



Gisborne District Council

SITE MANAGEMENT PLAN (SMP)

Te Karaka Stopbank

DOCUMENT CONTROL

Version	Date	Comments
A	01/04/2026	Site Management Plan issued for proposed Te Karaka Stopbank works.
B	14/04/2026	Report updated with new plans from client.
C	29/05/2026	Section 4 and Section 5 updated following S92 request regarding soil disturbance of potential HAIL sites around 1 Kipling Road and 7 Kipling Road.

Version	Issued For	Prepared By	Reviewed & Authorised By
C	Issued for Information	 Erin Gasston Environmental Scientist	  James Gladwin Environmental Group Manager SQEP

CONTENTS

1	INTRODUCTION	1
1.1	Description of the Site	1
1.1.1	Proposed Borrow Site	1
1.1.2	Proposed Stopbank Alignment.....	3
2	KEY PERSONNEL	4
3	RESPONSIBILITIES	5
3.1	Site Owner - Gisborne District Council.....	5
3.2	Lead Site Contractor – TBC	5
3.3	Contaminated Land Specialist - LDE	5
4	SUMMARY OF ACTUAL OR EXPECTED CONTAMINANT CONDITIONS	6
5	PROJECT MILESTONES	8
6	SITE CONTROL PROCEDURES	9
6.1	Site Procedures and Soil Management.....	9
6.2	Site Security	9
6.3	Stockpile Management.....	9
6.4	Erosion, Sediment and Stormwater Controls	10
6.5	Dust Control	10
6.6	Odour.....	11
6.7	Groundwater.....	11
6.8	Soil Disposal.....	11
6.9	Imported Fill.....	11
6.10	Site Demobilisation.....	12
7	HEALTH AND SAFETY PROTECTION MEASURES	12
8	ENVIRONMENTAL MANAGEMENT PROCEDURES.....	12
9	UNEXPECTED CONTAMINATION DISCOVERY PROTOCOLS.....	13
9.1	Contamination Indicators and Hazards	13
9.2	Contamination Identification Action	14
10	REPORTING	15
11	LIMITATIONS	15

APPENDIX A PRELIMINARY AND DETAILED SITE INVESTIGATION

1 INTRODUCTION

This Site Management Plan (SMP) has been prepared for Gisborne District Council as part of the resource consent requirements for the management of contaminated soils as part of the proposed improvements to the Te Karaka Stopbanks.

This SMP has been prepared to communicate the site and soil management approach to the council, landowner and contractors. It will describe:

- Current information about the extent of contamination known to be at the site
- Information about the proposed development
- Safe procedures for the management of the contaminated soil
- An approach to validate that the proposed activities are complete according to the SMP

The SMP has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011. It has been managed by a suitably qualified and experienced practitioner (SQEP); carried out in general accordance with the Contaminated Land Management Guidelines No.1- Reporting on Contaminated Sites in New Zealand (revised 2021) and Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils (revised 2021).

1.1 Description of the Site

The proposal includes constructing a new stopbank alignment within the Te Karaka Township. A proposed borrow site has been identified to source soils for the development.

1.1.1 Proposed Borrow Site

The proposed borrow site includes part of the existing stopbank alignment. The site borders the Waipaoa River to the north. The borrow site is proposed to be excavated to a maximum depth of 1.5m. The proposed borrow site is outlined in Figure 1. A summary of addresses covered is provided in the PSI (Appendix A).

