicals allowed to be used at the site are:</p> <ul style="list-style-type: none"> • Water soluble timber treatment solutions containing salts and / or acids of copper, chromium, and arsenic as active ingredients (CCA). • Antisapstain chemicals that have Copper 8 hydroxyquinolate ethylene glycol, aryl sulphonic acid, and phosphoric acid as active or additive ingredients; and • Antimould chemicals that have chlorothalonil and carbendazim as active or additive ingredients. <p>This consent will expire on 30 November 2031.</p>
March 2025	EBC-2025-350	<p>Building consent issued for an extension to the existing house factory.</p> <p>Geotechnical investigation was undertaken as part of a Site Assessment Report by Wilton Joubert Limited¹ for a timber pole shed extension. Non-engineered fill material was noted to a maximum depth of 2.6 m bgl, however total depth is unknown due to shallow termination of the boreholes.</p>

3.3 Northland Regional Council Selected Land-use Register (SLuR)

The SLuR² was searched for information regarding the presence of activities included on the HAIL (MfE, 2021c), which the site or surrounding properties may have been subject to. Table 4 lists the sites for which HAIL land uses have been identified.

We note that the site itself is not listed in the SLuR despite ‘*Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside*’ being included in the HAIL (HAIL ID A18).

¹ Wilton Joubert, 2024. Wilton Joubert Limited. (2024). Site Assessment Report – Proposed Timber Pole Shed Extension; Mt Pokaka Timber Products Ltd (reference 135726).

² Accessible at: <https://localmaps.nrc.govt.nz/localmapsviewer/?map=65b660a9454142d88f0c77b258a05f21>

Table 4: HAIL Activities

Site Address	HAIL ID	Direction from site	Distance from site (approximate)
(part of 1213 State Highway 10) Lot 1 DP 452232	B4: Power stations, substations or switchyards	NA	0 metres (parcel of land within the site boundary)
<i>Multiple</i>	A10: Persistent pesticide bulk storage or use	North and northeast	30 – 750 metres
1188 State Highway 10	G4: Scrap yards G6: Waste recycling	Northeast	120 metres
1188B State Highway 10	A13: Petroleum or petrochemical industries I: Other land subject to the release of a hazardous substance A10: Persistent pesticide bulk storage or use	Northeast	250 metres
1283A State Highway 10	F8: Transport depot A13: Petroleum or petrochemical industries	North	400 metres
1283D State Highway 10	E2: Asphalt or bitumen manufacture or bulk storage	Northwest	70 metres

Based on the nature and location of these HAIL activities, they are considered unlikely to have significant adverse effects on the site.

3.4 Information Provided by the Client

Condensate Ponds

The planner for the site / redevelopment (Barker and Associates; B&A) has provided ENGEO with the “Condensate Wastewater Discharge Report – Mt Pokaka Timber Products Ltd”, prepared by PK Engineering (reference 7298, dated 9 July 2025). The document outlines the location and construction of condensate ponds and condensate disposal fields and also identifies that “*no base seepage [in the condensate ponds] occurs due to the buildup of hydrocarbons which has effectively formed a seal from infiltration*”.

Based on conversations with the client, we understand that the discharge of condensate occurs across “existing disposal field A” (as identified in the Condensate Wastewater Discharge Report).

Hazardous Substances

As part of this investigation, ENGEO has been provided with information regarding the hazardous substances and timber treatment chemicals that are stored / used on-site. Relevant chemicals and their volumes are included below:

- An above ground storage tank (AST) containing diesel (20,000 L).
- Chemicals associated with the timber treatment plant, including Micronized Copper Azole (MCA), Cleanwood, Hylite Antimould 2 and sodium nitrite (stored in intermediate bulk containers (IBCs), and Chromated Copper Arsenate (CCA) stored in a 20,000 L stationary tank.
- Hylite NCF stored in an IBC in the dip tank building.
- Water treatment chemicals stored in 220 L drums in the boiler house.
- Approximately 2,400 kg or L of chemicals associated with timber construction (adhesives, solvents and cleaners) stored and used in the Reman buildings.
- Approximately 5,000 kg or L of maintenance chemicals (oil, grease, hydraulic fluid, lubricants, etc.) stored and used in the workshop.

4 Site Walkover

A site walkover and concurrent intrusive investigations were completed between 28 and 30 July 2025 by ENGEO Environmental Scientists.

Observations of conditions present at the site are summarised below. Selected photographs taken during the site visit are included in Appendix 3 and key site features are shown on Figure 2.

4.1 Site Observations

The site is currently occupied by Mt Pokaka Timber Products, which includes the Laminata housing manufacturing factory and the Mt Pokaka sawmill, timber treatment, and processing facility. These operations are primarily concentrated in the southern and western portions of the site. A quarry is located in the northern section of the site. The quarry is used to provide aggregate for use on-site and is not a commercial operation.

The Waihaua Stream borders the western site boundary and a tributary to the Waihaua Stream borders the eastern site boundary, flowing south along the natural topographic gradient. Natural wetlands and tributaries of the Waihaua Stream are present to the east and south. The remaining areas, particularly the northern and eastern portions, are predominantly forested and unoccupied, except for a residential dwelling located in the central northern portion.

The majority of on-site buildings are constructed using painted corrugated metal sheeting, with a concrete floor slab, except for the sawmill building in the western portion of the site, which has timber cladding and roofing. The ground surface in the sawmill area is predominantly asphalt or gravel hardfill, with minimal soft landscaping. Sealed surfaces are generally in good condition, though localised signs of wear were noted.

Engineering Workshop (relevant photos provided in Section 1 of Appendix 3)

The engineering workshop is used for maintenance of site vehicles and machinery, as well as storage of chemicals required for maintenance and operations (e.g. lubricants, oils, etc.). Chemicals are primarily stored in containers up to 200 L (as supplied by manufacturer) on wooden pallets, shelves, and bunded trolleys. The workshop floor is concrete, with occasional isolated staining observed. Grates around the edge of the slab appear clear of debris.

Timber Treatment Plant (relevant photos provided in Section 2 of Appendix 3)

The timber treatment plant is located in the south-western portion of the site and comprises two main operational areas: the main treatment plant in the centre, and the anti-sap treatment plant and kiln to the east.

The main treatment plant building is used for treatment of timber to various timber treatment levels (i.e., H3, H4, and H5) using Micronized Copper Azole (MCA) or Chromated Copper Arsenate (CCA). The chemicals are delivered by tanker and pumped into a 20,000 litre (L) concentrate tank. The concentrate is dosed into working tanks and diluted prior to use in the treatment cylinder. The newly treated timber is placed on the drip pad to dry. The surface of the drip pad was observed to be stained green as a result of treatment chemicals dripping off the drying timber. ENGEO was informed that the treatment plant is bunded to comply with Health and Safety at Work (Hazardous Substances) Regulations 2017 (LI 2017/131) *Clause 17.100 Secondary containment for above ground stationary containers*, and any spills or leaks of treatment chemicals are captured in the drains surrounding the treatment plant and reused. No staining or spills were observed on the ground surface outside of the bunded area / drains. Some MCA treated timber is taken to the sawdust powered kiln building where it is re-dried. Condensate from this process is collected in drains before being transported to the condensate pond and discharge field. A large volume of steam with a strong odour was observed to be produced from this process.

Some timber products are treated with Hylite NCF (anti fungi / mould treatment) in a 30,000 L dip tank in the anti-sap treatment area located to the northeast of the main treatment plant. Hylite NCF is stored as a concentrate in an IBC above the dip tank. Treated timber from the anti-sap stain tank is stored near the Reman plant building.

Sawmill Operational Area

ENGEO did not access or observe the operational area within the sawmill plant. Based on information provided by the site representative, sawdust produced is either burned to generate steam for re-drying and steaming wood, or sold.

Timber Storage Yards (relevant photos provided in Section 3 of Appendix 3)

Two timber storage yards are located at the northern and southern ends of the site. Based on information provided by the site representative, the northern yard is predominantly used for storage of H4 and H5 treated timber, while the southern yard is predominantly used for the storage of H3 and H4 treated timber. Timber in the southern yard was stored on timber bearers, providing elevation from the ground surface. No visible staining, spills or leaks were observed on the gravelled surface.

AST Storage Yard (relevant photos provided in Section 4 of Appendix 3)

The AST yard is located to the north of the office building. It is mainly used for the storage of treated timber, empty IBC containers and tanks. We were informed by a site employee that the tanks are used for the storage of water. A large 20,000 L diesel tank is present south of water tanks and is located on a concrete pad. It was noted that the refuelling point extended outside the edge of the concrete slab, and diesel staining was observed on the ground leading from the refuelling point to a nearby stormwater manhole.

Retail Yard (relevant photos provided in Section 5 of Appendix 3)

The retail yard is located in the south-western portion of the site and is used for the storage, display and sale of timber and related products. The ground surface is predominantly gravelled, with a concrete slab located in the southern and central portion. Smaller timber pallets are stored along the eastern and central sections of the yard, while larger pallets are stored in the southern section.

A retail shed is located in the south-eastern corner of the yard. Storage of small volumes of products associated with timber use (glue, varnish, lubricants etc.) were observed within the shed. The shed interior and concrete slab were in good condition, with no visible staining or evidence of leaks observed. Adjacent to the shed, various fencing, packaging, and construction materials (e.g. barbed wire, metal wires, pipes etc.) were wrapped in plastic and stored on the concrete slab.

A storage area is located in the south-eastern corner of the yard, comprising stockpiles of compost, mulch and sawdust.

Raw Timber Storage Yard (relevant photos provided in Section 6 of Appendix 3)

The raw timber storage yard is situated in the north-western portion of the site (north of the sawmill operations) and primarily serves as a storage area for surplus raw timber, offcuts, and sawdust. The ground surface throughout the yard is covered with approximately 300 - 400 mm of mulch. A large stockpile of decomposing sawdust is located in the northern portion of the yard. A narrow channel designed to direct surface water runoff runs along the western boundary of the yard. The water was noted to be murky brown, with an isolated sheen observed on the surface. It is likely that the brown colour may be associated with tannin leaching from bark, whilst the sheen may be indicative of minor hydrocarbon impacts.

Condensate Pond and Discharge Field (relevant photos provided in Section 7 of Appendix 3)

The condensate pond and discharge field are situated in the central portion of the site on a steep westward sloping terrain. The condensate pond is located southeast of the discharge field and consists of two bays: an upper and a lower bay. The condensate is pumped into the upper bay and then flows over a bund into the lower bay from where it is pumped to the discharge field. ENGEО has been informed that a sediment filter was installed in August 2025, positioned at the pump that draws from the ponds before discharge.

The discharge field is bound by timber fencing along the upper eastern boundary and a gravel access road along the lower western boundary. Non-potable water storage tanks (firefighting and water supply) were observed approximately midway along the top of the discharge field.

A header pipe is attached to timber fencing which runs along the side of a track on the uphill side of the discharge field. Taps on this header pipe lead to discharge pipes which are perforated at regular intervals to allow controlled release of the condensate over the discharge field. The taps are used to control the area of the field being used at any time. According to the site representative, the discharge field is divided into four sectors, typically with one sector actively discharging at any given time. Additionally, ENGEO was informed that approximately 12,000 L of condensate is discharged to the field each day.

During the site visit, water in the condensate pond was observed to be brown, murky and turbid, with foam buildup noted around the edges. Black staining, possibly associated with the “hydrocarbons seal” noted in the “Condensate Water Discharge Report – Mt Pokaka Timber Products Ltd”, prepared by PK Engineering (refer Section 3.4), was noted on the spillway between the bays. The site representative was not aware of a hydrocarbon seal having been installed in the condensate pond but advised that a sediment filter is proposed to be installed to the northern end of the condensate ponds in the near future.

At the time of the site visit it was noted that two sectors along the discharge field were active. Considerable buildup of foam was observed below the discharge points, flowing out of the lower end of the discharge field and in the drain running along the uphill side of the track along the lower side of the discharge field.

4.2 Limitations of Site Visit

ENGEO was not able to gain access to the sawmill operational area and Laminata / Reman buildings or to observe the ground conditions in the operational areas. Therefore, we have inferred activities within the area based on conversations with the site representative.

5 Potential HAIL Activities

5.1 Summary of Findings

Based on the information reviewed as part of this environmental investigation and observations during the site walkover, the following potential sources of contamination have been identified:

- The site has historically been and is currently being used for the treatment and processing of timber. This activity includes chemical storage, mixing, and application, and handling of products containing timber treatment chemicals. Potentially impacted areas are associated with locations where equipment, machinery, storage containers and process tanks associated with the treatment process are located, and areas where treated timber is dried (drip-pad and kiln) and stored. Relevant chemicals associated with these activities include MCA, CCA, Hylite Antimould 2 and Hylite NCF.
- In addition to the timber treatment chemicals stored on-site, hazardous substances are stored and used in the following locations:
 - A 20,000 L above ground storage tank (AST) containing diesel is present in the eastern portion of the site.
 - Four 220 L containers of water treatment chemicals are located in the boiler house.
 - Approximately 2,400 kg / L of chemicals associated with timber construction (adhesives, release agents, solvents, and cleaners) are stored in the Reman building.

- Approximately 5,000 kg/ L of maintenance chemicals (oil, grease, hydraulic fluid, lubricants etc.) are stored in the workshop

There is potential for leaks / spills associated with the storage and use of these chemicals.

- We understand that sawdust generated in the sawmill on-site is burned to fuel the timber drying kiln. The condensate associated with this process is then discharged to the condensate ponds, which is in turn discharged to the condensate disposal field. If sawdust from treated timber is used in this process, or timber treatment chemicals are able to enter the condensate drains (e.g. by dripping off the wet timber) there is potential for chemical contaminants to be discharged to the condensate pond and condensate disposal field.
- There is potential for ash from the burning of sawdust generated as part of the site activities in the kiln and / or boiler, to be discharged to air via the stack and be dispersed across the site. There is potential for contaminants to be discharged to land from this activity. Such contaminants may then be mobilised in stormwater during rain events. We understand that air discharge modeling is being carried out by another party to investigate this potential source of contamination.
- Documents received from the client indicate that there is a ‘*buildup of hydrocarbons*’ at the base of the condensate ponds. There is potential for hydrocarbon impacted silt or waters from this source to be discharged to the condensate disposal field.
- There is potential for areas of the site to have been filled as a result of historical earthworks to create flat surfaces. Whilst it is likely, due to the small quarry on-site, that the fill material is site won, the quality is unknown at this stage.

5.2 HAIL Activities

Based on the information in this report the following activities listed on the HAIL (MfE, 2021c) may be of relevance to this investigation:

- **HAIL ID A17:** Storage tanks or drums for fuel, chemicals or liquid waste.
- **HAIL ID A18:** Wood treatment or preservation, including the commercial use of antisapstain chemicals during milling, or bulk storage of treated timber outside.
- **HAIL G3:** Fill
- **HAIL ID I:** Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

6 Preliminary Conceptual Site Model

A Preliminary Conceptual Site Model (PCSM) has been developed to assess the potential exposure pathways present at the site. A contamination CSM consists of three primary components. For a contaminant to present a risk to human health or an environmental receptor, all three components are required to be present and connected. The three components of a CSM are:

- Source of contamination.
- An exposure route, where the receptor and contaminants come into contact (e.g. ingestion, inhalation, dermal contact).
- Receptor(s) that may be exposed to the contaminants and which are sensitive to that contaminant.

The PCSM is summarised in Table 5.

Table 5: Preliminary Conceptual Site Model

Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	Exposure Assessment
Wood treatment or preservation activities / storage of treated timber <i>(HAIL ID: A18)</i>	Metals / metalloids (particularly copper, chromium and arsenic)	Shallow soil (particularly in areas of site used for timber treatment activities and storage)	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users and redevelopment workers	<p>Potential Linkage</p> <p>Investigation is recommended to assess the source / pathway / receptor</p>
				Neighbouring residents	<p>No Linkage</p> <p>No pathway has been identified between neighbours and soil in the timber treatment site – the distance to the nearest neighbours too far for significant impact to be likely.</p> <p>No further action is required.</p>
			<ul style="list-style-type: none"> • Leaching of contaminants (vertical and / or horizontal) from soil 	Water (groundwater and surface water), particularly the Waihaua Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Investigation is recommended to assess the source / pathway / receptor</p>
Storage tanks or drums for fuel, chemicals or liquid waste <i>(HAIL ID: A17)</i>	Metals / metalloids and total petroleum hydrocarbons (TPHs)	Shallow soil adjacent to the above ground diesel tank	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users and redevelopment workers	<p>Potential Linkage</p> <p>Due the majority of hazardous substances tanks and drums being stored within buildings, there is no direct pathway to soil even if these containers were to leak.</p> <p>There is a potential linkage with respect to the diesel tank, and an investigation is recommended to assess this source / pathway / receptor linkage.</p>
				Neighbouring residents	<p>No Linkage</p> <p>No pathway has been identified between neighbours and the storage of hazardous substances in the timber treatment site – the distance to the nearest neighbours too far for significant impact to be likely.</p> <p>No further action is required.</p>
			<ul style="list-style-type: none"> • Leaching of contaminants (vertical and / or horizontal) from soil 	Water (groundwater and surface water), particularly the Waihaua Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Due to the majority of the of the hazardous substances stored on-site being located in buildings it is unlikely that there is a linkage between these hazardous substances and soil.</p> <p>There is a potential linkage with respect to the diesel tank, and an investigation is recommended to assess this source / pathway / receptor linkage.</p>

Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	Exposure Assessment
Fill (HAIL ID G3)	Metals / metalloids and PAHs	Shallow soil across site that may have been subject to the deposition of sawdust ash or filling as part of earthworks to flatten the site	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact 	Site users and redevelopment workers	<p>Potential Linkage</p> <p>Investigation is recommended to assess the source / pathway / receptor</p>
				Neighbouring residents	<p>No Linkage</p> <p>No pathway has been identified between neighbours and fill at the timber treatment site – the distance to the nearest neighbours too far for significant impact to be likely.</p>
				Water (groundwater and surface water), particularly the Waihaua Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Investigation recommended to assess the source / pathway / receptor</p>
Potential discharge of contaminated condensate (HAIL ID: I)	Metals / metalloids, PAHs and organonitro & phosphorus pesticides (OPPs)	Shallow soil within the condensate disposal field as a result of discharge of potentially contaminated condensate from the condensate ponds, and nearby environmental receptors	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users	<p>Potential Linkage</p> <p>Investigation is recommended to assess the source / pathway / receptor</p>
				Redevelopment workers	<p>No Linkage</p> <p>No linkage as there is no redevelopment proposed in the vicinity of the condensate ponds and discharge field.</p> <p>No further action is required.</p>
				Neighbouring residents	<p>No Linkage</p> <p>No pathway has been identified between neighbours and soil in the timber treatment site – the distance to the nearest neighbours too far for significant impact to be likely.</p> <p>No further action is required.</p>
Water (groundwater and surface water), particularly the Waihaua Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Investigation is recommended to assess the source / pathway / receptor</p>				
Potentially contaminated ash associated with burning of potentially timber treatment chemical contaminated sawdust in the kiln and / or boiler	Metals / metalloids and PAHs	Surface of the site particularly downwind of the stacks	<ul style="list-style-type: none"> • Air discharge and wind dispersion • Rainwater • Deposition to ground followed by 	Site users and redevelopment workers	<p>Potential Linkage</p> <p>We understand that air discharge modeling is being carried out by another party to investigate this potential source of contamination.</p>

Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	Exposure Assessment
(HAIL ID I)			<ul style="list-style-type: none"> ○ Ingestion ○ Inhalation of dust ○ Dermal contact 	Neighbouring residents	<p>No Linkage</p> <p>No pathway has been identified between neighbours and soil in the timber treatment site – the distance to the nearest neighbours too far for significant impact to be likely.</p> <p>No further action is required.</p>
			<ul style="list-style-type: none"> • Air discharge and wind dispersion • Rainwater • Deposition to ground followed by <ul style="list-style-type: none"> ○ Leaching of contaminants (vertical and / or horizontal) from ash ○ Mobilisation by stormwater and surface runoff 	Water (groundwater and surface water), particularly the Waihaua Stream and associated ecological receptors	<p>Potential Linkage</p> <p>We understand that air discharge modeling is being carried out by another party to investigate this potential source of contamination.</p>

7 Intrusive Investigation

ENGEO completed an intrusive investigation at the site between 28 and 30 July 2025.

A targeted sampling approach was adopted to assess potential HAIL activities at the site. Due to the central portion of site having concrete / hard standing surfacing to which damage would affect the site operations, investigation locations were limited around the timber treatment plant and sawmill operations.

Investigation locations were advanced within the timber storage yards, retail yard, area surrounding the AST, raw timber storage yard, and the condensate disposal field. Grab samples of water were also collected from the condensate pond.

Investigation locations and relevant site features / areas are shown in Figure 2.

A summary of the investigation rationale and work undertaken is provided in Table 6.