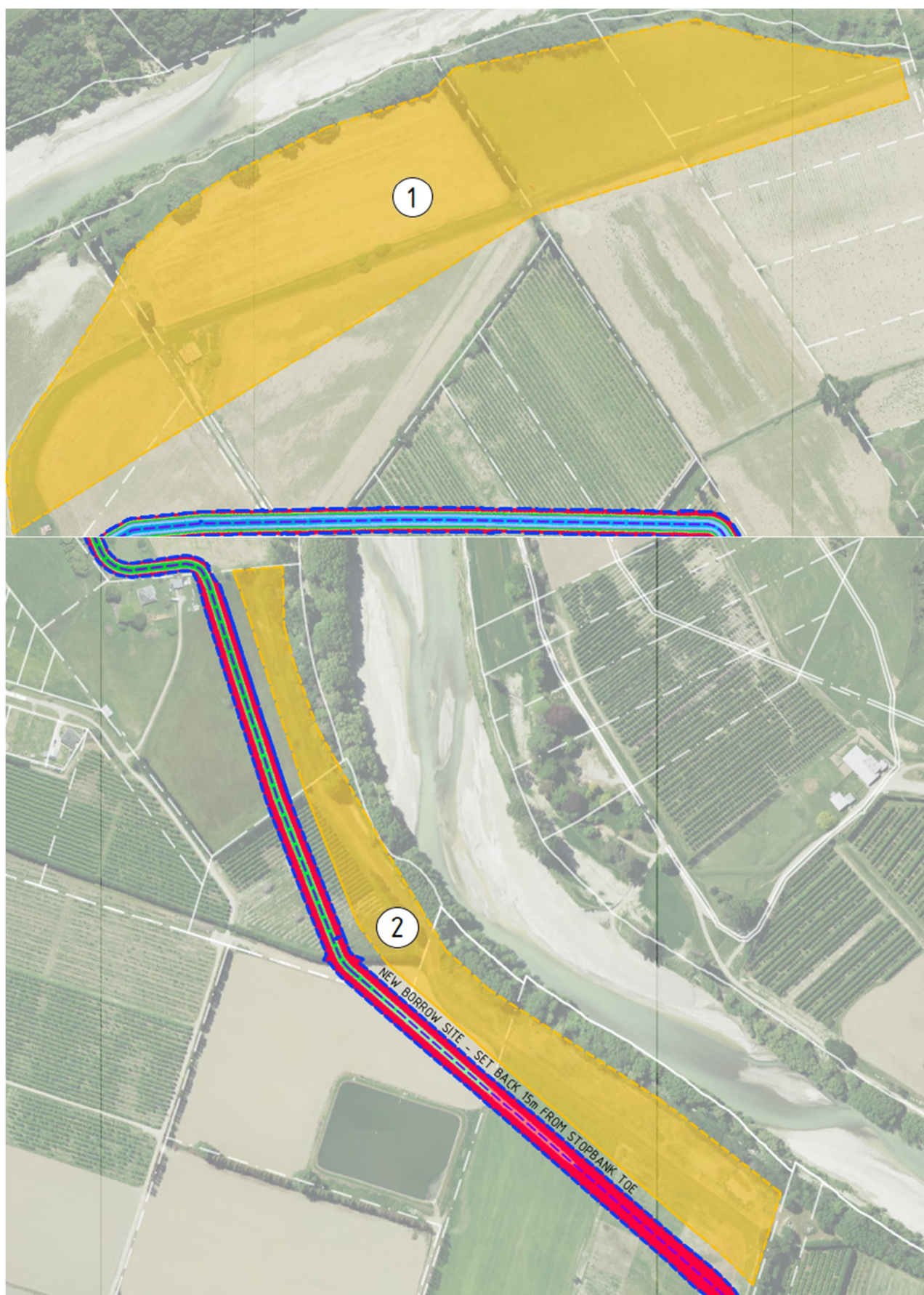


Figure 1. Proposed borrow sites. Source: Supplied by Client.

1.1.2 Proposed Stopbank Alignment

The proposed stopbank alignment borders the Te Karaka township to the west, north and east. The proposed alignment closely follows the existing alignment to the west and east of the township. To the north, the proposed alignment is between 140 - 370m closer to the township than the existing alignment. Refer to Figure 2 and Figure 3 for the updated proposed alignment locations. A summary of addresses covered is provided in the PSI (Appendix A).

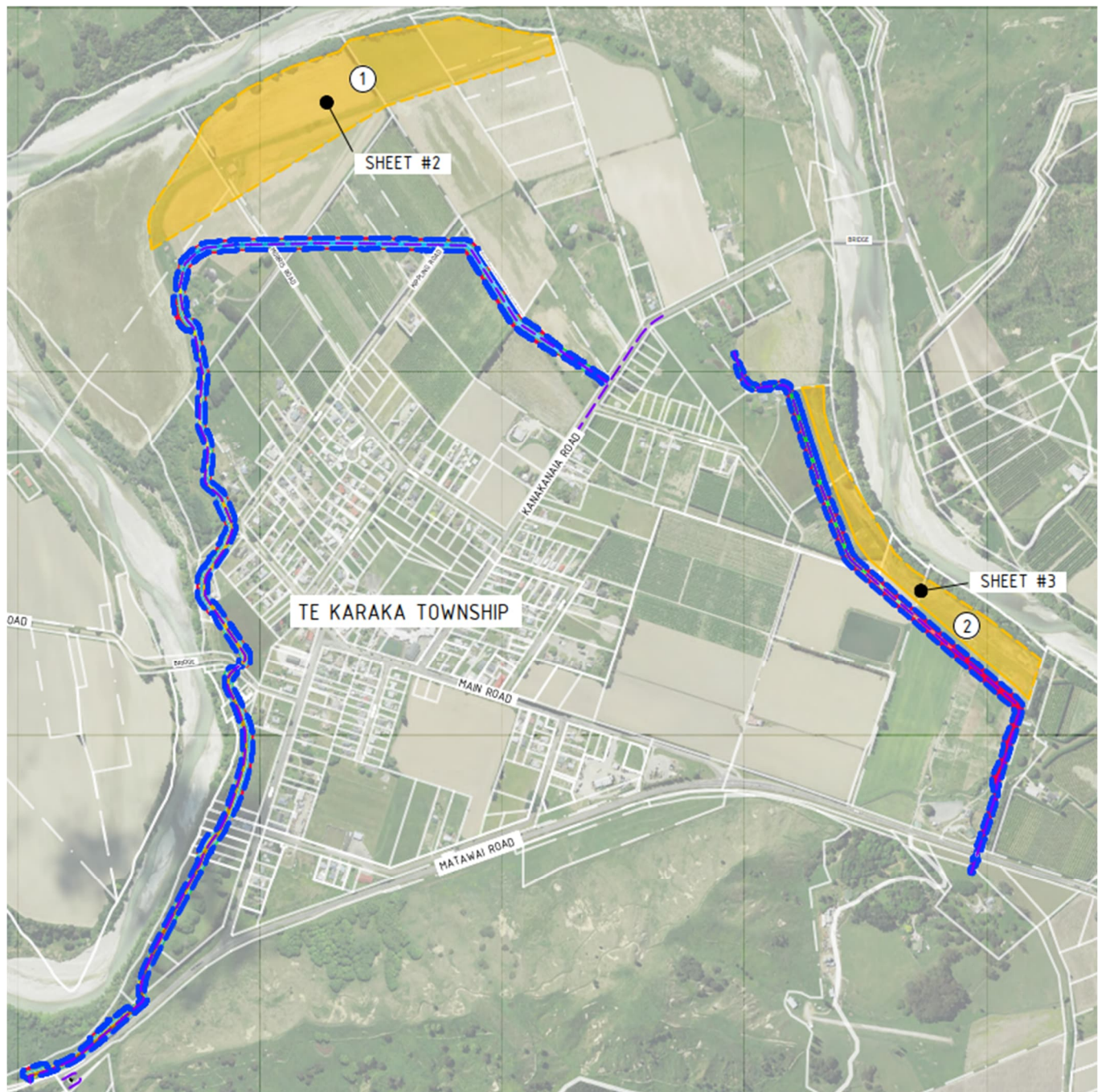


Figure 2. Updated alignment changes (dated 19/02/2026).

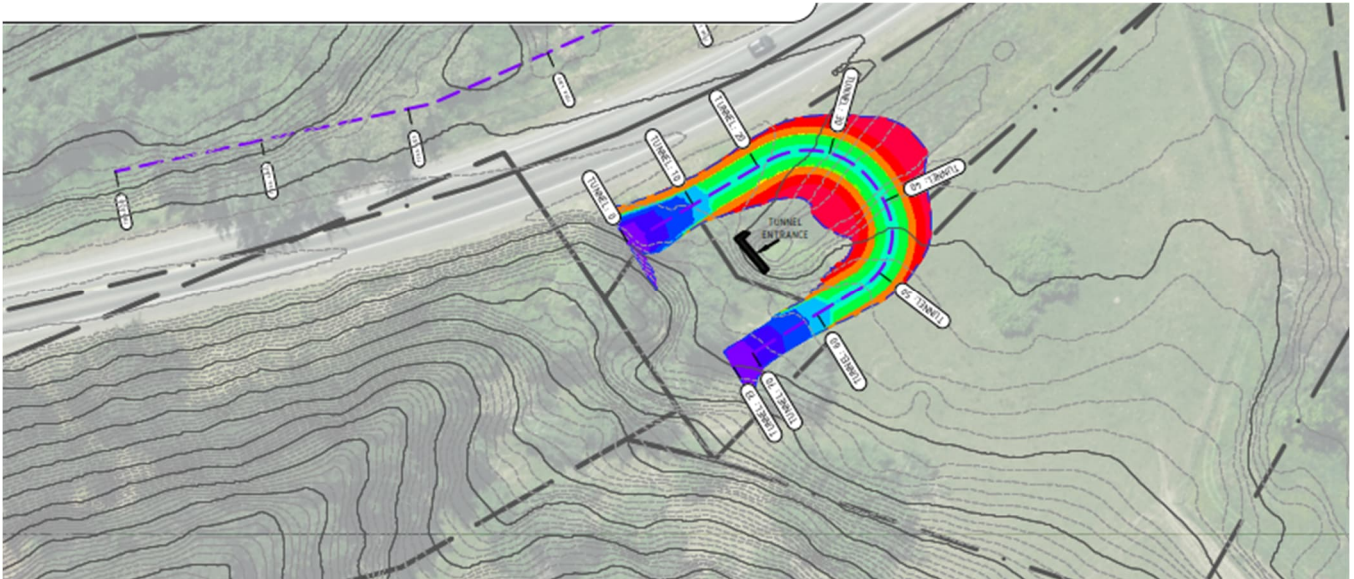


Figure 3. Tunnel bund located across Main Road, south of the western-most extent of the proposed stopbank (dated 02/2026).

2 KEY PERSONNEL

The key personnel responsible for the implementation of this SMP are named in Table 3 below. However, all site personnel are responsible for adherence to this SMP.

Table 3. Key Personnel.

Title	Name / Organisation	Email	Contact Number
Site Owner	Gisborne District Council (Dean Foote)	Dean.Foote@gdc.govt.nz	06 867 2049
Lead Contractor	TBC	TBC	TBC
Contaminated Land Specialist / SQEP	James Gladwin Sarah Robinson	j.gladwin@lde.co.nz s.robinson@lde.co.nz	022 174 9250 027 327 5307
Regulator (Regulatory Compliance Officer)	Gisborne District Council	Compliance.Admin@gdc.govt.nz	TBC
Regulator (Worker Health & Safety)	WorkSafe	Healthsafety.notification@worksafe.govt.nz	0800 030 040

3 RESPONSIBILITIES

3.1 Site Owner - Gisborne District Council

The site owner shall be responsible for:

- circulating this Site Management Plan to the lead contractor so that all site works can be carried out in accordance with it and any subsequent revisions.
- issuing reports required for consent compliance to the regulator or approving LDE to issue them to the regulator within the required timeframes.