Table 6: Investigation Rationale

Area	Issues to investigate	Investigation Methodology	Maximum Investigation Depth (m bgl)	Investigation Location Reference(s)	Selected Analysis Suite
Southern Timber Storage Yard	Potential contamination from the storage of treated timber and potential fill	Test Pit	0.85	HA01 – HA03	Metals / metalloids and PAHs
AST Storage Area	Potential contamination from leaks associated with the diesel tank, storage of treated timber and potential fill		1.15	HA04, HA04, AST-01	Metals / metalloids and TPHs
Retail Yard	Potentially contamination from the storage of treated timber and potential fill		0.45	HA06 and HA07	Metals / metalloids and PAHs
Raw Timber Storage Yard			1.2	HA08 – HA10	Metals / metalloids and PAHs
Northern Storage Yard			1.1	HA11 – HA15	Metals / metalloids and PAHs

Area	Issues to investigate	Investigation Methodology	Maximum Investigation Depth (m bgl)	Investigation Location Reference(s)	Selected Analysis Suite
Condensate disposal field	Potential contamination as a result of discharge of potentially contaminated condensate from the condensate ponds	Hand Auger	0.2	CF1 – CF5	Metals / metalloids, OPPs and PAHs
Condensate Pond	Potentially contaminated water associated with condensate generated in the kiln / boiler room	Grab Sample (Water)	-	CP01 and CP02	Total copper, chromium and arsenic, and OPPs

Fieldwork was undertaken in general accordance with the procedures for the appropriate handling of potentially contaminated soils as described in the MfE Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils (MfE, 2021b).

The following was undertaken during the investigation:

- All soil samples were logged for general soil type and visual / olfactory indicators of contamination.
- Soil samples were placed into laboratory supplied containers using a new pair of nitrile gloves for each sample. The containers were capped, labelled with the depth and a unique identifier, and placed into an insulated container and kept cool prior to transport to R J Hill Laboratories under a standard chain of custody.
- Prior to the collection of each sample, the equipment was decontaminated using a triple wash procedure with potable water, Decon 90 solution, and deionised water.
- Water samples were collected using a might gripper, into laboratory supplied containers. Containers were capped, labelled with a unique identifier and placed into an insulated container and kept cool prior to transport to R J Hill Laboratories under a standard chain of custody.

Soil and water samples were submitted to Hill Laboratories for chemical analysis for a suite of contaminants of concern as listed in Table 5.

8 Investigation Findings

8.1 Ground Conditions

This section summarises the ground conditions encountered in the various areas of the site. The areas and investigation locations referenced in this section are identified in Figure 2.

Northern Timber Storage Yard (HA11 – HA15)

Ground conditions at the northern timber storage yard comprised:

- Surface material comprising gravel hardstand extending to a maximum depth of 0.1 m bgl.
- Fill underlying gravel hardstand, to a maximum depth of 1.0 m bgl. Fill material comprised silt with trace organics.
- Inferred native material was encountered below fill material at a depth of between 0.35 – 0.8 m bgl and comprised a reddish-brown clayey silt. This material was proved to a maximum depth of 1.1 m bgl.

Southern Timber Storage Yard (HA01 – HA03)

Ground conditions at the southern timber storage yard comprised:

- Surface material comprising gravel hardstand extending to a maximum depth of 0.1 m bgl.
- Fill underlying gravel hardstand, to a maximum depth of 0.6 m bgl. Fill material comprised silt with trace organics.
- Inferred native material was encountered below fill material at a depth of between 0.35 – 0.8 m bgl and comprised a reddish-brown clayey silt. This material was proved to a maximum depth of 0.85 m bgl.
- A thin layer of ash was observed at one sample location (HA02) between a depth of 0.25 – 0.3 m bgl and was assumed to potentially be associated with historical burning of waste on-site.

AST Storage Yard (HA04, HA05, and AST-01)

Ground conditions in the AST storage yard comprised:

- Surface material comprising gravel hardstand extending to a maximum depth of 0.3 m bgl.
- Fill material underlying the gravel hardstand extending to a maximum depth of 0.6 m bgl. Fill material generally comprised clay / silt, with trace gravel / sand.
- Inferred native material was encountered below fill material at a depth of between 0.4 – 0.6 m bgl and was generally observed to comprise reddish-brown clay / silt. This material was proved to a maximum depth of 1.15 m bgl.
- *A strong diesel odour was noted in the surface gravel and fill at investigation location AST-01.*

Retail Yard (HA06 and HA07)

Ground conditions at the retail yard comprised:

- Surface material comprising gravel hardstand extending to a maximum depth of 0.2 m bgl.
- Fill material was encountered at two of the three locations (not encountered at HA07) and comprised clayey silt with greenish-grey mottles, extending to a maximum depth of 0.55 m bgl.
- Inferred native material was only encountered at HA07. In this location native material was observed at a depth of 0.2 m bgl and comprised reddish-brown clayey silt. This material was proved to a maximum depth of 0.25 m bgl.

Raw Timber Storage Yard (HA08 – HA10)

Ground conditions at the raw timber storage yard generally comprised:

- A surficial layer of organics, extending to approximately 0.1 m bgl.
- Fill material extending to a maximum depth of 1.0 m bgl comprising clay / silt with minor sand and organics.
- Inferred native material was only encountered at HA09 (due to the proposed investigation depth). This was encountered below fill material at 0.8 m bgl and was observed to comprise a reddish-brown / orange silt. This material was proved to a maximum depth of 1.2 m bgl.
- *Perched water was encountered at 0.75 m bgl at HA08. When left to stand for a few minutes a sheen indicative of hydrocarbons³) was observed on this water close to one trial pit wall.*

Condensate Disposal Field

The purpose of the investigation locations at the condensate disposal field was to assess if there was an impact on shallow soil in this area associated with the discharge of condensate. As such, the investigation locations were advanced to a maximum depth of 0.2 m bgl. Ground conditions in this area typically comprised inferred native material comprising clay / silt with sand.

8.2 Laboratory Results

8.2.1 Assessment Criteria

Analytical results were assessed in accordance with criteria selected as follows.

Existing Consent Compliance

To assess compliance with resource consent conditions, the results of chemical analysis of soils have been compared to the criteria listed in Condition 8 of Northland Regional Council's Resource Consent AUT.007298.01.04 - AUT.007298.01.03 and AUT.007298.01.10 (dated 18.01.2022).

³ Analysis of sample from HA08 (at 0.65 -0.75 m bgl) indicated very low concentration of hydrocarbons. Refer 8.2 Appendix 4.

The results of water samples collected from the condensate ponds have also been compared to criteria from the NRC Resource Consent document. These criteria have been set to measure water quality at the monitoring points in the Waihaua Stream (i.e. after mixing and dilution), so, whilst not directly relevant to water quality on-site, it provides a benchmark for the water quality results.

Human Health Criteria

The following criteria were used to assess the risk to site users:

- The soil contaminant standards from the Methodology for Deriving Contaminants in Soil to Protect Human Health (“the Methodology”; MfE, 2011a) for commercial / industrial land use have been selected based on the anticipated land use; and
- In accordance with Contaminated Land Management Guidelines No.2 – Hierarchy and Application in New Zealand of Environmental Guideline Values (CLMG 2; MfE, 2011b) for contaminants not listed above.

As water on-site is not being abstracted for potable use, water results have not been compared to human health criteria as it is considered that the most significant potential effects will be to nearby environmental receptors and therefore the environmental guidelines will be limiting.

If necessary, based on contaminant concentrations on-site, protocols to assist with mitigating risks to earthworks contractors during ground disturbance associated with the proposed additional development works will be outlined in a Site Management Plan or Remedial Action Plan. Users of surrounding properties (during development and future site use) are considered to be adequately protected provided that risks to development workers and site users of the site are acceptable.

As discussed in Section 3.2.1 of the Methodology (MfE, 2011a), the NESCS does not assess a maintenance or excavation worker exposure scenario as the risks to those workers is more appropriately managed under New Zealand health and safety legislation. Therefore, potential risks to contractors responsible for small scale earthworks are not assessed as part of this investigation. However, the results of this assessment can be used to assist with establishing health and safety procedures and protocols to be implemented during future earthworks.

Environmental Criteria

The following criteria were used to assess the risk to any ecological receptor / groundwater:

- **(Soil)** Soil Guideline Values for the Protection of Ecological Receptors (Eco-SGVs, Commercial / Industrial (Landcare Research 2019). Criteria for “Fresh Contamination Source” were used where available (i.e., copper and zinc).
- **(Water)** Australia & New Zealand (ANZG) Default Guideline Values (DGV) for Fresh and Marine Water Quality; 80% Level of Species Protection (LOSP) - Freshwater.

Background Criteria

To assess the soil results against the natural background levels, the following criteria was applied:

- Landcare Research – Predicted Background Soil Concentrations, Landcare Research. Values for the Ultic soil order, Clastic sediment parent material and Northern lowlands land environment.

8.2.2 Assessment of Results

The soil and water results summary tables included in Appendices 4 and 5 compare contaminant concentrations in the samples tested with the adopted investigation criteria. Full analytical laboratory reports are included in Appendix 6. Soil sample locations are shown in Figure 2.

A summary of the results is provided below:

Soil

- The relevant NRC Consent criteria were exceeded in two of the soil samples analysed from the site:
 - The concentration of chromium in the sample recovered from 0.0 – 0.1 m bgl at HA04 (in the AST yard).
 - The concentration of arsenic and chromium in the sample recovered at a depth of 0.0 – 0.2 m bgl at HA11 (in the northern storage yard).

It is considered likely that these elevated concentrations of contaminants are associated with timber treatment chemicals having leached from treated timber stored in these areas.

- The concentration of arsenic recorded in four samples HA01 (0.1 – 0.3 m bgl), HA04 (0.0 – 0.1 m bgl), HA11 (0.0 – 0.2 m bgl), and HA15 (0.1 – 0.4 m bgl) exceeded the selected human health criterion. The concentration of arsenic and copper in the sample from HA04 (0.0 – 0.1 m bgl) and the concentration of arsenic, chromium, and copper in the sample from HA11 (0.0 – 0.2 m bgl) also exceeded the environmental discharge criteria. It is considered likely that these elevated concentrations of contaminants are associated with timber treatment chemicals having leached from treated timber stored in these areas.
- The concentration of naphthalene recorded in the sample recovered from HA02 (0.25 – 0.3 m bgl) exceeded both the selected human health and environmental discharge criteria. This sample was recovered from a thin band of ash. Based on the laboratory quality control information (Section 8.4), this material was confirmed to contain carbon particulates. Further assessment of this material has been undertaken to assess the leachability of naphthalene in this sample (discussed below).
- The concentration of TPH recorded in one sample (AST-01 at 0.3 – 0.4 m bgl) was above the relevant environmental discharge criteria. This sample was collected from near the AST containing diesel. The result is considered to represent shallow soil impact associated with surface spills during refuelling activities.
- Propiconazole was detected in two of the five samples analysed from the condensate disposal field.
- Metal / metalloids concentrations were reported at concentrations which exceed the background criteria in most samples.

Water

- Samples analysed from the condensate pond identified concentrations of arsenic, chromium, and copper above the NRC Consent Criteria, with the concentration of chromium and copper also exceeding the ANZG DGV for 80% LOSP.
- OPPs were not detected above the laboratory limit of reporting (LOR).

Leachate Analysis

Due to elevated naphthalene at HA02, the sample was submitted for analysis using the synthetic precipitation leachate procedure (SPLP) to assess whether the concentration of naphthalene presents an unacceptable risk to the environment. This procedure is designed to assess the capacity of analytes (in this case naphthalene) to leach into the environment via rainwater infiltrating through the soil profile.

The sample had a laboratory measured naphthalene concentration of 220 mg/kg in soil. The SPLP analysis result (Appendices 5 and 6) did not exceed ANZG DVG for 80%, 95% or 99% LOSP.

We note that the laboratory limit of reporting (LOR) for anthracene is greater than the ANZG 99% LOSP. Based on the balance of results (i.e. below the 99% LOSP), we consider it unlikely that there would be an unacceptable risk to environmental receptors if anthracene is present below the LOR at a concentration that exceeds the ANZG 99% LOSP.

8.3 Discussion of Results

The results of our investigations indicate that surface and shallow material in areas where treated timber is stored (AST storage yard, and northern / southern timber storage yard) have been impacted by metals (arsenic and chromium) in some locations. Where impacted material has been identified, a sample has been analysed from below the impacted sample, and in all cases concentration of contaminants below the relevant environmental and human health criteria have been recorded. This indicates that the depth of impact is shallow.

Isolated elevated hydrocarbon concentrations have also been identified: one location near the AST containing diesel, and another in dark material identified in the southern storage yard. At the location of the AST, diesel staining was observed on the ground leading from the refuelling point to a nearby stormwater manhole. It is recommended that the pathway between diesel and stormwater is minimised by isolating the current refuelling area from stormwater through bunding or alternative methods.

Although contaminant concentrations have been identified in the condensate pond above the adopted criteria, concentration of contaminants in the condensate disposal field (soil) are below both the environmental and human health criteria. This may be as a result of water discharged to the condensate disposal field flowing over the surface of the field rather than infiltrating into soil. This is supported by site observations of flows into the drain along the track at the lower end of the infiltration field. If the condensate is entering the stormwater drains on-site these drains may form a direct pathway (via surface flow) to the Waihaua Stream.

Propiconazole was identified in the condensate disposal field. This detection suggests that condensate discharge to condensate ponds (and then to the condensate disposal field) may have been impacted by chemicals used in the dip tank building. The source of this propiconazole may be associated with using previously treated sawdust or timber in the kiln / steaming process, or timber treatment chemicals entering condensate drains.

8.4 Laboratory Quality Assurance and Quality Control

Our review of the laboratory QA reports indicated the following:

1. Carbon particulates were observed in the matrix of sample HA02 (0.25 – 0.3), which may have influenced the recovery of select PAHs (specifically 1-methylnaphthalene, fluoranthene and benzo(a)pyrene). Therefore, results presented for these analytes may not represent the actual concentration in this sample.

2. The laboratory control spike (LCS) recovery was outside the acceptable recovery range for fenpropimorph. This was considered likely associated with the un-ashed sand matrix used as the LCS.
3. The LCS recovery for propanil was above the acceptable recovery range. The corresponding sample result was accepted as the recovery is deemed to be fit for purpose when compared against generic limits (80 – 120%).
4. The sample spike recovery for various PAHs was elevated and above the acceptable recovery range. The corresponding sample results were accepted as there were no positives detected in the sample.

The issues listed above are not expected to materially impact the conclusions of this report.

9 Conceptual Site Model

The PCSM from Section 6 has been updated based on the findings of the intrusive investigation and is summarised in Table 7.

Table 7: Conceptual Site Model

Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	Exposure Assessment
Wood treatment or preservation activities / storage of treated timber <i>(HAIL ID: A18)</i>	Metals / metalloids (particularly copper, chromium and arsenic)	Shallow soil (particularly in areas of site used for timber treatment activities and storage)	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users and redevelopment workers	<p>Complete Linkage</p> <p>Concentrations of arsenic and chromium in some samples collected from areas of timber storage exceeded the human health criteria. Whilst it is considered that the soil results represent isolated hot-spots of impacted soil, it is considered likely that additional hot-spots, not identified in this investigation, may also be present in these areas.</p> <p>The associated risk to site users is considered to be low as these workers are generally not carrying out ground disturbing works. There is a potential risk to site development workers; this risk can be mitigated by preparation and implementation of a site-specific site management plan.</p>
			<ul style="list-style-type: none"> • Leaching of contaminants (vertical and / or horizontal) from soil 	Water (groundwater and surface water), particularly the Waihau Stream and associated ecological receptors	<p>Complete Linkage</p> <p>Concentrations of arsenic, chromium, and / or copper in some samples collected from areas of timber storage exceeded the environmental discharge criteria.</p> <p>Further investigation (stormwater and surface water monitoring) is recommended to assess potential contaminant concentrations in stormwater at the site and in the neighbouring Waihau Stream.</p>
Diesel Storage Tank <i>(HAIL ID: A17)</i>	Metals / metalloids and total petroleum hydrocarbons (TPHs)	Shallow soil adjacent to the above ground diesel tank	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users and redevelopment workers	<p>Incomplete Linkage</p> <p>The concentration of contaminants of concern in soil near the AST were below the selected human health criterion. Metals / metalloids were identified at concentrations that exceed the human health criteria nearby (at HA04), however these exceedances were not considered associated with the AST / storage tanks.</p> <p>It is considered that the identified hydrocarbon impacted soil in the vicinity of the fuel tank poses a low risk to human health.</p>
			<ul style="list-style-type: none"> • Leaching of contaminants (vertical and / or horizontal) from soil 	Water (groundwater and surface water), particularly the Waihau Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Contaminant concentrations (TPHs) in soil were identified above the environmental discharge criterion and therefore there is a potential risk to environmental receptors, however it is likely that contaminant concentration will decrease with depth (as the source is above ground) and distance from the tank. It is recommended that the refuelling area be bunded, and runoff generated in this area treated prior to discharge.</p>
			<ul style="list-style-type: none"> • Overland flow • Catchpit close to but down-gradient of AST 	Surface water particularly the Waihau Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Contaminant concentrations (TPHs) in soil were identified above the environmental discharge criterion and therefore there is a potential risk to environmental receptors. Surface staining observed on-site indicates that there is discharge to a catchpit close to the diesel tank. If the catchpit close to the tank is connected to the on-site stormwater system, this may form a direct pathway to surface water / environmental receptors. In this situation the risk to the environment is considered to be high.</p> <p>It is recommended that the refuelling area be bunded, and runoff generated in this area treated prior to discharge.</p>

Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	Exposure Assessment
Fill (HAIL ID G3)	Metals / metalloids and PAHs	Shallow soil across site that may have been subject to the deposition of sawdust ash or filling as part of earthworks to flatten the site	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users and redevelopment workers	<p>Complete Linkage</p> <p>The concentration of naphthalene identified in fill in one location (HA02), collected from the southern timber storage yard was above the select human health criteria. The contamination is considered confined to a thin band of dark silt / ash present beneath the hardfill surface. Whilst this material was only identified at one location, due to the limited / spread of samples in this area, there is potential for this material to be present elsewhere.</p> <p>The associated risk to site users is low as these workers are generally not carrying out ground disturbing works (and contaminated material is present beneath the surface gravel). There is a potential risk to site development workers; this risk can be mitigated by preparation and implementation of a site-specific site management plan.</p>
			<ul style="list-style-type: none"> • Leaching of contaminants (vertical and / or horizontal) from soil 	Water (groundwater and surface water), particularly the Waihau Stream and associated ecological receptors	<p>Potential Linkage</p> <p>The results of the analysis identified naphthalene in fill (HA02, collected from the southern timber storage yard) above the environmental discharge criteria. The results of the SPLP analysis indicated that contamination / material is unlikely to leach and cause an unacceptable risk to environmental receptors.</p>
Potential discharge of contaminated condensate (HAIL ID: I)	Metals / metalloids, PAHs and organonitro & phosphorus pesticides (OPPs)	Shallow soil within the condensate disposal field as a result of discharge of potentially contaminated condensate from the condensate ponds, and nearby environmental receptors	<ul style="list-style-type: none"> • Soil ingestion • Inhalation of dust • Dermal contact with soil 	Site users and redevelopment workers	<p>Incomplete Linkage</p> <p>Concentration of contaminants of concern in soil samples from the condensate disposal field were below the relevant human health criteria.</p>
			<ul style="list-style-type: none"> • Leaching of contaminants (vertical and / or horizontal) from soil 	Water (groundwater and surface water), particularly the Waihau Stream and associated ecological receptors	<p>Potential Linkage</p> <p>The results of the analysis of water samples from the condensate pond indicate that contaminant concentrations in the water exceed the ANZG criteria for 80% LOSP; however, the concentration of these contaminants in soil are below the relevant environmental discharge criteria.</p> <p>There is potential for the discharged water from the condensate ponds to migrate off-site via surface run-off. Further investigation into surface water is recommended to assess potential contaminant concentrations in stormwater at the site and in the neighbouring Waihau Stream.</p>

Potential Source of Contamination	Primary Contaminants of Concern	Possible Extent of Contamination	Potential Pathway	Potential Receptor	Exposure Assessment
Potentially contaminated ash associated with burning of potentially timber treatment chemical contaminated sawdust in the kiln and / or boiler <i>(HAIL ID I)</i>	Metals / metalloids and PAHs	Surface of the site particularly downwind of the stacks	<ul style="list-style-type: none"> • Air discharge and wind dispersion • Rainwater • Deposition to ground followed by <ul style="list-style-type: none"> ○ Ingestion ○ Inhalation of dust ○ Dermal contact 	Site users and redevelopment workers	<p>Potential Linkage</p> <p>Whilst the concentrations of arsenic and chromium in some samples collected from areas of timber storage exceeded the human health criteria, we considered this is more likely associated with storage of treated timber in these areas.</p> <p>The results of the air discharge modelling being carried out by others should confirm this assumption.</p> <p>Notwithstanding the above, the associated risk to site users is considered to be low as these workers are generally not carrying out ground disturbing works. There is a potential risk to site development workers; this risk can be mitigated by preparation and implementation of a site-specific site management plan.</p>
			<ul style="list-style-type: none"> • Air discharge and wind dispersion • Rainwater • Deposition to ground followed by <ul style="list-style-type: none"> ○ Leaching of contaminants (vertical and / or horizontal) from ash ○ Mobilisation by stormwater and surface runoff 	Water (groundwater and surface water), particularly the Waihau Stream and associated ecological receptors	<p>Potential Linkage</p> <p>Whilst the concentrations of arsenic and chromium in some samples collected from areas of timber storage exceeded the human health criteria, we considered this is more likely associated with storage of treated timber in these areas.</p> <p>The results of the air discharge modelling being carried out by others should confirm this assumption.</p> <p>Further investigation into surface water is recommended to assess potential contaminant concentrations in stormwater at the site and in the neighbouring Waihau Stream.</p>

1. Complete linkage exists where there is a source, a receptor that is sensitive to the contaminants at the concentrations identified and a pathway linking the two.