3.2 Lead Site Contractor – TBC

The lead site contractor will:

- Review this document and raise any potential issues with the Contaminated Land Specialist / SQEP so that the document may be updated with appropriate management and control measures.
- Distribute the Site Management Plan, including updates, to employees and subcontractors and ensure the current version is kept on-site.
- Provide overall control and supervision of the redevelopment works. A designated, suitably trained Site Supervisor—representing the main contractor—is recommended to oversee activities, implement changes to site procedures if unanticipated conditions arise, and ensure all staff and subcontractors follow the procedures and health and safety requirements in this document.
- If an on-site incident may cause a discharge, the Site Supervisor will assume control and coordinate response efforts to minimise impacts. Worker and public health and safety take priority over environmental measures; if it is unsafe to implement controls immediately, protect people first.

3.3 Contaminated Land Specialist - LDE

A Suitably Qualified and Experienced Practitioner (SQEP) Contaminated Land Specialist will liaise with the contractors during the works.

The SQEP or representatives will:

- Undertake additional soil sampling as required.

- Visit the site at least once during earthworks to assess site controls and procedures against this SMP.
- Provide environmental support during site works if required and prepare a completion report.

4 SUMMARY OF ACTUAL OR EXPECTED CONTAMINANT CONDITIONS

LDE have undertaken PSI and DSI reporting dated 17 March 2026 (Appendix A). The PSI included a desktop investigation and the DSI component include the collection and analysis of 18 soil samples taken within the investigation area.

There were several exceedances of the Predicted Background Ranges for heavy metals both within the proposed alignment and the proposed borrow site. No exceedances above the MfE's (soil contaminant standards (SCS) for a recreational land use were noted. No organochlorine pesticides (OCPs) or asbestos were reported in any analysed sample.

Potential HAIL sites have been identified near 1 Kipling Road and 7 Kipling Road, within the alignment of the existing stopbank (refer Figure 4). Extra vigilance (e.g. a dedicated spotter) shall be employed during stopbank earthworks near 1 Kipling Road and 7 Kipling Road, due to the potential for buried material present in these locations. Should any evidence of buried material, including refuse, building materials, be encountered, works should cease and the Unexpected Discovery Protocols (Section 9) shall be followed.



Figure 4. Area of the stopbank within 1 Kipling Road and 7 Kipling Road that requires a dedicated spotter during earthworks.

5 PROJECT MILESTONES

The milestones of the SMP are outlined in Table 4. The below milestones are indicative only and are to be updated once a contractor has been engaged and a best approach for the site has been established.

Table 4. SMP Milestones.

Milestone	Details
Site Establishment and Preparation	1. Establish extent of works area, site security (fencing). 2. Establish truck access and loading zones. 3. Establish erosion, sediment and stormwater controls. 3. Induction of machinery and personnel to site. 4. Establish a location for the temporary stockpiling of surplus soils if required.
Phase 1 – Bulk site earthworks	1. Ensure necessary PPE is worn by site contractors. 2. Earthworks to progress in stages, to ensure sediment and dust migration is limited to the current works area. 3. Excavated material shall be direct loaded onto a truck and covered for transport, if required. 4. Contaminated Land Specialist / SQEP to undertake visual inspection following site excavations to confirm SMP goals have been achieved. 5. Extra vigilance (e.g. a dedicated spotter) shall be employed during stopbank earthworks near 1 Kipling Road and 7 Kipling Road, due to the potential for buried material present in these locations. Should any evidence of buried material, including refuse, building materials, be encountered, works should cease and the Unexpected Discovery Protocols shall be followed.
Unexpected contamination discovery	1. <i>If evidence of unexpected contamination is discovered during earthworks, all works in this area shall cease and the SQEP shall be contacted in the first instance.</i> 2. <i>If contaminant discharges are visible, consider installing a temporary earth bund to contain any contamination.</i>

	3. Council shall be notified of any unexpected contamination discoveries. 4. Refer to Section 9 for more detail.
Environmental Management	Provide Contaminated Land Consultant with details from Section 8.

6 SITE CONTROL PROCEDURES

6.1 Site Procedures and Soil Management

Contractor personnel, subcontractors and visitors must receive an induction before entering the site or starting work, so they understand the potential hazards associated with contaminated soil.

All personnel working in or near the earthworks must follow these general safety procedures:

- Avoid unnecessary contact with site soils.
- Wash hands in the designated washing area before eating, drinking or smoking.

All incidents must be reported to the main contractor's health and safety advisor (or the on-site person with equivalent responsibility).

Loading of trucks must occur within the site so any runoff or spills during loading can be controlled and contained. Loads must be securely covered for off-site transport. Contaminated soil shall be disposed of only at facilities authorised to accept the specific contaminants present. The following sections detail the procedures that will be instituted to safely handle soil at the site.

6.2 Site Security

Unless already present, erect security fencing and clear warning signs around earthworks to prevent unauthorised access.

6.3 Stockpile Management

If material must be temporarily stockpiled, control dust by wetting during the workday. Stockpiles left overnight must be covered (e.g., with plastic) and protected by erosion/sediment controls (e.g., bunding). Contaminated soil stockpiles must not exceed 2 m in height or 500 m³ in volume. Compact all loose material with a bucket or track

roller. Decontaminate any plant that contacts contaminated soil, ensuring all wash-off is captured and disposed to an appropriate liquid waste facility.

6.4 Erosion, Sediment and Stormwater Controls

Appropriate erosion, sediment and stormwater control measures shall be undertaken as part of the overall site management during any soil disturbance works, in accordance with industry best practice. An Erosion and Sediment Control Plan (ESCP) shall be prepared prior to any site works being undertaken. Any movement of contaminated soils will be undertaken within the confines of the established stormwater controls and wherever possible with periods of fine weather to ensure that offsite discharges of stormwater are mitigated.

Implement sediment controls to reduce runoff for each working area. Minimum measures:

- Stabilised site entrance to limit soil tracking off-site.
- Perimeter sediment controls (e.g., silt fencing) around the works area, protect any overland flow paths and any stormwater inlets where runoff is possible.

For areas of identified contamination, establish designated clean and dirty zones to reduce movement of potentially contaminated soils on- and off-site:

- Clean machinery of loose soil in a designated wash-down area (e.g., paved or existing hardfill) before leaving the site. This may be negated for removal trucks by stabilising the areas that they drive on.
- After loose soil is removed, transfer equipment to the clean area. Do not discharge wash water off-site; allow it to drain back into the site.
- Imported rock or material used in the wash-down or truck-loading areas should be treated and disposed of as contaminated unless testing demonstrates it is clean.

Uncontrolled stormwater discharge from earthworks is prohibited; any unexpected releases must be addressed immediately. If erosion or sediment controls fail, arrange for a vacuum truck to remove on-site stormwater promptly to stop further discharge. Water removed from site may need testing to determine suitable disposal options.

6.5 Dust Control

Dust should be managed in line with consent conditions and applicable regulations. The contractor should, as appropriate:

- Restrict vehicle access to excavated areas where possible.
- Dampen exposed soil with a water truck or portable sprays, taking care to use enough water so not to cause erosion, ponding, or runoff to natural waterbodies or stormwater drains.

- Use wind breaks or avoid working in windy conditions.
- Consider surfactants or polymers if a reliable water supply is unavailable.

If emissions or discharges continue, obtain professional advice to define effective controls and consult relevant council representatives before resuming work.

6.6 Odour

If excavated material emits a strong odour, odour controls such as covering with clean fill or polythene, or using a deodorising system should be implemented.

6.7 Groundwater

Groundwater is not expected to be encountered. If it is encountered during works, call the SQEP to assess the risk and recommend appropriate earthworks management measures.

6.8 Soil Disposal

Soil sampling to date indicates that soils can be reused onsite. All soils tested to date meet the disposal requirements for:

- Class 1: Landfill
- Class 3 Managed Fills.

The results indicate that soils are likely to be accepted at Class 1: Landfill, but the receiving landfills may require soil testing results, including Toxicity Characteristic Leaching Procedure (TCLP) data, before accepting material. Confirm any additional testing and requirements for truck lining or soil wrapping with the receiving facility. If material will be disposed off-site, the Contractor must notify the SQEP in advance to arrange appropriate sampling and testing — allow at least 10 days to prevent programme delays.

6.9 Imported Fill

Any fill imported to the site for backfilling the excavated area shall meet the MfE definition of cleanfill which states:

‘Material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil, and rock, and other inert materials such as concrete or brick that are free of:

- Combustible, putrescible, degradable or leachable components.
- Hazardous substances.
- Products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices.
- Materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos or radioactive substances; and
- Liquid waste’.

Imported fill must meet with the proposed land-use criteria for common contaminants. If the source of the imported fill is questionable, laboratory testing of the fill material may be required. Virgin aggregate from a licenced quarry is exempt from testing.

6.10 Site Demobilisation

Once the earthworks programme has been completed, all environmental controls will be removed, and waste materials disposed of appropriately and the site shall be left clean and tidy.

7 HEALTH AND SAFETY PROTECTION MEASURES

To reduce potential exposure from incidental soil ingestion, skin contact, or dust inhalation, consider the following additional controls beyond standard construction PPE (e.g., safety boots):

- P2 dust mask when visible dust is present.
- Work gloves and coveralls if soil contact is likely or unavoidable.
- Goggles or safety glasses.

8 ENVIRONMENTAL MANAGEMENT PROCEDURES

To demonstrate compliance with this Site Management Plan, the contractor undertaking the works should complete and provide evidence for the activities listed below within the timeframes indicated so that they may be included in a works completion report.

- Prior to earthworks commencing, provide written confirmation from the proposed disposal site(s) to ensure that they can accept material from the site. This should include a description of the material being accepted.
- Written confirmation for any material to be imported as cleanfill will be from a licenced quarry. If the source is not a licenced quarry, then analytical laboratory testing will be required before transport.
- Within two weeks of earthworks completion (or on an ongoing basis during works), provide site photographs showing the site entrance, the work area, sediment control measures and any stockpiles resulting from the works. Include a site plan identifying any areas where site-won material (cleanfill or controlled material only) has been reused.
- Supply disposal dockets for each load removed from site; each docket should record the date and time dispatched, material description, load volume, haulage contractor details (name, address, contact person and telephone), truck and trailer registration number, and the material destination.
- Provide documentation for all imported fill, including date and time dispatched, source site address, type and proposed use of the material, weight and/or volume carried, and the basis for treating the material as cleanfill (for example, direct testing confirming cleanfill or direct sourcing from a licensed quarry).
- Details of any incidents or complaints and how they were managed.