10 Discussion

10.1 Regulatory Context

In Northland, management of potentially contaminated soils is covered by the following regulations:

- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NESCS, 2011).
- Proposed Regional Plan for Northland (Operative in part 2024) – Northland Regional Council 2024 (NRC, 2024).

10.1.1 The NESCS

The intent of the NESCS is to protect the human health of the site's end users and the surrounding populations.

Based on the findings of this investigation, the site includes a piece of land (the timber treatment and sawmill area) that has been subject to land uses from the HAIL. The proposed subdivision, and soil disturbance and disposal associated with development, may therefore be subject to requirements of the NESCS.

Subdivision or Change of Use

Based on the results of this investigation, the proposed lots in the northern portion of the site (Lots 1 – 3) are not considered to have been subject to activities included on the HAIL. It is therefore considered highly unlikely that there will be a risk to human health as a result of subdividing these parcels of land or changing the use (forestry to residential) of these pieces of land.

Whilst activities on the HAIL have been identified at proposed Lot 4 (the existing timber treatment and sawmill), the act of subdividing the site is considered to be highly unlikely to result in a risk to human health.

Subdivision associated with the proposed development is likely to be considered a permitted activity under Regulation 8(4) of the NESCS.

Soil Disturbance (and Disposal)

ENGEO has not been provided with proposed soil disturbance or disposal volumes. Based on the area of proposed Lot 4 which comprises the timber treatment plant, sawmill, and house manufacturing buildings (503,541 m²), the NESCS allows approximately 25,175 m³ of soil to be disturbed and approximately 5,035 m³ of soil to be disposed (per year) as a permitted activity.

If the soil disturbance / disposal volumes and other requirements of the permitted activity criteria outlined in Regulation 8(3) of the NESCS cannot be met, a restricted discretionary consent will likely be required, as per Regulation 10 of the NESCS, detailed in Table 8 below.

Table 8: NESCS Restricted Discretionary Activity Criteria

Restricted Discretionary Activity Criteria (Regulation 10(2))	
(a) a detailed site investigation of the piece of land must exist	Meets criterion. A DSI has been prepared for the site.
b) the report on the detailed site investigation must state that the soil contamination exceeds the applicable standard in Regulation 7	Meets criterion.
(c) the consent authority must have the report	Meets criterion. We understand this PSI / DSI report will be submitted to Northland Regional Council.
(d) conditions arising from the application of subclause (3), if there are any, must be complied with	Meets criterion. Conditions arising out of subclause 3 (matters over which control is reserved) will be included in the resource consent for the works.

10.1.2 Regional Plan

Section C.6.8 of the Proposed Regional Plan for Northland (PRPN; NRC, 2024) sets out requirements for managing discharges to the environment from land containing elevated concentrations of contaminants.

Section B of the PRPN defines “potentially contaminated land” as:

Land on which either:

- 1) *An activity or industry described in the current edition of the Hazardous Activities and Industries List, Wellington, Ministry for the Environment (HAIL) is being undertaken, or*
- 2) *An activity or industry described in the HAIL has been undertaken.*

As one or more ongoing HAIL activities have been identified at the site, the site is considered to meet the definition of “potentially contaminated land”, and the site is therefore subject to the requirements of Section C.6.8 of the PRPN. Section C.6.8.1 states that investigation of potentially contaminated land is a permitted activity as long as specified conditions are complied with.

Section C.6.8.2 states that passive discharges from contaminated land are a permitted activity as long as specified conditions relating to contaminant concentrations in groundwater, surface water and soil gas are met. Additional investigation will be required to verify if this rule is complied with at the site.

Section C.6.8.3 relates to contaminated land remediation and is not considered relevant at this time as it is not proposed that site activities will cease or change and therefore remediation of the entire site is not proposed.

Section C.6.8.4 relates to reconsenting passive discharges from contaminated land and is not considered relevant at this time as the site has not held a consent authorising passive discharges of contamination.

On the basis of the above, and considering that in some areas the concentrations of contaminants in soil exceed the adopted human health and environmental criteria (i.e. potential for contaminants to discharge to groundwater / surface water) and the concentrations of contaminants in condensate discharged to the condensate disposal field exceed the adopted discharge criteria (95% LOSP from the ANZG), it is considered that development at the site may not comply with Section C.6.8.2. In this case the proposed development works will likely be considered a discretionary activity under Section C.6.8.5 of PNRP.

11 Conclusions

The investigation has identified that:

- The concentration of arsenic, chromium or copper in four samples from the site exceed the relevant NRC Consent criteria, environmental discharge criteria and / or the commercial / industrial human health criteria. These exceedances are considered confined to shallow material in the timber storage yards (northern and southern).
- The concentration of hydrocarbons exceeds the environmental discharge criteria at two locations (TPHs near the above ground storage tank and naphthalene in a layer of ash / dark material identified in the southern storage yard). The concentration of naphthalene also exceeds the human health criteria. The result from the SPLP analysis indicated that elevated naphthalene is unlikely to present an unacceptable risk to environmental receptors. As this material is buried, it is unlikely to present a risk to site users, however, it may present a risk to redevelopment workers if work in this area is proposed. This risk can be mitigated by preparation and implementation of a site-specific site management plan.
- Analysis of samples of water from the condensate pond identified arsenic, chromium, and copper above the NRC Consent Criteria, with chromium and copper also exceeding the ANZG DGV for 80% LOSP.

12 Recommendations

We recommend the following additional work:

- i. It is recommended that the diesel tank be bunded and that a hard-paved refuelling area be constructed for plant / delivery vehicles to park in during refuelling and that runoff generated in this area be treated prior to discharge.
- ii. At the time of the investigation, the central portion of the site (area surrounding the timber treatment and sawmill facilities) was operational and covered in concrete / hard standing. Investigation in this area was delayed to avoid disruption to the ongoing site operations. Additional investigation in the footprints of the proposed development areas in this vicinity is proposed immediately prior to construction commencing.
- iii. We recommend undertaking an investigation of surface water quality at the site to assess if contaminants are being discharged via stormwater drainage from the site to the neighbouring stream. This may provide further information on the adequacy of the stormwater ponds / systems present at the site, and whether any improvements are required during future redevelopment works.

- iv. We recommend that earthworks for the planned redevelopment be managed in accordance with a Site Management Plan (SMP). The SMP will outline the additional investigation required, as well as the appropriate management and disposal of soil, and procedures for encountering unidentified contamination.
- v. Council may require that a Summary of Works (SoW) should be prepared following completion of earthworks to document the work undertaken and confirm that works have been undertaken in general accordance with the SMP.

13 Limitations

- i. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Mt Pokaka Timber Products C/- B&A, their professional advisers, and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity.
- ii. We have prepared this report in accordance with the brief as provided. This report has been prepared for the use of our client, Mt Pokaka Timber Products C/- B&A, their professional advisers, and the relevant Territorial Authorities in relation to the specified project brief described in this report. No liability is accepted for the use of any part of the report for any other purpose or by any other person or entity. The recommendations in this report are based on the ground conditions indicated from published sources, site assessments and subsurface investigations described in this report based on accepted normal methods of site investigations. Only a limited amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations have been inferred using experience and judgement and it should be appreciated that actual conditions could vary from the assumed model.
- iii. Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. They should perform any additional tests as necessary for their own purposes.
- iv. This Limitation should be read in conjunction with the Engineering NZ / ACENZ Standard Terms of Engagement.
- v. This report is not to be reproduced either wholly or in part without our prior written permission.

We trust that this information meets your current requirements. Please do not hesitate to contact the undersigned on (09) 972 2205 if you require any further information.

Report prepared by



Tyler Paterson CEnvP
Environmental Scientist

Report reviewed by

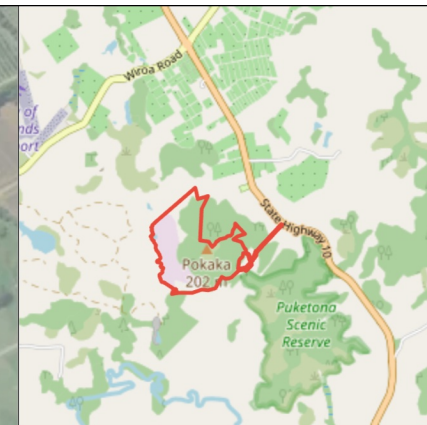


Lotta Liddell, CEng CEnv MICE
Associate Environmental Engineer

14 References

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- MfE, 2011b. Ministry for the Environment. (2011). Contaminated Land Management Guidelines No.2: Hierarchy and Application in New Zealand of environmental guideline values.
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- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011

Figures



Legend

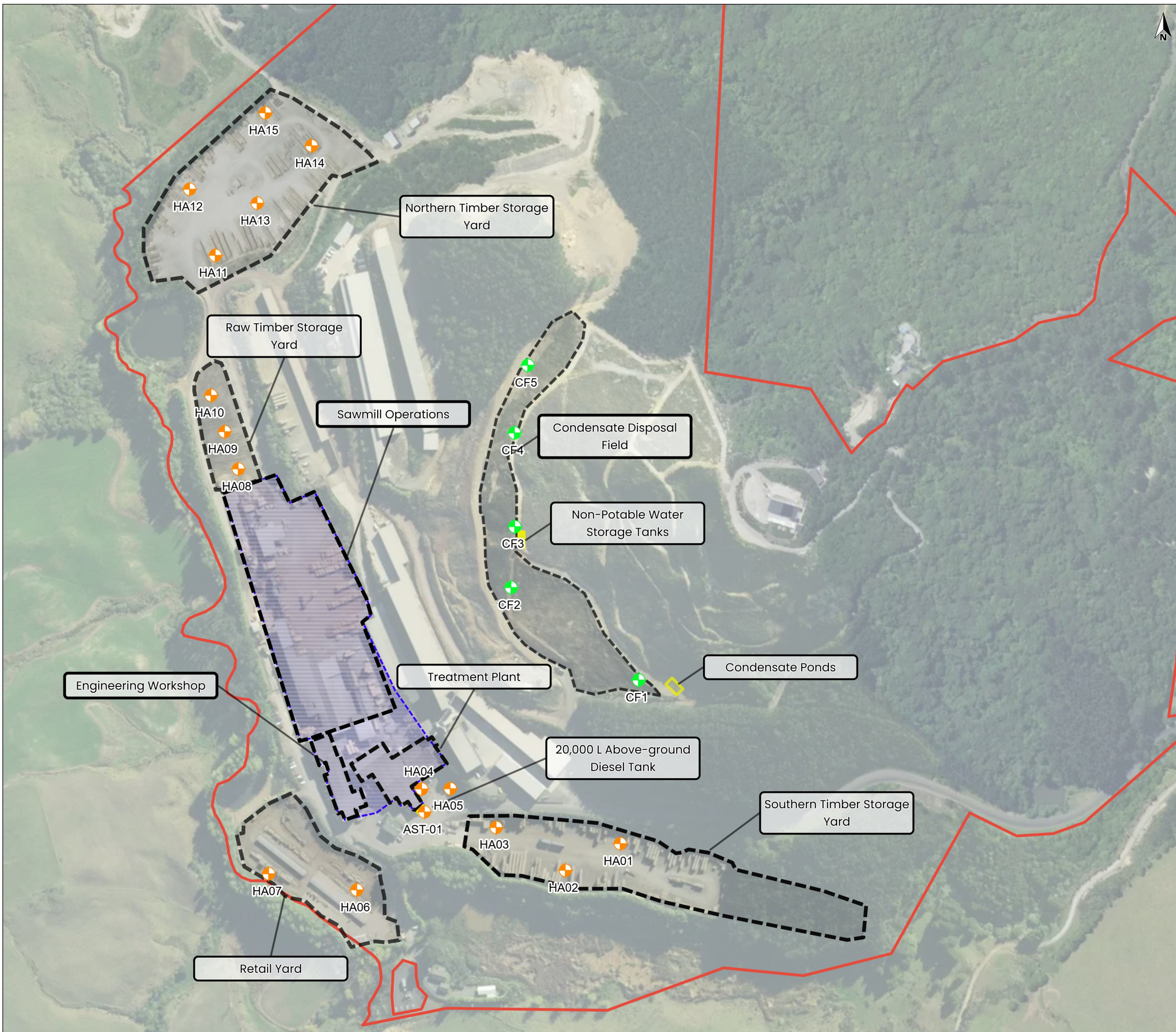
□ Site Boundary

0 100 m 200 m
 LINZ CC BY 4.0 © Imagery Basemap contributors



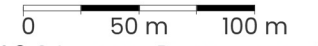
Produced by **Datanest.earth**

Title: Site Location Plan		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Figure No.: 1
Date: 19-08-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:7000	Version: 1



Legend

- ◆ HA Sampling Locations
- ◆ Condensate Field Samples
- Site Boundary
- Concreted Area / Area Unable to be Investigated



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Produced by **Datanest.earth**

Title:
Key Site Features and Investigation Location Plan

Client: Mt Pokaka Timber Products Ltd C/- B&A	Size: A3
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Project: Mt Pokaka Timber Mill	Drawn: NR	Figure No.: 2
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Date: 19-08-2025	Checked: LL
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Proj No: 28842.000.001	Scale: 1:3250	Version: 1
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Appendix 1:
NRC Resource Consent Document

Resource Consent

FILE: 7298
(01 to 10)
Replacement (01-05)
New (06-10)

Document Date: 18.01.2022

*Pursuant to the Resource Management Act 1991, the Northland Regional Council
(hereinafter called "the council") does hereby grant a Resource Consent to:*

MT POKAKA TIMBER PRODUCTS LIMITED

To undertake the following activities on Lot 2 DP 452232 (1213 State Highway 10, Kerikeri), at or about location co-ordinates 1684593E 6096132N:

Note: All location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection.

- AUT.007298.01.04** Discharge timber treatment chemicals to land within a timber treatment and processing plant and in timber storage areas.
- AUT.007298.02.04** Discharge stormwater to the Waihaua Stream.
- AUT.007298.03.04** Divert stormwater within a timber treatment and processing plant and timber storage areas.
- AUT.007298.04.03** Discharge steamer condensate to land at or about location co-ordinates 1684964E 6095894N.
- AUT.007298.05.03** Discharge contaminants (odour) from a drying kiln to air.
- AUT.007298.06.01** Discharge contaminants (leachate) to land from an untreated sawdust stockpile at or about location co-ordinates 1684810E 6096458N.
- AUT.007298.07.01** Extract rock and remove and place overburden (quarrying) at or about location co-ordinates 1684593E 6096553N.
- AUT.007298.08.01** Divert stormwater associated with land disturbance activities.
- AUT.007298.09.01** Discharge stormwater to land during land disturbance activities.
- AUT.007298.10.01** Divert stormwater within 100 metres of a natural wetland.

Subject to the following conditions:

AUT.007298.01 - AUT.007298.03 and AUT.007298.10.01 – Diversion and discharge of stormwater, discharge of timber treatment chemicals to land:

- 1 All stormwater runoff from areas where treated timber is stored, and from the timber treatment plant catchment area (excluding roof run off) shall be collected and routed to a stormwater collection and treatment system, that is of a similar design, size and location as that installed at the date of the commencement of these consents, prior to discharge into the Waihaua Stream. The stormwater collection and treatment system shall be maintained in accordance with the principles and guidelines of the Auckland Regional Council Technical Publication 10 "Stormwater management devices: Design guidelines manual", Second Edition 2003, or similar stormwater control guidelines that have been certified by the council's Compliance Manager.

Advice Note: *Treated timber is timber that has received any chemical treatment.*

- 2 The stormwater collection and treatment system(s) shall be adequately maintained to ensure that they operate efficiently and effectively at all times. As a minimum, this maintenance shall include the regular removal of accumulated sediment from the pond(s) so that their retention capacity is maximised. All sediment removed from the treatment system shall be disposed of at a site that is legally able to accept such waste material. The Consent Holder shall keep a record of all maintenance undertaken, and where removed sediment has been disposed of. A copy of this record shall be forwarded to the council’s assigned monitoring officer immediately on request.
- 3 To avoid the tracking of treatment chemicals from the timber treatment and drip pad area, any vehicle that is used to move freshly treated timber between the timber treatment plant and the drip pad area shall not be used anywhere else within the site. If this vehicle is required to leave the sealed surface of the timber treatment area, then it shall be washed down within the timber treatment plant and the drip pad area to remove, as far as is practicable, all timber treatment chemicals. Any other vehicles that enter the timber treatment area shall either enter on sealed surfaces that have been washed down to remove timber treatment chemicals or the vehicles themselves shall be washed down to remove, as far as is practicable, all timber treatment chemicals prior to leaving the sealed surface of the timber treatment area.
- 4 Only the following timber treatment chemicals shall be used on the site:
 - (a) Water soluble timber treatment solutions containing salts and/or acids of copper, chromium and arsenic as active ingredients; and
 - (b) Antisapstain chemicals that have Copper 8 hydroxyquinolate, ethylene glycol, aryl sulphonic acid, and phosphoric acid as active or additive ingredients; and
 - (c) Antimould chemicals that have chlorothalonil and carbendazim as active or additive ingredients.
- 5 To minimise the potential for the contamination of stormwater by natural wood chemicals, the Consent Holder shall, as far as is practicable, keep all untreated timber storage and processing areas, and debris traps, free of wood debris.
- 6 The exercise of these consents shall not result in any of the following effects on the water quality of the Waihaua Stream, as measured at Northland Regional Council sampling sites 101470 (240 metres downstream of site) or 101471 (350 metres downstream of site):
 - (a) The following determinant concentrations shall not be exceeded:

Determinant	milligrams per cubic metres
Total Arsenic	37
Chromium VI	1
Total Copper	1.4
Chlorothalonil	0.18
Carbendazim	0.27

- (b) The pH shall be within the range 6.5 to 9.0;
- (c) The concentration of dissolved oxygen shall not be reduced below 80 % saturation;
- (d) The temperature of the water shall not change by more than 3 degrees Celsius;

- (e) Any change in visual clarity by more than 40%;
- (f) The production of conspicuous oil or grease films, scums or foams, floatable or suspended materials, or emissions of objectionable odour; and
- (g) The destruction of aquatic life by reason of a concentration of toxic substances.

For compliance purposes, the water quality at the downstream sites shall be compared to the background water quality within the Waihaua Stream at Northland Regional Council (NRC) sampling site 101469, upstream of the timber treatment site.

- 7 The exercise of these consents shall not result in any of the following concentrations in the sediments on the Waihaua Stream to be exceeded, as measured at NRC sampling sites 1470 (240 metres downstream of site) or 1471 (350 metres downstream of site):

Determinant	milligrams per kilogram
Arsenic	20
Chromium	80
Copper	65

- 8 The exercise of these consents shall not result in any of the following concentrations within any soil, or other substrate, at the site to be exceeded:

Determinant	grams per kilogram soil
Arsenic	0.5
Chromium III	130
Chromium VI	0.36
Copper	210

In the event that concentrations exceed these limits, Worksafe shall be immediately advised so that human health effects can be investigated.

Advice Note: *The above figures were obtained from MFE Health and Environmental Guidelines for Selected Timber Treatment Chemicals Table 5.17.*

AUT.007298.04 – Discharge Steamer Condensate to land:

- 9 The rate of steamer condensate discharge to land shall not exceed 15 cubic metres per day.
- 10 All steamer condensate shall be directed to a holding pond and soakage channel system that is of a similar design, size and location as that described and shown on the **attached** PK Engineering report entitled: “*Condensate Calculation*” Job No: 21-146, dated Nov 2021; and the **attached** PK Engineering drawings titled:
- (a) “*Condensate Pond Site Plan*” Drawing No: A3/SG1, Revision 0, dated Nov 2021; and
 - (b) “*Condensate Pond Long Section & Cross Section*” Drawing No: A3/SG2, Revision 0, dated Nov 2021.
- 11 There shall be no overland flow of condensate from the condensate holding pond and soakage channel system.
- 12 The condensate holding pond and soakage channel system shall be maintained so that it operates effectively at all times.

AUT.007298.05 - Discharge to air:

13 No treated timber shall be dried within the kilns.

Advice Note: *Treated timber is timber that has received any chemical treatment.*

14 The Consent Holder shall ensure that the temperature of the wood drying kiln does not exceed 120°C (dry bulb).

15 The discharge to air from the site as a result of the exercise of these consents shall not cause ambient air concentrations of formaldehyde, as measured at or beyond the property boundary, to exceed 50 micrograms per cubic metre of air, averaged over a 30-minute period.