9 UNEXPECTED CONTAMINATION DISCOVERY PROTOCOLS

This procedure shall be followed if unexpected contamination is encountered during earthworks. The procedures outlined provide the Contractor with protocols to identify contamination and take appropriate action to avoid the dispersion of contaminants into the surrounding environment.

9.1 Contamination Indicators and Hazards

Contamination indicators or hazardous materials may include but are not limited to the following:

- Intact / broken drums and containers.
- Underground storage tanks and infrastructure.
- Unusual odours.
- Discoloured or stained water seeps and soils.
- Petroleum hydrocarbon contaminated soil and/or free product.
- Liquid waste, putrescible waste, household refuse, and any material that normally would be sent to a licensed landfill.
- Gas bubbles in standing/pooled water.
- Asbestos containing material (ACM).

9.2 Contamination Identification Action

During earthworks, the Contractor shall actively monitor for the conditions and materials specified above. If identified, the Contractor should take the following contingency actions:

- Stop all earthworks and dewatering (if occurring) within a 5m radius of the area of the suspect material / emission / discharge.
- Immediately notify the site supervisor.
- Cordon off the area with a suitable barrier.
- Work shall not resume or commence within a 5m radius of the area unless authorised by a contaminated land specialist.
- The site supervisor shall contact a Contaminated Land Specialist / SQEP who will advise on the appropriate course of action.

The Contaminated Land Specialist / SQEP shall:

- Notify the regulatory authorities, if required, that suspected contamination has been discovered and the contingency action is being implemented.
- Characterise the suspected contamination by collecting samples for chemical laboratory analysis.
- If appropriate, advise the Contractor to excavate the suspected contaminated material into a covered and contained receptacle to allow works to continue with minimum delay.
- If removal of material into a covered and contained receptacle is not possible, advise construction work to proceed to an area clear of contamination indicators until laboratory analysis, defines the material or water characteristics.
- When the material or water characteristics have been established, advise the site supervisor as to whether the:
 - Materials may remain on site or whether materials should be directly loaded into trucks for disposal at a licensed landfill, assuming it can be accepted without prior stabilisation.
 - Water may be discharged with or without additional treatment, or whether any site dewatering from the excavation should be collected for disposal at a licensed wastewater facility.
 - Disposal of material must be to a facility licensed to accept the material and approval shall be obtained by the Contractor prior to transportation. The landfill operator may require further testing before accepting materials, in accordance with the landfill's resource consent.

The Contractor shall:

- Ensure trucks have their loads covered before leaving the site.
- Instruct relevant staff so that all appropriate information such as location and quantity of material and off-site weighbridge dockets is recorded. All weighbridge documents for any material removed shall be retained by the Contractor and provided the SQEP for inclusion in a site validation report.

- Record all details and location of unexpected contamination and hazardous materials discovery on an incident form.
- If unsuitable for discharge, disposal of contaminated water must be to a licensed wastewater facility and approval shall be obtained by the Contractor prior to transportation. The wastewater operator may require further testing before accepting wastewater to meet their resource consent(s).
- Should suspected asbestos fragments be observed during the earthworks, all work shall cease, and the excavation immediately back filled with uncontaminated materials, pending inspection and confirmatory analysis by the contaminated land specialist.
- The risk of accidental discovery of contamination during construction should be recorded on the project risk register.

10 REPORTING

A Works Completion Report may be required as condition of consent. It must be prepared by a Contaminated Land Specialist SQEP who monitored the earthworks and follow MfE Contaminated Land Management Guideline No. 1 (MfE, 2021a). At minimum the report must include:

- Summary of soil disturbance: description of works, and any discovery of additional contamination or relevant site observations.
- Disposal records: documentation for disposal of contaminated soil and fill.
- Importation records: documentation for any imported cleanfill (if applicable).
- Testing and oversight results: results of site oversight and any additional testing carried out.

11 LIMITATIONS

This report presents a site management plan prepared exclusively for Gisborne District Council with respect to the particular brief given to us.

Information, opinions, and recommendations contained in it cannot be used for any other purpose or by any other entity without our review and written consent. LDE Ltd accepts no liability or responsibility whatsoever for or in respect of any use or reliance upon this report by any third party.

Opinions given in this report are based on a review of existing data and soil sampling undertaken at the site. There is still some possibility that contaminating activities have taken place or contamination at the site is in excess of that described in this report and LDE should be contacted immediately if the conditions are suspected to differ from that described.

APPENDIX A

PRELIMINARY AND DETAILED SITE INVESTIGATION



Gisborne District Council

DETAILED SITE INVESTIGATION (DSI)

Te Karaka Stopbank

DOCUMENT CONTROL

Version	Date	Comments
A	10/03/2026	DSI issued for information
B	17/03/2026	Report updated to reflect the revised proposed stopbank alignment provided by Client.

Version	Issued For	Prepared By	Reviewed & Authorised By
B	Issued for Information	 Erin Gasston Environmental Scientist	  James Gladwin Environmental Group Manager SQEP

EXECUTIVE SUMMARY

A contamination detailed site investigation (DSI) has been conducted for the proposed new stopbank alignment and proposed borrow site, located within the Te Karaka township. The objectives of the assessment were to determine the contamination status of soils at the site, and to subsequently assess compliance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESC) for the proposed soil disturbance at the site.

The investigation comprises a DSI (i.e., intrusive soil sampling investigation). Evidence from the PSI (LDE, 2026; Appendix A) indicates that **HAIL A10**: '*Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds*', **HAIL A18**: '*Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside*', **HAIL E1**: '*Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition*', and **HAIL 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*' are more likely than not to have occurred at the site.

Soil sampling and analysis was therefore undertaken to identify if these activities have contributed to soil contamination that would be unacceptable for the proposed development.

The results determined that contamination present at the site is below the applicable soil contaminant standard for a Recreational land-use, however, remain above the predicted background concentrations.

One location (S6) reported concentrations of zinc above the Ecological Soil Guideline Values (SGVs), however following an update to the proposed alignment (March 2026), this no longer intersects with the identified HAIL (sample location S6). The revised realignment of the stopbank has moved it away from a number of potential HAIL, reducing the risk of the proposed works to human health and the environment.

As a number of samples report concentrations above predicted background ranges, under a controlled activity consent from Gisborne District Council, a Site Management Plan (SMP) should be prepared to outline appropriate site management procedures to mitigate any offsite impacts during stopbank construction works. **A resource consent may be required before groundworks can commence. As per Regulation 9 (3)(c) the regulatory authority must be provided a copy of this report.**

CONTENTS

DETAILED SITE INVESTIGATION (DSI)	I
1 INTRODUCTION	1
1.1 Investigation Objectives	1
1.2 Site Identification	1
1.2.1 Proposed Borrow Site	1
1.2.2 Proposed Stopbank Alignment	2
2 PSI SUMMARY	4
2.1 Proposed Borrow Site	4
2.2 Proposed Stopbank Alignment	5
3 DETAILED SITE INVESTIGATION	6
3.1 Site Walkover	6
3.2 Sampling and analysis plan	8
3.3 Quality Assurance and Quality Control	11
3.3.1 Field QA/QC	11
3.3.2 Laboratory QA/QC	11
3.4 Background Concentrations, Soil Contaminant Standards (SCSs) and Guideline Values (SGVs)	11
3.4.1 Human Health	11
3.4.2 Environmental	13
3.5 Results	13
3.5.1 Heavy Metals	13
3.5.2 Organochlorine Pesticide (OCP) Results	17
3.5.3 Asbestos Results	17
4 DSI RISK ASSESSMENT	18
4.1 DSI Conceptual Site Models	18
4.1.1 NESCS Application	19
5 CONCLUSIONS AND RECOMMENDATIONS	19
5.1 Site Investigation Certifying Statement	20
6 LIMITATIONS	20
7 REFERENCES	21
APPENDIX A PRELIMINARY SITE INVESTIGATION (LDE, 2026)	
APPENDIX B LABORATORY TEST RESULTS AND CHAIN OF CUSTODY	
APPENDIX C QUALIFICATIONS AND EXPERIENCE OF THE SQEPS	

1 INTRODUCTION

LDE has been engaged by Gisborne District Council to undertake a soil contamination Detailed Site Investigation (DSI) for the for the proposed stopbank alignment and proposed borrow site in Te Karaka, Gisborne. LDE understands that the site is to undergo soil disturbance that may not meet the permitted activity conditions (Regulation 8) of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCS).

Based on the findings of the PSI, further investigation was required to establish if soil contamination exceeds the applicable standard and to determine if the site is restricted discretionary or controlled under the NESCS.

This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2021. It has been managed by a suitably qualified and experienced practitioner (SQEP); carried out in general accordance with the Contaminated Land Management Guidelines No.1- Reporting on Contaminated Sites in New Zealand (revised 2021) and Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils (revised 2021).

1.1 Investigation Objectives

The objectives of the investigation are to:

- Determine if soil contamination associated with the HAIL Activities identified in the PSI exceeds the applicable standard and to identify if the site is restricted discretionary or controlled under the NESCS.
- Delineate the extent (vertically and horizontally) of the contamination on the site.

Based on the conceptual site model and taking into consideration the methodology for deriving soil contaminant standards (SCS) and the proposed development at the site, our investigation was designed to establish if site soils exhibit contaminant concentrations exceeding the soils contaminant standards applicable to the '*Recreational*' land-use scenario. Recreational land use has been selected as members of the public using the stopbanks for recreational walking are the most likely end user.

1.2 Site Identification

1.2.1 Proposed Borrow Site

The proposed borrow site includes part of the existing stopbank alignment. The site borders the Waipaoa River to the north. The borrow site is proposed to be excavated to a maximum depth of 1.5m. The proposed borrow site is outlined in Figure 1. A summary of addresses covered is provided in the PSI (Appendix A).



Figure 1. Proposed borrow site, outlined in red. Source: Supplied by Client.

1.2.2 Proposed Stopbank Alignment

The proposed stopbank alignment borders the Te Karaka township to the west, north and east. The proposed alignment closely follows the existing alignment to the west and east of the township. To the north, the proposed alignment is between 140 - 370m closer to the township than the existing alignment. Refer to **Error! Reference source not found.** and Figure 3 for the updated proposed alignment locations. A summary of addresses covered is provided in the PSI (Appendix A).