16 The Consent Holder shall monitor and record the maximum and minimum temperature of the wood drying kilns on a daily basis. Records shall be retained for a period of at least 12 months and be available to the council's assigned monitoring officer on request.

17 This activity shall not give rise to any discharge of contaminants to air at or beyond the legal boundary of Lot 2 DP 452232 that are deemed by a council monitoring officer to be noxious, dangerous, offensive, or objectionable.

AUT.007298.06 – Discharge of contaminants (leachate) to land from an untreated sawdust stockpile:

18 Untreated sawdust shall only be stockpiled in the sawdust stockpile area identified on the **attached** Thomson survey drawing titled: "*Mt Pokaka Quarry Survey*", Ref. No:9190, Sheet 2, dated 22/11/21.

19 No treated timber material shall be placed or stored within the sawdust stockpile area identified on the attached Thomson survey drawing titled: "*Mt Pokaka Quarry Survey*", Ref. No:9190, Sheet 2, dated 22/11/21.

20 Where the discharge to land from the untreated sawdust stockpile may entering a water body the discharge shall comply with the following conditions after reasonable mixing:

- (a) The pH shall be within the range 6.5 to 9.0;
- (b) The concentration of dissolved oxygen shall not be reduced below 80 % saturation;
- (c) The temperature of the water shall not change by more than 3 degrees Celsius;
- (d) The production of conspicuous oil or grease films, scums or foams, floatable or suspended materials, or emissions of objectionable odour; and
- (e) The destruction of aquatic life by reason of a concentration of toxic substances.

AUT.007298.07 - AUT.007298.09 – Quarrying earthworks and associated diversion and discharge of stormwater:

21 The works authorised by this consent shall only be carried out in the quarry areas identified in the attached Thomson Survey drawings titled: "*Mt Pokaka Quarry Survey Location Diagram*", Ref. No:9190, Sheet 1, dated 22/11/21; and "*Mt Pokaka Quarry Survey*" Ref. No:9190, Sheet 2, dated 22/11/21.

22 The Consent Holder shall submit a Quarry Management Plan (QMP) to the council's assigned monitoring officer by 30 June 2022 for certification. As a minimum, the QMP shall include the following:

- (a) A plan(s) of a scale suitable for on-site reference showing the location extent and catchment boundaries of quarrying and overburden disposal sites;

- (b) Details of all sediment control measures and devices to be implemented including specific pond design, with supporting calculations and catchment boundaries;
- (c) Measures to control dust;
- (d) The name and contact telephone number of the person responsible for monitoring and maintaining all silt detention and erosion control structures;
- (e) Measures to prevent spillage of fuel, oil and similar contaminants;
- (f) Contingency provisions for large/high intensity rainstorm events; and
- (g) Evidence that any resource consent required from the Far North District Council for the quarrying operations have been obtained.

23 Erosion and sediment controls shall be selected, constructed, and maintained in accordance with the principles and practices contained within the Auckland Council document entitled "GD2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region" (GD05). Where there are inconsistencies between any part of GD05 and the conditions of these consents, then the conditions of these consents shall prevail.

24 The Consent Holder may amend the QMP in consultation with the council's assigned monitoring officer, at any time during the period of the consent. The Consent Holder shall undertake the activities authorised by these consents in accordance with the latest amended QMP that has been formally received and certified by the council.

25 Quarrying operations shall be generally in accordance with the most recent certified version of the Quarry Management Plan. However, if there are any differences or apparent conflict between this document and any conditions of these consents, then the conditions of consents shall prevail.

26 No overburden removal and placement operations shall be carried out between 1 May and 30 September in any year unless the prior written agreement of the council's Compliance Manager has been obtained.

27 Soil, overburden and debris shall not be placed in a position where it may enter any watercourse.

Advice Note: *These consents do not authorise the infilling of any water course, including intermittently flowing rivers or streams.*

28 All earthworks operations shall be carried out in a manner that minimises the potential for slope instability and soil erosion. Effective mitigation measures shall be installed as required to mitigate and/or remedy any slope failures.

29 Surface water from surrounding areas shall be diverted away from the operational quarry and overburden disposal areas.

30 All stormwater diversions, drains and channels shall be:

- (a) Capable of conveying stormwater during not less than the estimated 1 in 20 year rainfall event; and
- (b) Adequately protected to prevent destabilising slopes and areas of overburden.

31 All discharges of stormwater from areas of bare land associated with the operation of the quarry shall be via suitably designed and constructed sediment detention structures. As a minimum, the working storage volume for each sediment detention structure shall be calculated at no less than 300 cubic metres of storage per hectare of contributing catchment.

32 Accumulated sediment shall be removed from each sediment detention structure before the sediment level reaches one third of its working storage volume. All sediment removed from the sediment detention structures shall be placed in a stable position where it will not enter any water body nor re-enter any sediment detention structure.

- 33 The discharge of stormwater from the quarrying earthworks activities shall not cause any of the following effects on the unnamed tributary of the Waihaua Stream or its tributaries, as measured at a point 20 metres downstream of any overburden disposal site, when compared to sites upstream of the quarry discharge, during the same sampling event:
- (a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - (b) The concentration of suspended solids to exceed 100 grams per cubic metre greater than the sample taken at the upstream control site.
- 34 All bare areas of overburden shall be either covered with aggregate or topsoiled and established with a suitable grass/legume mixture to achieve an 80% groundcover within three months of the completion of overburden removal in each earthworks season.

General Conditions:

- 35 A copy of these consents shall be held on site and be accessible at all times to site personnel.
- 36 The Consent Holder shall inform the council's assigned monitoring officer in writing of any proposed alteration to the operation that may change the type and/or concentration of contaminants in, or the volume of, the discharges authorised by these consents, at least one month prior to undertaking any alteration.
- Advice Note:** *If the proposed alteration may result in adverse effects that are greater than those authorised by these consents, or the change is outside the scope of what was applied for, then either a change to the conditions of these consents under Section 127 of the Resource Management Act, or a new consent would need to be obtained.*
- 37 Timber treatment operations shall be carried out in accordance with the document entitled "Best practice guideline for the safe use of timber preservatives and antisapstain chemicals - New Zealand Timber Preservation Council Inc, September 2005", or any subsequent version of that document. If there are any differences or apparent conflict between that best practice guideline document and any conditions of these consents, then the conditions of these consents shall prevail.
- 38 The Consent Holder shall maintain an up to date written "Spill Contingency Plan" that, as a minimum, complies with the requirements of the "Best practice guideline for the safe use of timber preservatives and antisapstain chemicals - New Zealand Timber Preservation Council Inc, September 2005", or any subsequent version of that document. This plan shall also clearly identify the contact numbers for both the Northland Regional Council and Far North District Council in the event immediate notification is required in event of unauthorised discharges. A copy of this plan shall be kept on-site and shall be available at all times to on-site operational staff. All hazardous substance spills shall, as a minimum, be dealt with in accordance with this plan. A copy of this plan shall be made available to the council's assigned monitoring officer immediately on request.
- 39 The "Spill Contingency Plan" may be amended at any time provided it continues to comply with the requirements of Condition 37. A copy of the amended Spill Contingency Plan shall be forwarded to the council's assigned monitoring officer for certification within two weeks of any amendments being made. For compliance purposes, the most recent certified version of the Spill Contingency Plan shall be the "up to date" copy required by Condition 38.
- 40 Within three months of the commencement of these consents an updated copy of the "Operation and Maintenance Plan" (OMP) for the site shall be provided to the council's assigned monitoring officer for certification. The OMP shall provide details of how the conditions of these consents will be met. The Consent Holder shall, as a minimum, operate and maintain the stormwater system in accordance with the latest version of the OMP.

- 41 The Consent Holder may at any time amend the OMP. A copy of the amended plan shall be forwarded to the council's assigned monitoring officer within two weeks of the amendment being made for certification. The most recent certified version of the OMP shall be used for compliance purposes.
- 42 The Consent Holder shall maintain all facilities covered by these consents in good order and repair.
- 43 The Consent Holder shall monitor the exercise of these consents in accordance with the programme **attached** in Schedule 1.
- 44 The results of all monitoring, conducted in accordance with Condition 43, shall be provided to the council's assigned monitoring officer within one week of the results becoming available.
- 45 The Consent Holder shall notify the council's assigned monitoring officer in writing of any disposal of hazardous materials from the site within seven days of disposal. This written notification shall include copies of tracking verification documentation for the disposal of the hazardous material.
- 46 The Consent Holder shall, on becoming aware of any discharge associated with the Consent Holder's operations that is not authorised by these consents:
- (a) Immediately take such action, or execute such work as may be necessary, to stop and/or contain the discharge; and
 - (a) Immediately notify the council by telephone of the discharge; and
 - (b) Take all reasonable steps to remedy or mitigate any adverse effects on the environment resulting from the discharge; and
 - (c) Report to the council's Compliance Manager in writing within one week on the cause of the discharge and the steps taken, or being taken, to effectively control or prevent the discharge.

For telephone notification during the council's opening hours, the council's assigned monitoring officer for these consents shall be contacted. If that person cannot be spoken to directly, or it is outside of the council's opening hours, then the Environmental Hotline shall be contacted.

Advice Note: *The Environmental Hotline is a 24 hour, seven day a week, service that is free to call on 0800 504 639.*

- 47 The council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions annually during the month of July for any one or more of the following purposes:
- (a) To deal with any adverse effects on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage; or
 - (b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

The Consent Holder shall meet all reasonable costs of any such review.

EXPIRY DATE: 30 NOVEMBER 2031

These consents are granted this Eighteenth day of January 2022 under delegated authority from the council by:



Paul Maxwell
Coastal and Works Consents Manager



CONDENSATE CALCULATION

FOR

MOUNT POKAKA
CONDENSATE POND

FOR

Mount Pokaka

At

State Highway 10,
Kerikeri

Job No: 21-146
Date: NOV 2021
Rev:0

Level 1 ANZ Bank Building 90 Kerikeri Road, Kerikeri, New Zealand
Telephone: 09 407 3255 Email: TeamPK@pkengin.co.nz

RESOURCE CONSENT MAXIMUM DISCHARGE = 15M³/DAY

15M³/ 8 HOURS (WORKING DAY) = 1.875m³ /Hr
=2.0m³ / Hr (DESIGN FLOW)

CHANNEL DESIGN

CHANNEL TO HOLD 25M³ (ABLE TO HOLD DAILY FLOW)

EXISTING DIMENSION- 42.3m x 0.5m x 0.3m = 6m³
PROPOSED NEW DIMENSION 42.3m x 1.2m x 0.5m = 25m³
CONTINGENCY = 100 % AN ADDITIONAL 25m³

SEEPAGE RATE FOR THE SOILS (SILTS AND CLAYS) 5mm/day.
SEEPAGE AREA OF DRAIN= 88M²
SEEPAGE DISCHARGE PER DAY = 88M² x 5mm/day = 440L

SOAK HOLE DESIGN

600mm DIAMETER BORE HOLE DRILLED A MINIMUM OF 2.5m INTO
BEDROCK/FRACTURED ROCK (ROCK IDENTIFIED AT 2.4M BELOW EXISTING
GROUND LEVEL)

5.0m TOTAL DEPTH OF BOREHOLE.

SEEPAGE RATE FOR THE BOREHOLE (FRACTURED ROCK) 20mm/day.

SEEPAGE VOLUME OF BORE HOLE = 0.7M³

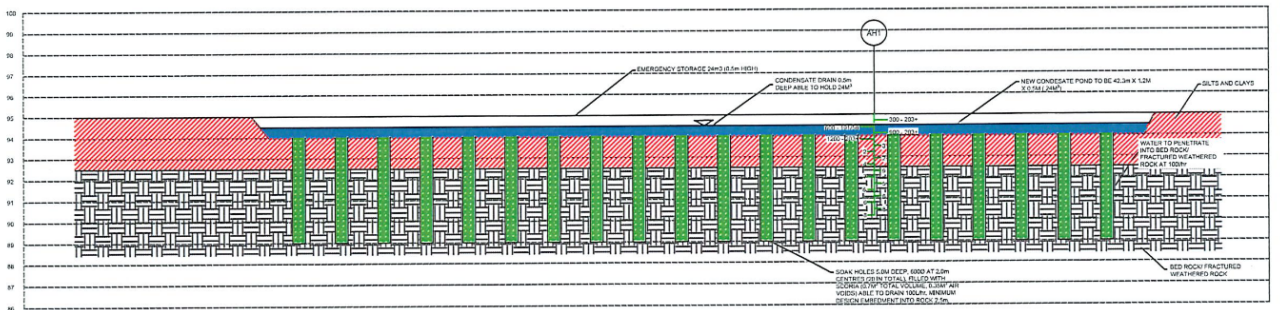
AIR VOIDS IN SCORIA SOAK HOLE = 0.35M³

SEEPAGE AREA OF SOAKHOLE= 2.5m x π x 0.6m =4.712m² + BASAL AREA (0.283m²) =
5M²

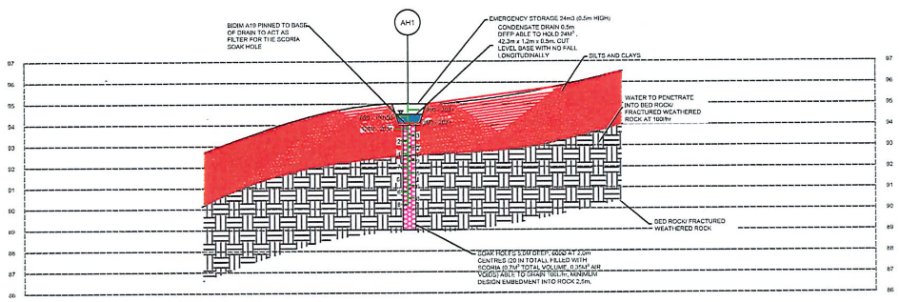
5M² x 20mm/hr = 100l/hr PER BORE HOLE.

THEREFORE 20 BORE HOLES REQUIRED TO REACH DESIGN FLOW OF 2.0m³/hr.

DESIGN – 20 BOREHOLES (600 DIA.) AT 2.0m CENTRES




LONG SECTION OF CONDENSATE POND



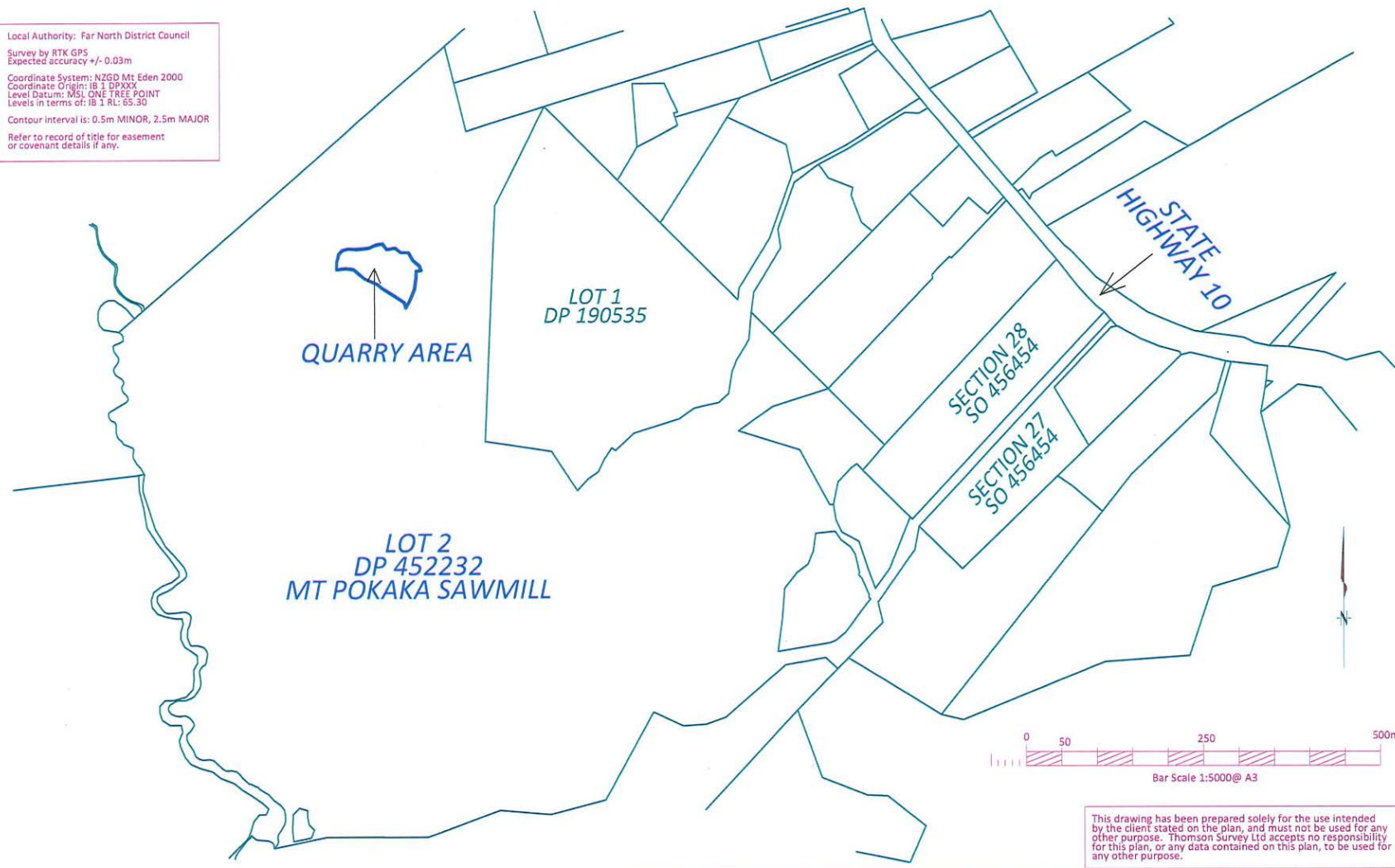
CROSS SECTION A-A

Notes:

1. THE COPYRIGHT OF THE DRAWING IS VESTED IN THE ENGINEERING AND IT MAY NOT BE REPRODUCED IN WHOLE OR PART OR USED FOR THE MANUFACTURE OF ANY ARTICLE WITHOUT THE EXPRESS PERMISSION OF THE COPYRIGHT HOLDER.
2. VERIFY ALL DIMENSIONS AND LEVELS ON SITE BEFORE COMMENCING WORK. USE WRITTEN DIMENSIONS IN PREFERENCE TO SCALING THESE DRAWINGS.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SERVICES, CIVIL AND OTHER PROJECT DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION.
4. IN THE EVENT THAT THERE IS ANY CONFLICT BETWEEN THE DRAWINGS AND SPECIFICATION THEN THE REQUIREMENTS OF THE DRAWINGS SHALL TAKE PRECEDENCE WITH THE DETAIL DRAWINGS TAKING PRECEDENCE OVER THE GENERAL NOTES.

REV	DESCRIPTION	BY	DATE
ISSUED TO CLIENT			
 LK ENGINEERING CHARTERED PROFESSIONAL ENGINEERS			
LEVEL 1, ANZ BANK 90 KERIKERI ROAD, KERIKERI PO BOX 464, KERIKERI Phone Number: 09 407 3255 Email: team@lkengin.co.nz			
CLIENT:	MOUNT POKAKA CONDENSATE TREATMENT POND 1213 STATE HIGHWAY 10 KERIKERI		
SITE:	1213 STATE HIGHWAY 10 LOT 2 DP 452232		
TITLE:	CONDENSATE POND LONG SECTION & CROSS SECTION		
SCALE AT A:	DATE:	DRAWN:	CHECKED:
1:250	Nov 2021	DF	PK
PROJECT NO:	DRAWING NO:	REVISIONS:	
21-146	A3/SG2	0	

Local Authority: Far North District Council
 Survey by RTK GPS
 Expected accuracy +/- 0.03m
 Coordinate System: NZGD Mt Eden 2000
 Coordinate Origin: IB 1 DPXXX
 Level Datum: MSL ONE TREE POINT
 Levels in terms of: IB 1 RL: 65.30
 Contour interval is: 0.5m MINOR, 2.5m MAJOR
 Refer to record of title for easement or covenant details if any.



This drawing has been prepared solely for the use intended by the client stated on the plan, and must not be used for any other purpose. Thomson Survey Ltd accepts no responsibility for this plan, or any data contained on this plan, to be used for any other purpose.

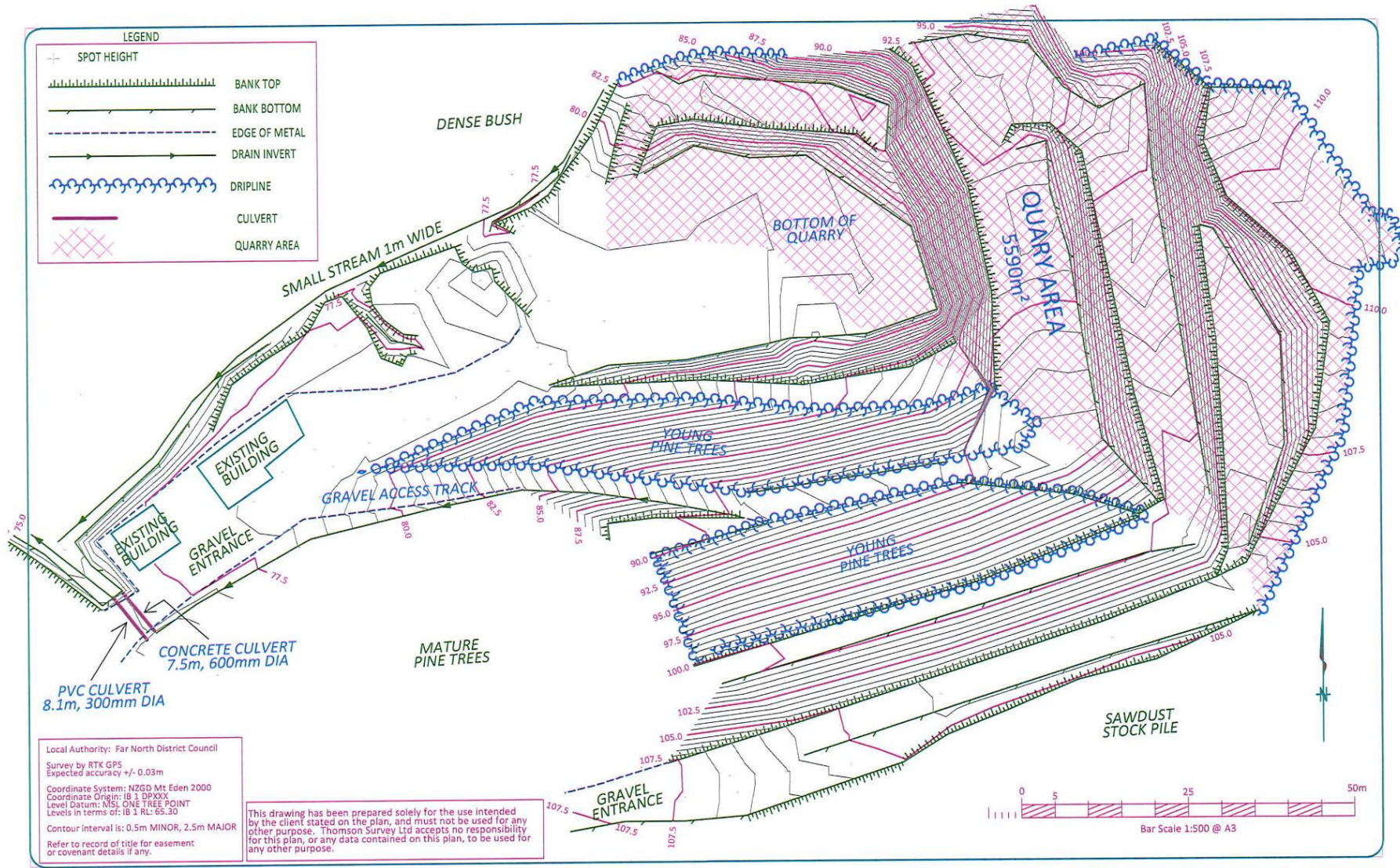
THOMSON SURVEY
 LIMITED
 315 Kerikeri Rd
 P.O. Box 372 Kerikeri
 Email: kerikeri@tsurvey.co.nz
 Ph: (09) 4077360
 www.tsurvey.co.nz
 Registered Land Surveyors, Planners & Land Development Consultants

**MT POKAKA
 QUARRY SURVEY
 LOCATION DIAGRAM**

PREPARED FOR: MARK HEWITT

Survey	GB	22/11/21	ORIGINAL	
Design			SCALE	SHEET
Drawn	GB	22/11/21	1:5000	A3
Approved				
Rev				
QUARRY TOPO 22-11-21_LCD				

Surveyors
 Ref. No:
9190
 Series
 Sheet 1 of 2



Local Authority: Far North District Council
 Survey by RTK GPS
 Expected accuracy +/- 0.03m
 Coordinate System: NZGD Mt Eden 2000
 Coordinate Origin: IB 1 DPXXX
 Level Datum: MSL ONE TREE POINT
 Levels in terms of: IB 1 RL: 65.30
 Contour interval is: 0.5m MINOR, 2.5m MAJOR
 Refer to record of title for easement or covenant details if any.

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THOMSON SURVEY
 315 Kerikeri Rd
 P.O. Box 372 Kerikeri
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 Ph: (09) 4077360
 www.tsurvey.co.nz
 Registered Land Surveyors, Planners & Land Development Consultants

MT POKAKA QUARRY SURVEY
 MT POKAKA
 PREPARED FOR: MARK HEWITT

Name	Date	ORIGINAL
Survey	GB 22/11/21	SCALE
Design		SHEET SIZE
Drawn	GB 22/11/21	1:500
Approved		A3
Rev		
9190 QUARRY TOPO 22-11-21_LCD		

Surveyors Ref. No: **9190**
 Series
 Sheet 2 of 2

SCHEDULE 1

MONITORING PROGRAMME FOR RESOURCE CONSENT 7298

The Consent Holder, or its authorised agent, shall monitor these consents in accordance with the following programme:

1.0 Water Quality

1.1 Sampling Sites

Triplicate water samples* are to be collected from the following NRC Sites:

NRC Site Number	location description
1469	Waihaua Stream 50 metres upstream of site (back ground sampling)
1470	Waihaua Stream 240 metres downstream of site
1471	Waihaua Stream 350 metres downstream of site

1.2 Timing and Analyses

The water samples are to be collected during conditions where stormwater is discharging from the site and sufficient rain has fallen such that stormwater from the site has reached the Waihaua Stream (this may need to be tested by way of a dye release or other suitable method to calculate travel times). The samples are to be collected on at least two occasions annually, and analysed for the following:

- pH
- temperature
- electrical conductivity
- hardness
- total suspended solids
- total arsenic
- total chromium
- total copper
- total carbendazim
- total chlorothalonil
- dissolved oxygen

* Triplicate sampling should involve collection of three separate samples taken at least three minutes apart during the same sampling event. Analysis is to be conducted on a composite sample made up of equal volumes of each of the three samples collected.

2.0 Sediments

2.1 Soil Sample Collection (stream)

Sediment samples are to be collected from NRC Sites 1469, 1470, 1471 (as described in Section 1.1) **annually** and analysed for the following:

- Total arsenic
- Total chromium
- Total copper

2.2 Soil Sample Collection (soil on site)

Representative soil samples are to be collected from areas where treated timber is currently stored and has also been historically stored. Sample locations are to be selected based on prior knowledge of contaminant distribution established from the site history, evidence of staining, and professional judgement. The identified sample locations shall only be altered with the prior agreement of the council.

Soil samples at each identified location are to be collected at least annually from a depth of approximately 25 millimetres into the surface layer (without sawdust or material) and analysed for the following parameters:

- Arsenic
- Chromium III
- Chromium VI
- Copper

3.0 Sample collection, field measurements, sample transport, and laboratory requirements

3.1 Sample Collection

All samples collected as part of this monitoring programme are to be collected using standard methods and approved containers.

3.2 Field Measurements

Temperature is to be measured in the field using a meter in accordance with standard procedures (triplicate measurements are not required for this parameter).

3.3 Sample Transport

All samples collected as part of this monitoring programme are to be transported in accordance with standard procedures and under chain of custody to the laboratory.

3.4 Laboratory Requirements


All samples collected as part of this monitoring programme are to be analysed at a laboratory with registered quality assurance procedures (see definition below), and all analyses are to be conducted using standard methods. Detection limits for total arsenic shall be at least 0.001 g/m³, and 0.0005 g/m³ for total chromium and total copper.

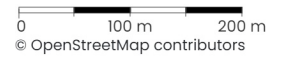
Registered quality assurance procedures are procedures that ensure that the laboratory meets good management practices and would include registrations such as ISO 9000, ISO Guide 25, and Ministry of Health Accreditation.

Appendix 2: Historical Aerial Photographs



Legend

 Site Boundary



ENGEO

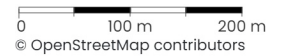
Produced by **Datanest.earth**

Title: Historical Aerial Photographs - 1968		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
Date: 03-07-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0



Legend

□ Site Boundary



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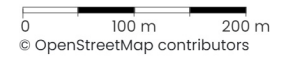
Produced by **Datanest.earth**

Title: Historical Aerial Photographs - 1979		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
Date: 03-07-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0



Legend

 Site Boundary



ENGEO

Produced by **Datanest.earth**

Title: Historical Aerial Photographs - 1981		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
Date: 03-07-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0



Legend

□ Site Boundary

0 100 m 200 m
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Produced by **Datanest.earth**

Title: Historical Aerial Photographs - 2000		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
Date: 03-07-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0



Legend

 Site Boundary

0 100 m 200 m
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Produced by **Datanest.earth**

Title:
Historical Aerial Photographs - 2005/2006

Client: Mt Pokaka Timber Products Ltd C/- B&A	Size: A4
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Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
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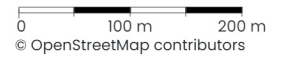
Date: 03-07-2025	Checked: LL
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Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0
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Legend

 Site Boundary



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Produced by **Datanest.earth**

Title: Historical Aerial Photographs - 2016		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
Date: 03-07-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0



Legend

 Site Boundary



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Title: Historical Aerial Photographs - 2024		
Client: Mt Pokaka Timber Products Ltd C/- B&A		Size: A4
Project: Mt Pokaka Timber Mill	Drawn: TP	Appendix No.: 2
Date: 03-07-2025	Checked: LL	
Proj No: 28842.000.001	Scale: 1:6750	Version: 1.0

Appendix 3: Site Photographs

Section 1: Engineering Workshop



Photo 1: Minor staining visible in the middle section of the engineering workshop.



Photo 2: Various chemicals used for maintenance and operations stored in the engineering workshop.

Section 2: Timber Treatment Plant



Photo 3: The treatment area within the main timber treatment plant consisting of the treatment cylinder, chemicals stored in IBCs and the mixing tank.



Photo 4: Freshly treated logs on the drip pad.

Section 2: Timber Treatment Plant



Photo 5: Green chemicals and staining observed on the drip pad.



Photo 6: View of the bund capturing chemical runoff from the drip pad preventing staining beyond the drip pad.



Photo 7: The dip tank where anti-sap treatment with Hylite NCF occurs. Liquid at the surface is rain water, entering due to the slope of the site,



Photo 8: Southeast-facing view of the timber stored around the kiln building where timber is redried. Steam can be seen discharging to the air.

Section 3: Timber Storage Yards

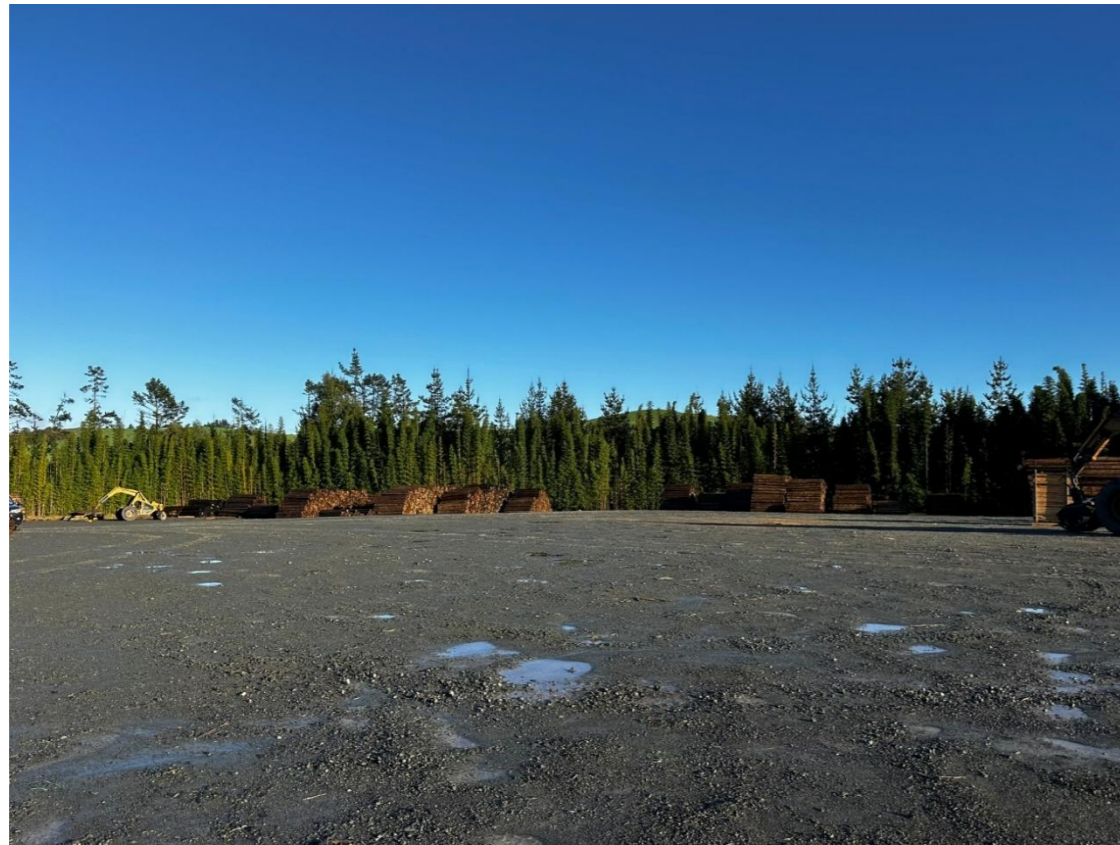


Photo 9: Northwest-facing view of the northern timber storage yard.



Photo 10: East-facing view of the southern timber storage yard.

Section 4: AST Storage Yard



Photo 11: West-facing view of the AST storage yard.



Photo 12: View of the diesel AST. Spilled diesel is visible flowing towards the stormwater drain.

Section 5: Retail Yard



Photo 13: Southeast-facing view of the retail yard.



Photo 14: Storage of mulch and sawdust in the southeast of the storage yard.

Section 6: Raw Timber Storage Yard



Photo 15: South-facing view of the raw timber storage yard. A small channel runs along the western side of the yard with an organic sheen visible on the surface of the water.



Photo 16: Large stockpile of mulch in the northern portion of the yard.

Section 7: Condensate Pond and Discharge Field



Photo 17: Northwest-facing view of the condensate pond.



Photo 18: Active spraying of condensate onto the discharge field from the drip lines. Foam buildup was observed under discharge points.



Photo 19: South-facing view of the discharge field. Foamy condensate flows down this pathway towards the Laminata plant and wider sawmill.



Photo 20: East-facing view of the bottom of the discharge field where significant buildup of white foam is visible. Condensate runoff from the field flows along a channel in a southern direction.

Appendix 4: Results Summary Table (Soil)

Results Table: Soil Results

				Metals / Metalloids							Polycyclic Aromatic Hydrocarbons (Benzo[a]pyrene Equivalent)										Polycyclic Aromatic Hydrocarbons (Other)										Total Petroleum Hydrocarbons				Organonitro & Phosphorus Pesticides						
				Asenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzo[a]anthracene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Benzo[e]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Benzo[a]pyrene TEQ	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Acenaphthene	Acenaphthylene	Anthracene	Benzo[b]pyrene	Benzo[ghi]perylene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Perylene	C7-C9	C10-C14	C15-C36	Total C7-C36	All Other Organonitro & Phosphorus Pesticides	Propiconazole			
NRC Consent Criteria ¹				500	360 *	210000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Human Health Criteria - Commercial / Industrial ²				70	1300	6300 *	10000 *	3300 *	4200 *	6000 *	400000 *	-	-	-	-	-	-	-	-	35 **	0.77 **	3000 **	45000 **	-	230000 **	73 **	-	30000 **	210 **	50 **	NA **	67 **	500 **	1700 **	NA **	-	-	-			
Environmental Criteria ³				150	33	650	220	2500	-	-	480	-	-	-	47	-	-	190	-	47	-	-	-	-	-	-	-	-	16 **	-	-	NA **	-	170	140	1700	-	-	-		
Predicted Background Concentrations ⁴				0.2-4.1	0.08 - 0.2	2 - 15.5	3.8 - 15.7	1.3 - 11.4	-	1.4 - 9.5	11.2 - 47.5	-	-	-	47	-	-	190	-	47	-	-	-	-	-	-	-	16 **	-	-	NA **	-	170	140	1700	-	-	-			
Sample Location	Depth (m bgl)	Date Sampled	Soil Description																																						
Condemned Disposal Field	CF1-A	29-Jul-25	[Native] Clayey SILT with trace sand, gravel and organics.	18	<0.1	6	26	8.8	<0.1	<2	5	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014			
	CF2-A			<2	<0.1	14	4	1.7	<0.1	<2	5	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014		
	CF3-A			3	<0.1	81	39	6	<0.1	5	20	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	
	CF4-A			13	<0.1	3	<2	2.6	<0.1	<2	<4	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
	CF5-A			11	<0.1	7	9	4	<0.1	<2	<4	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Southern Storage Yard	HA01	28-Jul-25	[Fill] Sandy SILT	90	0.11	121	80	23	<0.1	17	79	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012			
			[Native] SILT w/ minor clay	6	<0.1	4	18	31	<0.1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	HA02	0.05-0.1	[Fill] SILT, greenish-grey	16	0.31	13	26	32	<0.1	19	124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		0.25-0.3	[Fill] SILT, black.	15	0.4	24	40	6.4	<0.3	8	196	0.13	0.17	0.04	0.16	0.1	<0.03	6.1	0.09	0.27	3.9	2.8	53	45	0.75	0.19	0.28	0.63	220	10.9	7.8	0.04	-	-	-	-	-	-			
		0.4-0.6	[Fill] Gravelly SILT with minor sand; light grey	-	-	-	-	-	-	-	-	<0.011	0.019	<0.011	0.019	<0.011	<0.011	0.24	<0.011	0.026	0.013	0.013	0.12	0.33	0.023	0.018	0.03	0.24	1.05	0.25	0.34	<0.011	-	-	-	-	-	-			
	HA03	0.01-0.25	[Fill] Clayey SILT, red with trace brown and black streaks	9	<0.1	27	41	17.1	<0.1	4	15	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013		
0.6-0.8		[Native] Clayey SILT, reddish-brown	10	<0.1	21	52	16	<0.1	14	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
AST Storage Yard	AST-01	30-Jul-25	SILT with trace clay, brown. Strong diesel odour.	15	0.15	88	97	3.1	<0.1	59	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<20	910	7200	8200	-	-				
	HA04	0.0-0.1	[Hardfill] GRAVEL aggregate	300	0.15	550	850	19.6	<0.1	11	131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		0.15-0.5	[Fill] Clayey SILT with trace gravel; reddish-brown with	27	<0.1	78	127	17.7	<0.1	14	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HA05	28-Jul-25	[Native] Clayey SILT, reddish-brown with minor black streaks	21	<0.1	95	65	15.7	<0.1	15	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Retail Yard	HA06	0.35-0.45	[Native] Clayey SILT, greenish-grey	6	0.38	144	104	1	<0.1	88	230	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014	<0.014		
	HA07	0.2-0.25	[Native] SILT with trace clay; reddish-brown	12	0.12	74	169	1.6	<0.1	58	139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Raw Timber Storage Yard	HA08	28-Jul-25	[Fill] SILT with some clay; light orangey-brown.	12	<0.1	8	37	19.4	<0.1	15	68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
			[Fill] Solidified MULCH; black. Perched water encountered at 0.75 m bgl	14	<0.1	14	40	13.6	<0.1	15	68	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03			
	0.15-0.7	[Reworked Native] Clayey SILT; reddish brown.	8	<0.1	7	23	19.4	<0.1	5	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	HA09	1.0-1.2	[Native] Clayey SILT with minor sand; reddish-brown	13	<0.1	38	52	14.1	<0.1	11	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
HA10	0.2-0.4	[Fill] SILT with some clay; greenish-grey	10	<0.1	7	29	24	<0.1	7	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				



				Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benz[a]anthracene	Benz[b&k]fluoranthene	Benz[k]fluoranthene	Benzo[a]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Benzo[a]pyrene TEQ	Methylnaphthalene, 1-	Methylnaphthalene, 2-	Acenaphthene	Acenaphthylene	Anthracene	Benzo[e]pyrene	Benzo[g,h,i]perylene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Perylene	C7-C9	C10-C14	C15-C36	Total C7-C36	All Other Organonitro & Phosphorus Pesticides	Propiconazole			
NRC Consent Criteria ¹				500	-	360 ¹	210000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Human Health Criteria - Commercial / Industrial ²				70	1300	6300 ³	10000 ⁴	3300 ⁷	4200 ⁸	6000 ⁹	400000 ⁹	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	- ¹⁰	35 ¹¹	0.77 ¹²	3000 ¹²	45000 ¹²	-	230000 ¹²	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Environmental Criteria ³				150	33	650	220	2500	-	-	-	47	-	-	-	-	-	190	-	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Predicted Background Concentrations ³				0.2-4.1	0.08 - 0.2	2 - 15.5	3.8 - 15.7	1.3 - 11.4	-	-	1.4 - 9.5	11.2 - 47.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample Location	Depth (m bgl)	Date Sampled	Soil Description																																						
Northern Storage Yard	0.0-0.2	30-Jul-25	[Hardfill] GRAVEL aggregate	570	0.12	720	940	16.4	<0.1	12	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	0.25-0.8		[Fill] Clayey SILT with minor gravel; yellow-brown	34	<0.1	32	54	25	<0.1	18	74	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	0.1-0.3		[Fill] GRAVEL; grey with pink inclusions. Gravel is volcanics	17	<0.1	9	46	23	<0.1	9	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	0.1-0.45		[Reworked Native] Clayey SILT with trace organics; reddish brown. Organics are wood fragments.	12	<0.1	20	34	14.9	<0.1	8	33	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	<0.06	<0.012	<0.012	<0.012	-	-	-	-	-	-		
	0.5-0.7		[Native] Clayey SILT; reddish-brown	23	<0.1	29	49	23	<0.1	10	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	0.1-0.8		[Fill] SILT with trace clay and organics; orangey-brown. Organics is charcoal.	10	<0.1	7	36	20	<0.1	7	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	0.1-0.4		[Reworked Native] SILT with minor gravel and trace organics; brown. Organics is rootlets	95	<0.1	164	176	16.7	<0.1	12	45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	0.4-0.5		[Native] CLAY; yellowish-brown	20	<0.1	32	44	17.9	<0.1	10	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	0.55-0.7		[Native] CLAY with trace silt and organics; reddish-brown. Organics is bark and rootlets.	8	<0.1	82	65	2.3	<0.1	33	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Table Notes:
 All results and criteria are presented in milligram per kilogram (mg/kg) on a dry weight basis, except for Synthetic Precipitation Leachate Procedure, which are presented as µg/L.
 Soil descriptions indicative only.
 Selected results shown; Full results are included in the laboratory reports.
 LOR: Limit of Reporting; Results below LOR or exceeding no criteria are shown in grey text.
 - : not analysed or no applicable criteria
 NA: Not applicable
 m bgl: metres below ground level
 SPLP: Synthetic Precipitation Leachate Procedure

Criteria notes:
 1: Northland Regional Council Resource Consent AUT.007298.01-10; dated 18.01.2022 (Section 8)
 2: Human Health Criteria for Commercial / Industrial Land use selected in general accordance with CLMG No. 2 (M/E, 2011). Unless otherwise stated, criteria are from M/E (2011) Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (Commercial / Industrial Land Use)
 3: Unless otherwise stated, criteria from: Updated Development of Soil Guideline Values for the Protection of Ecological Receptors (Eco-SGVs); Technical Document (Landcare Research, June 2019). Eco-SGVs for typical soil, aged contamination source, and a commercial/industrial land use (fresh contamination source used where available and applicable; specifically copper)
 4: Predicted Background Concentrations (Landcare Research, 2023) from LRIS Portal. Values for Ultic soil order, Clastic sediment parent material, and Northern lowlands land environment.
 5: Criterion applies to Cr(VI). Conservatively applied to total Cr laboratory result
 6: No limit; 10,000 mg/kg conservatively applied. Derived human health value exceeds values likely to be encountered on-site and phytotoxicity threshold
 7: Applies to inorganic lead only
 8: Applies to inorganic mercury only
 9: Australian National Environment Protection (Assessment of Site Contamination) Measure 2013; Health Investigation Levels for 'Commercial / Industrial D' Land Use
 10: Included in Benzo[a]pyrene TEQ; individual criteria not presented
 11: Benzo[a]pyrene Toxicity Equivalency Quotient calculated in accordance with M/E (2011) Methodology
 12: US EPA Regional Screening Levels for Industrial Soil; values for TR = 10⁻⁶, THQ = 1.0. Retrieved from online database April, 2024.
 13: Canadian Council for Ministers for the Environment (CCME) Soil Quality Guidelines for the Protection of Environmental and Human Health (retrieved from online database April, 2024). Criteria for commercial land use
 14: Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Revised 2011) (M/E, 2011). Soil Acceptance Criteria for Commercial/Industrial Use; Assumes Sandy Silt soil type, and < 1m contamination depth
 15: Canadian Council for Ministers for the Environment (CCME) Soil Quality Guidelines for the Protection of Environmental and Human Health (retrieved from online database April, 2024). Criteria for commercial land use; Interim Soil Quality Criteria calculated in 1991. Updated value was not calculated in 2010 due to no guideline for soil contact being available.
 16: Canadian Council for Ministers for the Environment (CCME). Soil Quality Guidelines for the Protection of Environmental and Human Health (retrieved from online database April, 2024). Criteria for commercial land use; Interim Soil Quality Guideline Criteria calculated in 1991.
 17: Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Revised 2011) (M/E, 2011). Criteria for Protection of Groundwater from Table 4.20; Assumes Sandy Silt soil type, < 1m contamination depth, and 4m groundwater depth
 18: Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand (Revised 2011) (M/E, 2011). Criteria for Protection of Groundwater from Table 4.20; Assumes Sandy Silt soil type, < 1m contamination depth, and 4m groundwater depth; calculated value exceeds concentration likely to result in separate-phase hydrocarbons



Appendix 5: Results Summary Table (Water)

Results Table: Water Results

	Metals / Metalloids			Organonitro&phosphorus Pesticides				Polycyclic Aromatic Hydrocarbons (Benzo[a]pyrene Equivalent)								Polycyclic Aromatic Hydrocarbons (Other)													
	Arsenic	Chromium	Copper	Chlorothalonil	Propiconazole	Tebuconazole	All other OPPs	Benzo[a]anthracene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Benzo[e]pyrene	Chrysene	Dibenz[a,h]anthracene	Fluoranthene	Indeno[1,2,3-cd]pyrene	Benzo[a]pyrene TEQ	Methylanthracene 9,10	Methylnaphthalene 6,2	Aconaphthone	Aconaphthylene	Anthracene	Benzo[e]pyrene	Benzo(g,h,i)perylene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Perylene	
NRC Consent Criteria ¹	37	1	1.4	0.18	NGV	NGV	various	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ANZG (80% Level of Species Protection) ²	140 ⁵	40 ⁶	2.5	0.18 ⁷	NGV	NGV	various	-	-	-	0.7	-	-	2	-	-	-	-	-	-	7	-	-	-	85	8	-	-	
ANZG (95% Level of Species Protection) ³	13	1	1.4	NGV	NGV	NGV	various	-	-	-	0.2	-	-	1.4	-	-	-	-	-	-	0.4	-	-	-	16	2	-	-	
ANZG (99% Level of Species Protection) ⁴	0.8	0.01	1	NGV	NGV	NGV	various	-	-	-	0.1	-	-	1	-	-	-	-	-	-	0.01	-	-	-	2.5	0.6	-	-	
Sample Location	Date Sampled																												
Condensate Pond Samples																													
CP01	29-Jul-2025	65	61	990	<LOR	<LOR	<LOR	<LOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CP02		44	44	750	<LOR	<LOR	<LOR	<LOR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SPLP																													
HA02 (0.25 - 0.3)	29-Jul-2025	-	-	-	-	-	-	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.1	-	-	-	<0.1	<0.1	<0.1	-	<0.1	<0.2	<0.5	<0.4	<0.2	-

Table Notes:
 All results and criteria are presented in micrograms per litre (µg/L)
 LOR: Limit of Reporting
 NGV: No Guideline Value
 -: not analysed

- Criteria notes:**
- Northland Regional Council. Criteria sourced from consent document AUT.007298.01-10 (dated 18.01.2022)
 - ANZG Default Guideline Values for 80% Level of Species Protection - Freshwater
 - ANZG Default Guideline Values for 95% Level of Species Protection - Freshwater
 - ANZG Default Guideline Values for 99% Level of Species Protection - Freshwater
 - Assumes Arsenic V
 - Assumes Chromium VI
 - Canadian Water Quality Guidelines for the Protection of Aquatic Life (1999), Table 1, Freshwater Guideline Value (interim guideline)



Appendix 6: Laboratory Reports

Certificate of Analysis

Page 1 of 7

Client:	Engeo Limited	Lab No:	3950372	SPV2
Contact:	Tyler Paterson C/- Engeo Limited PO Box 305136 Triton Plaza Auckland 0757	Date Received:	31-Jul-2025	
		Date Reported:	15-Aug-2025	(Amended)
		Quote No:	82742	
		Order No:		
		Client Reference:	28842.000.001	
		Submitted By:	Nandhini R	

Sample Type: Aqueous

Sample Name:		CP01 29-Jul-2025	CP02 29-Jul-2025
Lab Number:		3950372.1	3950372.2
Individual Tests			
pH	pH Units	4.2	4.3
Total Hardness	g/m ³ as CaCO ₃	78	45
Electrical Conductivity (EC)	mS/m	39.1	24.5
Total Suspended Solids	g/m ³	146	142
Total Calcium	g/m ³	18.0	10.2
Total Magnesium	g/m ³	8.0	4.7
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq			
Acetochlor	g/m ³	< 0.0004	< 0.0004
Alachlor	g/m ³	< 0.0003	< 0.0003
Atrazine	g/m ³	< 0.0004	< 0.0004
Atrazine-desethyl	g/m ³	< 0.0004	< 0.0004
Atrazine-desisopropyl	g/m ³	< 0.0007	< 0.0007
Azaconazole	g/m ³	< 0.0002	< 0.0002
Azinphos-methyl	g/m ³	< 0.007	< 0.007
Benalaxyl	g/m ³	< 0.0002	< 0.0002
Bitertanol	g/m ³	< 0.007	< 0.007
Bromacil	g/m ³	< 0.0004	< 0.0004
Bromopropylate	g/m ³	< 0.004	< 0.004
Butachlor	g/m ³	< 0.0004	< 0.0004
Captan	g/m ³	< 0.0007	< 0.0007
Carbaryl	g/m ³	< 0.0004	< 0.0004
Carbofuran	g/m ³	< 0.0004	< 0.0004
Chlorfluazuron	g/m ³	< 0.0004	< 0.0004
Chlorothalonil	g/m ³	< 0.0004	< 0.0004
Chlorpyrifos	g/m ³	< 0.0004	< 0.0004
Chlorpyrifos-methyl	g/m ³	< 0.0004	< 0.0004
Chlortoluron	g/m ³	< 0.0007	< 0.0007
Cyanazine	g/m ³	< 0.0004	< 0.0004
Cyfluthrin	g/m ³	< 0.005	< 0.005
Cyhalothrin	g/m ³	< 0.004	< 0.004
Cypermethrin	g/m ³	< 0.009	< 0.009
Deltamethrin (including Tralomethrin)	g/m ³	< 0.004	< 0.004
Diazinon	g/m ³	< 0.0002	< 0.0002
Dichlofluanid	g/m ³	< 0.0004	< 0.0004
Dichloran	g/m ³	< 0.002	< 0.002
Dichlorvos	g/m ³	< 0.0007	< 0.0007
Difenoconazole	g/m ³	< 0.005	< 0.005
Dimethoate	g/m ³	< 0.0007	< 0.0007



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: Aqueous

Sample Name:		CP01 29-Jul-2025	CP02 29-Jul-2025
Lab Number:		3950372.1	3950372.2
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq			
Diphenylamine	g/m ³	< 0.0007	< 0.0007
Diuron	g/m ³	< 0.0004	< 0.0004
Fenpropimorph	g/m ³	< 0.004	< 0.004
Fluazifop-butyl	g/m ³	< 0.0004	< 0.0004
Fluometuron	g/m ³	< 0.0004	< 0.0004
Flusilazole	g/m ³	< 0.0004	< 0.0004
Fluvalinate	g/m ³	< 0.003	< 0.003
Furalaxyl	g/m ³	< 0.0002	< 0.0002
Haloxyfop-methyl	g/m ³	< 0.0004	< 0.0004
Hexaconazole	g/m ³	< 0.0004	< 0.0004
Hexazinone	g/m ³	< 0.0017	< 0.0017
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m ³	< 0.002	< 0.002
Kresoxim-methyl	g/m ³	< 0.0017	< 0.0017
Linuron	g/m ³	< 0.0004	< 0.0004
Malathion	g/m ³	< 0.0004	< 0.0004
Metalaxyl	g/m ³	< 0.0004	< 0.0004
Metolachlor	g/m ³	< 0.0003	< 0.0003
Metribuzin	g/m ³	< 0.0004	< 0.0004
Molinate	g/m ³	< 0.0007	< 0.0007
Myclobutanil	g/m ³	< 0.0004	< 0.0004
Naled	g/m ³	< 0.002	< 0.002
Norflurazon	g/m ³	< 0.0007	< 0.0007
Oxadiazon	g/m ³	< 0.0004	< 0.0004
Oxyfluorfen	g/m ³	< 0.0002	< 0.0002
Paclobutrazol	g/m ³	< 0.0004	< 0.0004
Parathion-ethyl	g/m ³	< 0.0004	< 0.0004
Parathion-methyl	g/m ³	< 0.0004	< 0.0004
Pendimethalin	g/m ³	< 0.0004	< 0.0004
Permethrin	g/m ³	< 0.0010	< 0.0010
Pirimicarb	g/m ³	< 0.0004	< 0.0004
Pirimiphos-methyl	g/m ³	< 0.0004	< 0.0004
Prochloraz	g/m ³	< 0.017	< 0.017
Procymidone	g/m ³	< 0.0004	< 0.0004
Prometryn	g/m ³	< 0.0002	< 0.0002
Propachlor	g/m ³	< 0.0004	< 0.0004
Propanil	g/m ³	< 0.002	< 0.002
Propazine	g/m ³	< 0.0002	< 0.0002
Propiconazole	g/m ³	< 0.003	< 0.003
Pyriproxyfen	g/m ³	< 0.004	< 0.004
Quizalofop-ethyl	g/m ³	< 0.004	< 0.004
Simazine	g/m ³	< 0.0004	< 0.0004
Simetryn	g/m ³	< 0.0004	< 0.0004
Sulfentrazone	g/m ³	< 0.017	< 0.017
TCMTB [2-(thiocyanomethylthio)benzothiazole, Busan]	g/m ³	< 0.007	< 0.007
Tebuconazole	g/m ³	< 0.04	< 0.04
Terbacil	g/m ³	< 0.0004	< 0.0004
Terbumeton	g/m ³	< 0.0004	< 0.0004
Terbutylazine	g/m ³	< 0.0002	< 0.0002
Terbutylazine-desethyl	g/m ³	< 0.0004	< 0.0004
Terbutryn	g/m ³	< 0.0004	< 0.0004
Thiabendazole	g/m ³	< 0.002	< 0.002
Thiobencarb	g/m ³	< 0.0004	< 0.0004
Tolyfluanid	g/m ³	< 0.0002	< 0.0002

Sample Type: Aqueous

Sample Name:	CP01 29-Jul-2025	CP02 29-Jul-2025	
Lab Number:	3950372.1	3950372.2	
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq			
Triazophos	g/m ³	< 0.0004	< 0.0004
Trifluralin	g/m ³	< 0.0004	< 0.0004
Vinclozolin	g/m ³	< 0.0004	< 0.0004
Copper, Chrome and Arsenic, Total, Trace			
Total Arsenic	g/m ³	0.065	0.044
Total Chromium	g/m ³	0.061	0.044
Total Copper	g/m ³	0.99	0.75

Sample Name:	
Lab Number:	

Individual Tests

pH	pH Units
Total Hardness	g/m ³ as CaCO ₃
Electrical Conductivity (EC)	mS/m
Total Suspended Solids	g/m ³
Total Calcium	g/m ³
Total Magnesium	g/m ³

Organonitro&phosphorus Pesticides Screen in MF

Acetochlor	g/m ³
Alachlor	g/m ³
Atrazine	g/m ³
Atrazine-desethyl	g/m ³
Atrazine-desisopropyl	g/m ³
Azaconazole	g/m ³
Azinphos-methyl	g/m ³
Benalaxyl	g/m ³
Bitertanol	g/m ³
Bromacil	g/m ³
Bromopropylate	g/m ³
Butachlor	g/m ³
Captan	g/m ³
Carbaryl	g/m ³
Carbofuran	g/m ³
Chlorfluazuron	g/m ³
Chlorothalonil	g/m ³
Chlorpyrifos	g/m ³
Chlorpyrifos-methyl	g/m ³
Chlortoluron	g/m ³
Cyanazine	g/m ³
Cyfluthrin	g/m ³
Cyhalothrin	g/m ³
Cypermethrin	g/m ³
Deltamethrin (including Tralomethrin)	g/m ³
Diazinon	g/m ³
Dichlofluanid	g/m ³
Dichloran	g/m ³
Dichlorvos	g/m ³
Difenoconazole	g/m ³
Dimethoate	g/m ³
Diphenylamine	g/m ³
Diuron	g/m ³
Fenpropimorph	g/m ³
Fluazifop-butyl	g/m ³
Fluometuron	g/m ³
Flusilazole	g/m ³

Sample Type: Aqueous

Sample Name:	
Lab Number:	
Organonitro&phosphorus Pesticides Screen in MR	
Fluvalinate	g/m ³
Furalaxyl	g/m ³
Haloxypop-methyl	g/m ³
Hexaconazole	g/m ³
Hexazinone	g/m ³
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	g/m ³
Kresoxim-methyl	g/m ³
Linuron	g/m ³
Malathion	g/m ³
Metalaxyl	g/m ³
Metolachlor	g/m ³
Metribuzin	g/m ³
Molinate	g/m ³
Myclobutanil	g/m ³
Naled	g/m ³
Norflurazon	g/m ³
Oxadiazon	g/m ³
Oxyfluorfen	g/m ³
Paclobutrazol	g/m ³
Parathion-ethyl	g/m ³
Parathion-methyl	g/m ³
Pendimethalin	g/m ³
Permethrin	g/m ³
Pirimicarb	g/m ³
Pirimiphos-methyl	g/m ³
Prochloraz	g/m ³
Procymidone	g/m ³
Prometryn	g/m ³
Propachlor	g/m ³
Propanil	g/m ³
Propazine	g/m ³
Propiconazole	g/m ³
Pyriproxyfen	g/m ³
Quizalofop-ethyl	g/m ³
Simazine	g/m ³
Simetryn	g/m ³
Sulfentrazone	g/m ³
TCMTB [2-(thiocyanomethylthio)benzothiazole, Busan]	g/m ³
Tebuconazole	g/m ³
Terbacil	g/m ³
Terbumeton	g/m ³
Terbuthylazine	g/m ³
Terbuthylazine-desethyl	g/m ³
Terbutryn	g/m ³
Thiabendazole	g/m ³
Thiobencarb	g/m ³
Tolyfluanid	g/m ³
Triazophos	g/m ³
Trifluralin	g/m ³
Vinclozolin	g/m ³
Copper, Chrome and Arsenic, Total, Trace	
Total Arsenic	g/m ³
Total Chromium	g/m ³

Sample Type: Aqueous**Sample Name:****Lab Number:**

Copper, Chrome and Arsenic, Total, Trace

Total Copper g/m³**Sample Name:****Lab Number:**

Individual Tests

pH pH Units

Total Hardness g/m³ as CaCO₃

Electrical Conductivity (EC) mS/m

Total Suspended Solids g/m³Total Calcium g/m³Total Magnesium g/m³

Organonitro&phosphorus Pesticides Screen in MR

Acetochlor g/m³Alachlor g/m³Atrazine g/m³Atrazine-desethyl g/m³Atrazine-desisopropyl g/m³Azaconazole g/m³Azinphos-methyl g/m³Benalaxyl g/m³Bitertanol g/m³Bromacil g/m³Bromopropylate g/m³Butachlor g/m³Captan g/m³Carbaryl g/m³Carbofuran g/m³Chlorfluazuron g/m³Chlorothalonil g/m³Chlorpyrifos g/m³Chlorpyrifos-methyl g/m³Chlortoluron g/m³Cyanazine g/m³Cyfluthrin g/m³Cyhalothrin g/m³Cypermethrin g/m³Deltamethrin (including Tralomethrin) g/m³Diazinon g/m³Dichlofluanid g/m³Dichloran g/m³Dichlorvos g/m³Difenoconazole g/m³Dimethoate g/m³Diphenylamine g/m³Diuron g/m³Fenpropimorph g/m³Fluazifop-butyl g/m³Fluometuron g/m³Flusilazole g/m³Fluvalinate g/m³Furalaxyl g/m³Haloxyp-methyl g/m³Hexaconazole g/m³Hexazinone g/m³IPBC (3-Iodo-2-propynyl-n-butylcarbamate) g/m³

Sample Type: Aqueous

Sample Name:	
Lab Number:	
Organonitro&phosphorus Pesticides Screen in MF	
Kresoxim-methyl	g/m ³
Linuron	g/m ³
Malathion	g/m ³
Metalaxyl	g/m ³
Metolachlor	g/m ³
Metribuzin	g/m ³
Molinate	g/m ³
Myclobutanil	g/m ³
Naled	g/m ³
Norflurazon	g/m ³
Oxadiazon	g/m ³
Oxyfluorfen	g/m ³
Paclobutrazol	g/m ³
Parathion-ethyl	g/m ³
Parathion-methyl	g/m ³
Pendimethalin	g/m ³
Permethrin	g/m ³
Pirimicarb	g/m ³
Pirimiphos-methyl	g/m ³
Prochloraz	g/m ³
Procymidone	g/m ³
Prometryn	g/m ³
Propachlor	g/m ³
Propanil	g/m ³
Propazine	g/m ³
Propiconazole	g/m ³
Pyriproxyfen	g/m ³
Quizalofop-ethyl	g/m ³
Simazine	g/m ³
Simetryn	g/m ³
Sulfentrazone	g/m ³
TCMTB [2-(thiocyanomethylthio)benzothiazole, Busan]	g/m ³
Tebuconazole	g/m ³
Terbacil	g/m ³
Terbumeton	g/m ³
Terbutylazine	g/m ³
Terbutylazine-desethyl	g/m ³
Terbutryn	g/m ³
Thiabendazole	g/m ³
Thiobencarb	g/m ³
Tolyfluanid	g/m ³
Triazophos	g/m ³
Trifluralin	g/m ³
Vinclozolin	g/m ³
Copper, Chrome and Arsenic, Total, Trace	
Total Arsenic	g/m ³
Total Chromium	g/m ³
Total Copper	g/m ³

Analyst's Comments

Amended Report: This certificate of analysis replaces report '3950372-SPv1' issued on 06-Aug-2025 at 4:20 pm. Reason for amendment: Additional testing added as per clients request.

Appendix No.1 - Chain of Custody

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: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Organonitro&phosphorus Pesticides Screen in MR Water Liq/liq	Liquid / liquid extraction, GC-MS analysis. In-house based on US EPA 8270.	0.0002 - 0.002 g/m ³	1-2, 4, 8-12
Copper, Chrome and Arsenic, Total, Trace	Nitric acid digestion, ICP-MS, trace level.	0.00053 - 0.0011 g/m ³	1-12
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) : Online Edition.	-	1-12
pH	pH meter. APHA 4500-H+ B (modified) : Online Edition. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1-12
Total Hardness	Calculation from Calcium and Magnesium. APHA 2340 B : Online Edition.	1.0 g/m ³ as CaCO ₃	1-12
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B : Online Edition.	0.1 mS/m	1-12
Total Suspended Solids	Filtration using Whatman 934 AH, Advantec GC-50 or equivalent filters (nominal pore size 1.2 - 1.5µm), gravimetric determination. APHA 2540 D (modified) : Online Edition.	3 g/m ³	1-12
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.053 g/m ³	1-12
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B : Online Edition.	0.021 g/m ³	1-12

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

Testing was completed between 01-Aug-2025 and 15-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.

Ara Heron BSc (Tech)
Client Services Manager - Environmental



Quote No 139436

Primary Contact Lotta Liddell 290957

Submitted By ~~Wendy~~ Nandhini R 290957

Client Name Engeo Limited 192617

Address PO Box 305136
Triton Plaza, Auckland 0757

Phone 09 972 2205 **Mobile**

Email

Charge To Engeo Limited 160117

Client Reference 28842.000.001

Additional Client Ref

Order No

Reports will be emailed to Primary Contact by default.
Additional Reports will be sent as specified below.

- Email Primary Contact Email Submitter Email Client
- Email Other tpaterson@engeo.co.nz
- Other smaloney@engeo.co.nz

Dates of testing are not routinely included in the Certificates of Analysis.
Please inform the laboratory if you would like this information reported.

ADDITIONAL INFORMATION / KNOWN HAZARDS

Samples labelled 'SWROx' are not included as part of the quote.

Quoted Sample Types

Soil (Soil), Surface Water (SW)

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
1	CPO1	29/07/25		As per quote Cold hold
2	CPO2	↓		↓
3	SW01			
4	SW02			
5	SW03			
6	SW04			
7	SW05		30/07/25	
8	SWR01	29/07/25		
9	SWR02	"		

ANALYSIS REQUEST

R J Hill Laboratories Limited
28 Duke Street Frankton 3204
Private Bag 3205
Hamilton 3240 New Zealand
☎ **0508 HILL LAB** 44 555 22
☎ +64 7 858 2000
✉ mail@hill-labs.co.nz
🌐 www.hill-labs.co.nz

Job No: Date Recv: 31-Jul-25 12:26

395 0372

Received by: Alisha Poipoi



CHAIN OF CUSTODY RECORD

Sent to Hill Labs

Date & Time: 30/07/25 12:20

Name: Nandhini R

Tick if you require COC to be emailed back

Signature: NR

Received at Hill Labs

Date & Time:

Name:

Signature:

Condition

Temp:

Room Temp Chilled Frozen

2.0°C

Sample & Analysis details checked

Signature:

Priority Low Normal High

Urgent (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date: _____

No.	Sample Name	Sample Date/Time	Sample Type	Tests Required
10	SWR03	29/07/25		Cold hold
11	SWR04	"		
12	SWR05	"		↓
13				
14				
15				
16				
17				
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32				
33				
34				

Certificate of Analysis

Page 1 of 10

Client:	Engeo Limited	Lab No:	3950373	SPV3
Contact:	Tyler Paterson C/- Engeo Limited PO Box 305136 Triton Plaza Auckland 0757	Date Received:	31-Jul-2025	
		Date Reported:	15-Aug-2025	(Amended)
		Quote No:	82742	
		Order No:		
		Client Reference:	28842.000.001	
		Submitted By:	Nandhini R	

Sample Type: Soil

Sample Name:	HA01_0.1-0.3 28-Jul-2025	HA01_0.35-0.5 28-Jul-2025	HA02_0.05-0.1 28-Jul-2025	HA02_0.25-0.3 28-Jul-2025	HA02_0.4-0.6 28-Jul-2025
Lab Number:	3950373.1	3950373.2	3950373.3	3950373.4	3950373.5

Individual Tests

Dry Matter	g/100g as rcvd	87	-	-	74	93
SPLP Sample Weight	g	-	-	-	70	-
SPLP Extractant Type*		-	-	-	De-ionised Water, pH 5.8 +/- 0.4	-
SPLP Final pH	pH Units	-	-	-	8.9	-

Heavy Metals with Mercury, Screen Level

Total Recoverable Arsenic	mg/kg dry wt	90	6	16	15	-
Total Recoverable Cadmium	mg/kg dry wt	0.11	< 0.10	0.31	0.4	-
Total Recoverable Chromium	mg/kg dry wt	121	4	13	24	-
Total Recoverable Copper	mg/kg dry wt	80	18	26	40	-
Total Recoverable Lead	mg/kg dry wt	23	31	32	6.4	-
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.3	-
Total Recoverable Nickel	mg/kg dry wt	17	2	19	8	-
Total Recoverable Zinc	mg/kg dry wt	79	4	124	196	-

Polycyclic Aromatic Hydrocarbons Screening in Soil*

Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	-	-	350	2.5
1-Methylnaphthalene	mg/kg dry wt	< 0.012	-	-	3.9	0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.012	-	-	2.8	0.013
Acenaphthylene	mg/kg dry wt	< 0.012	-	-	45	0.33
Acenaphthene	mg/kg dry wt	< 0.012	-	-	53	0.120
Anthracene	mg/kg dry wt	< 0.012	-	-	0.75	0.029
Benzo[a]anthracene	mg/kg dry wt	< 0.012	-	-	0.13	< 0.011
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.012	-	-	0.16	0.019
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.028	-	-	0.27	0.026
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.027	-	-	0.21	< 0.025
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.012	-	-	0.17	0.019
Benzo[e]pyrene	mg/kg dry wt	< 0.012	-	-	0.19	0.018
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.012	-	-	0.28	0.030
Benzo[k]fluoranthene	mg/kg dry wt	< 0.012	-	-	0.04	< 0.011
Chrysene	mg/kg dry wt	< 0.012	-	-	0.10	< 0.011
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.012	-	-	< 0.03	< 0.011
Fluoranthene	mg/kg dry wt	< 0.012	-	-	6.1	0.24
Fluorene	mg/kg dry wt	< 0.012	-	-	0.63	< 0.011
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.012	-	-	0.09	< 0.011
Naphthalene	mg/kg dry wt	< 0.06	-	-	220	1.05
Perylene	mg/kg dry wt	< 0.012	-	-	0.04	< 0.011



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:	HA01_0.1-0.3 28-Jul-2025	HA01_0.35-0.5 28-Jul-2025	HA02_0.05-0.1 28-Jul-2025	HA02_0.25-0.3 28-Jul-2025	HA02_0.4-0.6 28-Jul-2025	
Lab Number:	3950373.1	3950373.2	3950373.3	3950373.4	3950373.5	
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Phenanthrene	mg/kg dry wt	< 0.012	-	-	10.9	0.25
Pyrene	mg/kg dry wt	< 0.012	-	-	7.8	0.34
Sample Name:	HA03_0.01-0.25 28-Jul-2025	HA03_0.6-0.8 28-Jul-2025	HA04_0.0-0.1 28-Jul-2025	HA04_0.15-0.5 28-Jul-2025	HA05_0.25-0.4 28-Jul-2025	
Lab Number:	3950373.6	3950373.7	3950373.8	3950373.9	3950373.10	
Individual Tests						
Dry Matter	g/100g as rcvd	79	-	-	-	-
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	9	10	300	27	21
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	0.15	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	27	21	550	78	95
Total Recoverable Copper	mg/kg dry wt	41	52	850	127	65
Total Recoverable Lead	mg/kg dry wt	17.1	16.0	19.6	17.7	15.7
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	4	14	11	14	15
Total Recoverable Zinc	mg/kg dry wt	15	23	131	48	41
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.3	-	-	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.013	-	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.013	-	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.013	-	-	-	-
Acenaphthene	mg/kg dry wt	< 0.013	-	-	-	-
Anthracene	mg/kg dry wt	< 0.013	-	-	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.013	-	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.013	-	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.030	-	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.030	-	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.013	-	-	-	-
Benzo[e]pyrene	mg/kg dry wt	< 0.013	-	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.013	-	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.013	-	-	-	-
Chrysene	mg/kg dry wt	< 0.013	-	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.013	-	-	-	-
Fluoranthene	mg/kg dry wt	< 0.013	-	-	-	-
Fluorene	mg/kg dry wt	< 0.013	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.013	-	-	-	-
Naphthalene	mg/kg dry wt	< 0.07	-	-	-	-
Perylene	mg/kg dry wt	< 0.013	-	-	-	-
Phenanthrene	mg/kg dry wt	< 0.013	-	-	-	-
Pyrene	mg/kg dry wt	< 0.013	-	-	-	-
Sample Name:	HA06_0.35-0.45 28-Jul-2025	HA07_0.2-0.25 28-Jul-2025	HA09_0.15-0.7 28-Jul-2025	HA09_1.0-1.2 28-Jul-2025	HA10_0.2-0.4 28-Jul-2025	
Lab Number:	3950373.12	3950373.13	3950373.14	3950373.15	3950373.16	
Individual Tests						
Dry Matter	g/100g as rcvd	70	-	-	-	-
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	6	12	8	13	10
Total Recoverable Cadmium	mg/kg dry wt	0.38	0.12	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	144	74	7	38	7
Total Recoverable Copper	mg/kg dry wt	104	169	23	52	29
Total Recoverable Lead	mg/kg dry wt	1.0	1.6	19.4	14.1	24
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Sample Type: Soil						
Sample Name:	HA06_0.35-0.45 28-Jul-2025	HA07_0.2-0.25 28-Jul-2025	HA09_0.15-0.7 28-Jul-2025	HA09_1.0-1.2 28-Jul-2025	HA10_0.2-0.4 28-Jul-2025	
Lab Number:	3950373.12	3950373.13	3950373.14	3950373.15	3950373.16	
Heavy Metals with Mercury, Screen Level						
Total Recoverable Nickel	mg/kg dry wt	88	58	5	11	7
Total Recoverable Zinc	mg/kg dry wt	230	139	53	34	55
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	-	-	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.014	-	-	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.014	-	-	-	-
Acenaphthylene	mg/kg dry wt	< 0.014	-	-	-	-
Acenaphthene	mg/kg dry wt	< 0.014	-	-	-	-
Anthracene	mg/kg dry wt	< 0.014	-	-	-	-
Benzo[a]anthracene	mg/kg dry wt	< 0.014	-	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.014	-	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.034	-	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.034	-	-	-	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	< 0.014	-	-	-	-
Benzo[e]pyrene	mg/kg dry wt	< 0.014	-	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	-	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	-	-	-	-
Chrysene	mg/kg dry wt	< 0.014	-	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	-	-	-	-
Fluoranthene	mg/kg dry wt	< 0.014	-	-	-	-
Fluorene	mg/kg dry wt	< 0.014	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	-	-	-	-
Naphthalene	mg/kg dry wt	< 0.07	-	-	-	-
Perylene	mg/kg dry wt	< 0.014	-	-	-	-
Phenanthrene	mg/kg dry wt	< 0.014	-	-	-	-
Pyrene	mg/kg dry wt	< 0.014	-	-	-	-
Sample Name:	CF1-A_0.0-0.2 29-Jul-2025	CF2-A_0.0-0.2 29-Jul-2025	CF3-A_0.0-0.2 29-Jul-2025	CF4-A_0.0-0.2 29-Jul-2025	CF5-A_0.0-0.2 29-Jul-2025	
Lab Number:	3950373.18	3950373.21	3950373.24	3950373.27	3950373.30	
Individual Tests						
Dry Matter	g/100g as rcvd	73	74	64	75	79
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	18	< 2	3	13	11
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	6	14	81	3	7
Total Recoverable Copper	mg/kg dry wt	26	4	39	< 2	9
Total Recoverable Lead	mg/kg dry wt	8.8	1.7	6.0	2.6	4.0
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	< 2	< 2	5	< 2	< 2
Total Recoverable Zinc	mg/kg dry wt	5	5	20	< 4	< 4
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Alachlor	mg/kg dry wt	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Atrazine-desethyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Atrazine-desisopropyl	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Azaconazole	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Azinphos-methyl	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Benalaxyl	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Bitertanol	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Bromacil	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Bromopropylate	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07

Sample Type: Soil						
Sample Name:	CF1-A_0.0-0.2 29-Jul-2025	CF2-A_0.0-0.2 29-Jul-2025	CF3-A_0.0-0.2 29-Jul-2025	CF4-A_0.0-0.2 29-Jul-2025	CF5-A_0.0-0.2 29-Jul-2025	
Lab Number:	3950373.18	3950373.21	3950373.24	3950373.27	3950373.30	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Butachlor	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Captan	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Carbaryl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Carbofuran	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Chlorfluazuron	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Chlorothalonil	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Chlorpyrifos	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Chlorpyrifos-methyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Chlortoluron	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Cyanazine	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Cyfluthrin	mg/kg dry wt	< 0.10	< 0.09	< 0.11	< 0.09	< 0.09
Cyhalothrin	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Cypermethrin	mg/kg dry wt	< 0.19	< 0.18	< 0.3	< 0.18	< 0.17
Deltamethrin (including Tralomethrin)	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Diazinon	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Dichlofluanid	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Dichloran	mg/kg dry wt	< 0.2	< 0.2	< 0.3	< 0.2	< 0.2
Dichlorvos	mg/kg dry wt	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg dry wt	< 0.11	< 0.11	< 0.12	< 0.11	< 0.10
Dimethoate	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Diphenylamine	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Diuron	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Fenpropimorph	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Fluazifop-butyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Fluometuron	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Flusilazole	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Fluvalinate	mg/kg dry wt	< 0.06	< 0.06	< 0.06	< 0.06	< 0.05
Furalaxyl	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Haloxifop-methyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Hexaconazole	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Hexazinone	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4
Kresoxim-methyl	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Linuron	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Malathion	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Metalaxyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Methamidophos	mg/kg dry wt	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4
Metolachlor	mg/kg dry wt	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Molinate	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Myclobutanil	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Naled	mg/kg dry wt	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4
Norflurazon	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Oxadiazon	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Oxyfluorfen	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Paclobutrazol	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Parathion-ethyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Parathion-methyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Pendimethalin	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Permethrin	mg/kg dry wt	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Pirimiphos-methyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Prochloraz	mg/kg dry wt	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4

Sample Type: Soil						
Sample Name:	CF1-A_0.0-0.2 29-Jul-2025	CF2-A_0.0-0.2 29-Jul-2025	CF3-A_0.0-0.2 29-Jul-2025	CF4-A_0.0-0.2 29-Jul-2025	CF5-A_0.0-0.2 29-Jul-2025	
Lab Number:	3950373.18	3950373.21	3950373.24	3950373.27	3950373.30	
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Procymidone	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Prometryn	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Propachlor	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Propanil	mg/kg dry wt	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Propiconazole	mg/kg dry wt	< 0.06	< 0.06	0.07	0.06	< 0.05
Pyriproxyfen	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Quizalofop-ethyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Simazine	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Simetryn	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Sulfentrazone	mg/kg dry wt	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4
TCMTB [2-(thiocyanomethylthio)benzothiazole, Busan]	mg/kg dry wt	< 0.15	< 0.15	< 0.17	< 0.15	< 0.14
Tebuconazole	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Terbacil	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Terbumeton	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Terbutylazine	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Terbutylazine-desethyl	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Terbutryn	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Thiabendazole	mg/kg dry wt	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4
Thiobencarb	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Tolyfluanid	mg/kg dry wt	< 0.04	< 0.04	< 0.05	< 0.04	< 0.04
Triazophos	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Trifluralin	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Vinclozolin	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	< 0.07
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	< 0.4	< 0.4	< 0.3
1-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
2-Methylnaphthalene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Acenaphthylene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Acenaphthene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Anthracene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Benzo[a]anthracene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.032	< 0.033	< 0.037	< 0.031	< 0.030
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.032	< 0.033	< 0.037	< 0.031	< 0.030
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Benzo[e]pyrene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Benzo[k]fluoranthene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Chrysene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Fluoranthene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Fluorene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Naphthalene	mg/kg dry wt	< 0.07	< 0.07	< 0.08	< 0.07	< 0.07
Perylene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Phenanthrene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Pyrene	mg/kg dry wt	< 0.014	< 0.014	< 0.015	< 0.013	< 0.013
Sample Name:	HA08_0.05-0.55 28-Jul-2025	HA08_0.65-0.75 28-Jul-2025	AST-01_0.3-0.35 30-Jul-2025	HA11_0.0-0.2 30-Jul-2025	HA11_0.25-0.8 30-Jul-2025	
Lab Number:	3950373.33	3950373.34	3950373.36	3950373.38	3950373.39	

Sample Type: Soil

Sample Name:		HA08_0.05-0.55	HA08_0.65-0.75	AST-01_0.3-0.35	HA11_0.0-0.2	HA11_0.25-0.8
		28-Jul-2025	28-Jul-2025	30-Jul-2025	30-Jul-2025	30-Jul-2025
Lab Number:		3950373.33	3950373.34	3950373.36	3950373.38	3950373.39
Individual Tests						
Dry Matter	g/100g as rcvd	-	40	92	-	-
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	12	14	15	570	34
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	0.15	0.12	< 0.10
Total Recoverable Chromium	mg/kg dry wt	8	14	88	720	32
Total Recoverable Copper	mg/kg dry wt	37	40	97	940	54
Total Recoverable Lead	mg/kg dry wt	19.4	13.6	3.1	16.4	25
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	15	15	59	12	18
Total Recoverable Zinc	mg/kg dry wt	68	68	140	72	74
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	< 0.6	-	-	-
1-Methylnaphthalene	mg/kg dry wt	-	< 0.03	-	-	-
2-Methylnaphthalene	mg/kg dry wt	-	< 0.03	-	-	-
Acenaphthylene	mg/kg dry wt	-	< 0.03	-	-	-
Acenaphthene	mg/kg dry wt	-	< 0.03	-	-	-
Anthracene	mg/kg dry wt	-	< 0.03	-	-	-
Benzo[a]anthracene	mg/kg dry wt	-	< 0.03	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	< 0.03	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	< 0.059	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	< 0.059	-	-	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	-	< 0.03	-	-	-
Benzo[e]pyrene	mg/kg dry wt	-	< 0.03	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	-	< 0.03	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	-	< 0.03	-	-	-
Chrysene	mg/kg dry wt	-	< 0.03	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	-	< 0.03	-	-	-
Fluoranthene	mg/kg dry wt	-	< 0.03	-	-	-
Fluorene	mg/kg dry wt	-	< 0.03	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	< 0.03	-	-	-
Naphthalene	mg/kg dry wt	-	< 0.13	-	-	-
Perylene	mg/kg dry wt	-	< 0.03	-	-	-
Phenanthrene	mg/kg dry wt	-	< 0.03	-	-	-
Pyrene	mg/kg dry wt	-	< 0.03	-	-	-
Total Petroleum Hydrocarbons in Soil						
C7 - C9	mg/kg dry wt	-	< 40	< 20	-	-
C10 - C14	mg/kg dry wt	-	< 30	910	-	-
C15 - C36	mg/kg dry wt	-	89	7,200	-	-
Total hydrocarbons (C7 - C36)	mg/kg dry wt	-	< 130	8,200	-	-
Sample Name:						
		HA12_0.1-0.3	HA13_0.1-0.45	HA13_0.5-0.7	HA14_0.1-0.8	HA15_0.1-0.4
		30-Jul-2025	30-Jul-2025	30-Jul-2025	30-Jul-2025	30-Jul-2025
Lab Number:						
		3950373.41	3950373.43	3950373.44	3950373.45	3950373.47
Individual Tests						
Dry Matter	g/100g as rcvd	-	86	-	-	-
Heavy Metals with Mercury, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	17	12	23	10	95
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	9	20	29	7	164
Total Recoverable Copper	mg/kg dry wt	46	34	49	36	176
Total Recoverable Lead	mg/kg dry wt	23	14.9	23	20	16.7
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	9	8	10	7	12

Sample Type: Soil						
Sample Name:	HA12_0.1-0.3 30-Jul-2025	HA13_0.1-0.45 30-Jul-2025	HA13_0.5-0.7 30-Jul-2025	HA14_0.1-0.8 30-Jul-2025	HA15_0.1-0.4 30-Jul-2025	
Lab Number:	3950373.41	3950373.43	3950373.44	3950373.45	3950373.47	
Heavy Metals with Mercury, Screen Level						
Total Recoverable Zinc	mg/kg dry wt	39	33	50	25	45
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	-	< 0.3	-	-	-
1-Methylnaphthalene	mg/kg dry wt	-	< 0.012	-	-	-
2-Methylnaphthalene	mg/kg dry wt	-	< 0.012	-	-	-
Acenaphthylene	mg/kg dry wt	-	< 0.012	-	-	-
Acenaphthene	mg/kg dry wt	-	< 0.012	-	-	-
Anthracene	mg/kg dry wt	-	< 0.012	-	-	-
Benzo[a]anthracene	mg/kg dry wt	-	< 0.012	-	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	-	< 0.012	-	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	-	< 0.028	-	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	-	< 0.028	-	-	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	-	< 0.012	-	-	-
Benzo[e]pyrene	mg/kg dry wt	-	< 0.012	-	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	-	< 0.012	-	-	-
Benzo[k]fluoranthene	mg/kg dry wt	-	< 0.012	-	-	-
Chrysene	mg/kg dry wt	-	< 0.012	-	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	-	< 0.012	-	-	-
Fluoranthene	mg/kg dry wt	-	< 0.012	-	-	-
Fluorene	mg/kg dry wt	-	< 0.012	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	-	< 0.012	-	-	-
Naphthalene	mg/kg dry wt	-	< 0.06	-	-	-
Perylene	mg/kg dry wt	-	< 0.012	-	-	-
Phenanthrene	mg/kg dry wt	-	< 0.012	-	-	-
Pyrene	mg/kg dry wt	-	< 0.012	-	-	-

Sample Name:	HA15_0.4-0.5 30-Jul-2025	HA15_0.55-0.7 30-Jul-2025	
Lab Number:	3950373.48	3950373.49	
Heavy Metals with Mercury, Screen Level			
Total Recoverable Arsenic	mg/kg dry wt	20	8
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	32	82
Total Recoverable Copper	mg/kg dry wt	44	65
Total Recoverable Lead	mg/kg dry wt	17.9	2.3
Total Recoverable Mercury	mg/kg dry wt	< 0.10	< 0.10
Total Recoverable Nickel	mg/kg dry wt	10	33
Total Recoverable Zinc	mg/kg dry wt	27	40

Sample Type: Aqueous		
Sample Name:	HA02_0.25-0.3 [SPLP extract]	
Lab Number:	3950373.50	
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq		
Acenaphthene	g/m ³	< 0.00010
Acenaphthylene	g/m ³	< 0.00010
Anthracene	g/m ³	< 0.00010
Benzo[a]anthracene	g/m ³	< 0.00010
Benzo[a]pyrene (BAP)	g/m ³	< 0.00010
Benzo[b]fluoranthene + Benzo[j] fluoranthene	g/m ³	< 0.00010
Benzo[g,h,i]perylene	g/m ³	< 0.00010
Benzo[k]fluoranthene	g/m ³	< 0.00010
Chrysene	g/m ³	< 0.00010
Dibenzo[a,h]anthracene	g/m ³	< 0.00010
Fluoranthene	g/m ³	< 0.00010

Sample Type: Aqueous

Sample Name: HA02_0.25-0.3 [SPLP extract]

Lab Number: 3950373.50

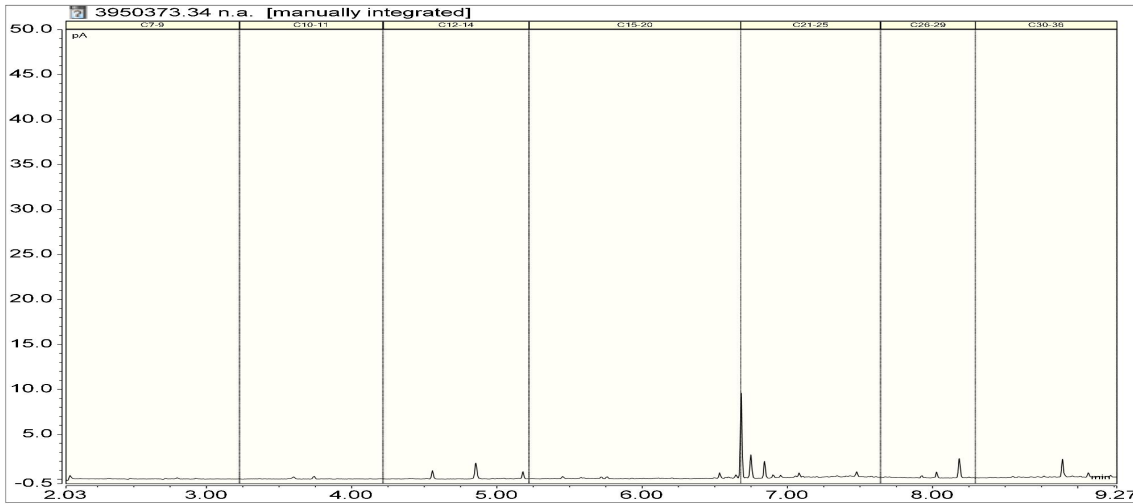
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq

Fluorene	g/m ³	< 0.0002
Indeno(1,2,3-c,d)pyrene	g/m ³	< 0.00010
Naphthalene	g/m ³	< 0.0005
Phenanthrene	g/m ³	< 0.0004
Pyrene	g/m ³	< 0.0002

3950373.34

HA08_0.65-0.75 28-Jul-2025

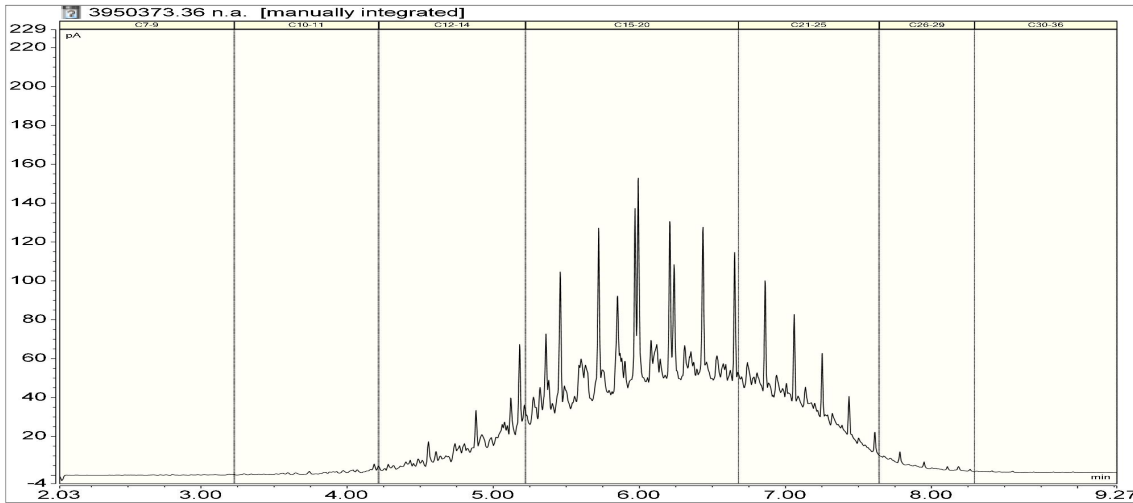
Client Chromatogram for TPH by FID



3950373.36

AST-01_0.3-0.35 30-Jul-2025

Client Chromatogram for TPH by FID



Analyst's Comments

Carbon particulates were observed in the matrix of sample 3950373.4 and this has affected all of the System Monitoring Compounds in the PAH analysis, whereby the recovery for 1-methylnaphthalene-d10, Fluoranthene-d10 and Benzo[a]pyrene-d12 was 50%, 2% and 0% respectively. Therefore the results presented for these analytes may not represent the actual concentration in the sample.

The matrix of sample 3950373.5 has affected the System Monitoring Compound Benzo[a]pyrene-d12 in the PAH analysis, whereby the recovery was 57%. Therefore the results may be underestimated for Benzo[a]pyrene, Indeno(1,2,3-c,d)pyrene, Dibenzo[a,h]anthracene and Benzo[g,h,i]perylene.

Amended Report: This certificate of analysis replaces report '3950373-SPv2' issued on 12-Aug-2025 at 1:29 pm. Reason for amendment: Additional testing added as per clients request.

Appendix No.1 - Chain of Custody

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
Individual Tests			
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, 6-10, 12-16, 18, 21, 24, 27, 30, 33-34, 36, 38-39, 41, 43-45, 47-49
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, 4-6, 12, 18, 21, 24, 27, 30, 34, 43
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, 4-6, 12, 18, 21, 24, 27, 30, 34, 36, 43
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, 4-6, 12, 18, 21, 24, 27, 30, 34, 43
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, 4-6, 12, 18, 21, 24, 27, 30, 34, 43
TPH Oil Industry Profile + PAHscreen	Sonication extraction, GC-FID and GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8015 and US EPA 8270.	0.010 - 70 mg/kg dry wt	34
Heavy Metals with Mercury, 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, 6-10, 12-16, 18, 21, 24, 27, 30, 33-34, 36, 38-39, 41, 43-45, 47-49
Organonitro&phosphorus Pesticides Screen in Soil by GCMS	Sonication extraction, GC-MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.02 - 0.2 mg/kg dry wt	18, 21, 24, 27, 30
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, 4-6, 12, 18, 21, 24, 27, 30, 43
SPLP Profile*	Extraction at 30 +/- 2 rpm for 18 +/- 2 hours, (Ratio 1g sample : 20g extraction fluid). US EPA 1312.	-	4
Total Petroleum Hydrocarbons in Soil			

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Client Chromatogram for TPH by FID	Small peaks associated with QC compounds may be visible in chromatograms with low TPH concentrations. QC peaks are as follows: one peak in the C12 - 14 band, the C21 - 25 band and the C30 - 36 band. All QC peaks are corrected for in the reported TPH concentrations.	-	34, 36
C7 - C9	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	34, 36
C10 - C14	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	20 mg/kg dry wt	34, 36
C15 - C36	Solvent extraction, GC-FID analysis. Tested on as received sample. In-house based on US EPA 8015.	40 mg/kg dry wt	34, 36
Total hydrocarbons (C7 - C36)	Calculation: Sum of carbon bands from C7 to C36. In-house based on US EPA 8015.	70 mg/kg dry wt	34, 36
SPLP Profile			
SPLP Sample Weight	Gravimetric. US EPA 1312.	0.1 g	4
SPLP Extractant Type*	US EPA 1312 (Modified for New Zealand conditions to use De-ionised Water unless otherwise specified).	-	4
SPLP Final pH	pH meter. US EPA 1312.	0.1 pH Units	4
Sample Type: Aqueous			
Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Polycyclic Aromatic Hydrocarbons Screening in Water, By Liq/Liq	Liquid / liquid extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.00010 - 0.0005 g/m ³	50

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

Testing was completed between 04-Aug-2025 and 15-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.

Ara Heron BSc (Tech)
Client Services Manager - Environmental



Quote No

Primary Contact Tyler Paterson

Submitted By Nandhini R

Client Name ENGEO

Address

Postcode

Phone

Mobile

Email

Charge To

Client Reference 28842-000-001

Order No

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*

Email Primary Contact Email Submitter Email Client

Email Other smaloney@engeo.co.nz

Other

ADDITIONAL INFORMATION

ANALYSIS REQUEST

R J Hill Laboratories Limited
Ground Floor, 28 Heather Street
Parnell
Auckland 1052, New Zealand

Job No: Date Recv: 31-Jul-25 12:26

395 0373

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

Received by: Alisha Poipoi



CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories

Date & Time: 31/07/25 12:20pm

Name: Nandhini R

Tick if you require COC to be emailed back

Signature: NR

Samples will be processed at a Hill Labs site with the appropriate testing capability and capacity. Please inform the lab if you wish samples to be retained and analysed at the site of receipt.

Received at Hill Laboratories

Date & Time:

Name:

Signature:

Priority Low Normal High
 Urgent (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date:

*Please ensure all asbestos samples are **individually double bagged** upon submission to the laboratory.*

No.	Sample Name	Sample Type	Sample Location	Sample Date/ Time	Tests Required (if not as per Quote)
1	HA01 0.1-0.3	9 soil		28/07/25	Cold Mold
2	HA01 0.35-0.5	"			
3	HA02 0.05-0.1	"			
4	HA02 0.25-0.3	"			
5	HA02 0.4-0.6	"			
6	HA03 0.01-0.25	"			
7	HA03 0.6-0.8	"			
8	HA04 0.0-0.1	"			
9	HA04 0.15-0.5	"			
10	HA05 0.25-0.4	"			
11	HA05 0.55-0.75	"			
12	HA06 0.35-0.45	"			
13	HA07 0.2-0.25	"			

Temperature On Arrival
2.5 °C

Temperature was measured on one or more arbitrarily chosen samples in this batch.

No.	Sample Name	Sample Material	Sample Location	Sample Date	Tests Required (if not as per Quote)
14	HA089 0.15-0.7	gsoil		28/07/25	Cold Hold
15	HA089 1.0-1.2	gsoil		"	
16	HA10 0.2-0.4	gsoil		"	
17	HA10 0.4-0.6	gsoil		"	
18	CF1-A 0.0-0.2	gsoil		29/07/25	
19	CF1-B 0.0-0.2	"			
20	CF1-C 0.0-0.2	"			
21	CF2-A 0.0-0.2	"			
22	CF2-B 0.0-0.2	"			
23	CF2-C 0.0-0.2	"			
24	CF3-A 0.0-0.2	"			
25	CF3-B 0.0-0.2	"			
26	CF3-C 0.0-0.2	"			
27	CF4-A 0.0-0.2	"			
28	CF4-B 0.0-0.2	"			
29	CF4-C 0.0-0.2	"			
30	CF5-A 0.0-0.2	"			
31	CF5-B 0.0-0.2	"			
32	CF5-C 0.0-0.2	"		✓	
33	HA08 0.05-0.55	"		28/07/25	
34	HA08 0.65-0.75	"		"	
35	AST-01 0.2-0.25	"		30/07/25	
36	AST-01 0.3-0.35	"			
37	HA08-B 0.0-0.3	gsoil + asb sq			
38	HA11 0.0-0.2	gsoil + asb sq			
39	HA11 0.25-0.8	gsoil + asb sq			
40	HA11 0.85-1.0	gsoil			
41	HA12 0.1-0.3	gsoil			



Quote No

Primary Contact Tyler Paterson

Submitted By Nandhini R

Client Name ENGeo

Address

Postcode

Phone

Mobile

Email

Charge To

Client Reference 28842.000.001

Order No

Results To Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.

Email Primary Contact Email Submitter Email Client

Email Other smaloney@engco.co.nz

Other

ADDITIONAL INFORMATION

ANALYSIS REQUEST

R J Hill Laboratories Limited
Ground Floor, 28 Heather Street
Parnell
Auckland 1052, New Zealand

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

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories

Date & Time: 30/07/25 12:20pm

Name: Nandhini R

Tick if you require COC to be emailed back

Signature: NR

Samples will be processed at a Hill Labs site with the appropriate testing capability and capacity. Please inform the lab if you wish samples to be retained and analysed at the site of receipt.

Received at Hill Laboratories

Date & Time:

Name:

Signature:

Priority Low Normal High
 Urgent (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date: _____

Please ensure all asbestos samples are **individually double bagged** upon submission to the laboratory.

No.	Sample Name	Sample Type	Sample Location	Sample Date/ Time	Tests Required (if not as per Quote)
1	HA12 0.35-0.8	gsoil		30/7/25	Cold hold
2	HA13 0.1-0.45	gsoil		↓	↓
3	HA13 0.5-0.7	gsoil			
4	HA14 0.1-0.8	gsoil + aslsq			
5	HA14 0.8-0.9	gsoil			
6	HA15 0.1-0.4	gsoil			
7	HA15 0.4-0.5	gsoil			
8	HA15 0.55-0.7	gsoil			
9					
10					
11					
12					
13					



ANALYSIS REQUEST

Quote No _____

Primary Contact Tyler Paterson

Submitted By Nandhini R

Client Name ENGEO Ltd

Address 1-7 The Strand, Club Lane, Takapuna, Auckland

Postcode _____

Phone 09 972 2205 Mobile _____

Email _____

Charge To ENGEO Ltd

Client Reference 28842.000.001

Order No _____

Results To *Reports will be emailed to Primary Contact by default. Additional Reports will be sent as specified below.*

 Email Primary Contact
 Email Submitter
 Email Client

 Email Other

 Other

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

T **0508 HILL LAB** (44 555 22)
 T +64 7 858 2000
 E mail@hill-labs.co.nz
 W www.hill-laboratories.com

Office use only
(Job No)

CHAIN OF CUSTODY RECORD

Sent to Hill Laboratories *Date & Time:* 01.08.25

Name: Nandhini R

Tick if you require COC to be emailed back *Signature:* NR

Received at Hill Laboratories *Date & Time:* _____

(Refer to Lab created Job No above) *Name:* _____

Signature: _____

Condition

Room Temp Chilled Frozen

Temp: _____

ADDITIONAL INFORMATION / KNOWN HAZARDS

Priority Low Normal High
 Urgent (ASAP, extra charge applies, please contact lab first)

Requested Reporting Date: _____

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
1	HA01 0.1-0.3	28.07.25	AM	gsoil	HM8, PAH
2	HA01 0.35-0.5	"	"	"	HM8
3	HA02 0.05-0.1	"	"	"	HM8
4	HA02 0.25-0.3	"	"	"	HM8, PAH
5	HA02 0.4-0.6	"	"	"	COLD HOLD
6	HA03 0.01-0.25	"	"	"	HM8, PAH
7	HA03 0.6-0.8	"	"	"	HM8
8	HA04 0.0-0.1	"	"	"	HM8
9	HA04 0.15-0.5	"	"	"	HM8
10	HA05 0.25-0.4	"	"	"	HM8
11	HA05 0.55-0.75	"	"	"	COLD HOLD
12	HA06 0.35-0.45	"	"	"	HM8, PAH

Continued on next page

No.	Sample Name	Sample Date	Sample Time	Sample Type	Tests Required (if not as per Quote)
13	HA07 0.2-0.25	"	"	"	HM8
14	HA08 0.05-0.55	"	PM	"	HM8
15	HA08 0.65-0.75	"	"	"	HM8, PAH, TPH
16	HA09 0.15-0.7	"	"	"	HM8
17	HA09 1.0-1.2	"	"	"	HM8
18	HA10 0.2-0.4	"	"	"	HM8
19	HA10 0.4-0.6	"	"	"	COLD HOLD
20	HA08-B 0.0-0.3	30.07.25	AM	gsoil + Asb(SQ)	COLD HOLD
21	HA11 0.0-0.2	"	"	gsoil + Asb(SQ)	HM8
22	HA11 0.25-0.8	"	"	gsoil + Asb(SQ)	HM8
23	HA11 0.85-1.0	"	"	gsoil	COLD HOLD
24	HA12 0.1-0.3	"	"	gsoil	HM8
25	HA12 0.35-0.8	"	"	gsoil	COLD HOLD
26	HA13 0.1-0.45	"	"	gsoil	HM8, PAH
27	HA13 0.45-0.7	"	"	gsoil	HM8
28	HA14 0.1-0.8	"	"	gsoil + Asb(SQ)	HM8
29	HA14 0.8-0.9	"	"	gsoil	COLD HOLD
30	HA15 0.1-0.4	"	"	gsoil	HM8
31	HA15 0.4-0.5	"	"	gsoil	HM8
32	HA15 0.55-0.7	"	"	gsoil	HM8
33	AST-01 0.2-0.25	"	"	gsoil	COD HOLD
34	AST-01 0.3-0.55	"	"	gsoil	HM8, TPH
35	CF1-A,B,C 0.0-0.2	29.07.25	AM	gsoil	HM8, PAH
36	CF2-A,B,C 0.0-0.2	29.07.25	AM	gsoil	HM8, PAH
37	CF3-A,B,C 0.0-0.2	29.07.25	AM	gsoil	HM8, PAH
38	CF4-A,B,C 0.0-0.2	29.07.25	AM	gsoil	HM8, PAH
39	CF5-A,B,C 0.0-0.2	29.07.25	AM	gsoil	HM8, PAH
40					