Figure 2. Updated alignment changes (dated 19/02/2026).



Figure 3. Tunnel bund located across Main Road, south of the western-most extent of the proposed stopbank (dated 02/2026).

2 PSI SUMMARY

The PSI (Appendix A) identified several potential HAIL sites along both the proposed stopbank alignment and within the proposed borrow site. No additional HAIL activities were identified following the updated proposed alignment (March 2026). These are summarised in Table 2 and Table 1, and shown in Figure 5 and Figure 4, below.

2.1 Proposed Borrow Site

Table 1. Potential HAIL sites within proposed borrow site.

Address	HAIL Category and date observed	Potential for contamination (Y/N)
44 Morris Road	HAIL E1/I – 1949+	Y – demolition of structures prior to 2000s possibly containing asbestos and/or lead paint.
29 Morris Road	HAIL I – 1960+	Y – demolition of structures prior to 2000s possibly containing asbestos and/or lead paint. Miscellaneous storage.

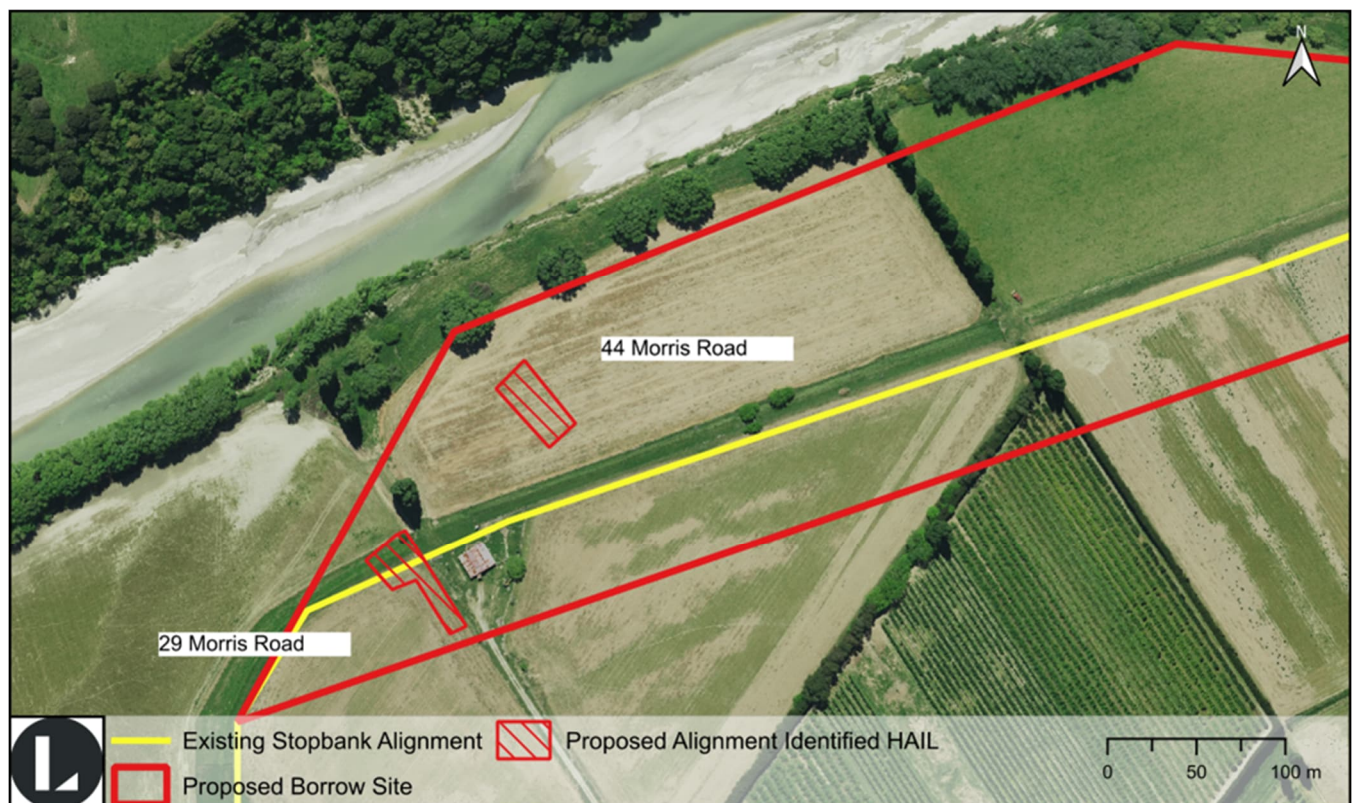


Figure 4. Site plan showing location of identified HAIL sites within the proposed borrow site.

2.2 Proposed Stopbank Alignment

Table 2. Potential HAIL sites along proposed stopbank alignment.

Address	HAIL Category and date observed	Potential for contamination (Y/N)
59 Kipling Road 11 Rangatira Road	HAIL E1/I – 1949+	Y – demolition of structures built prior to 2000s possibly containing asbestos and/or lead paint.
29 Morris Road	HAIL A18 – 1960	Y – storage of potential treated timber and miscellaneous storage
Morris Road / Kipling Road / Paulson Road / Matawai Road	HAIL A10 – 1982+	Y – various orchards cross the proposed alignment.

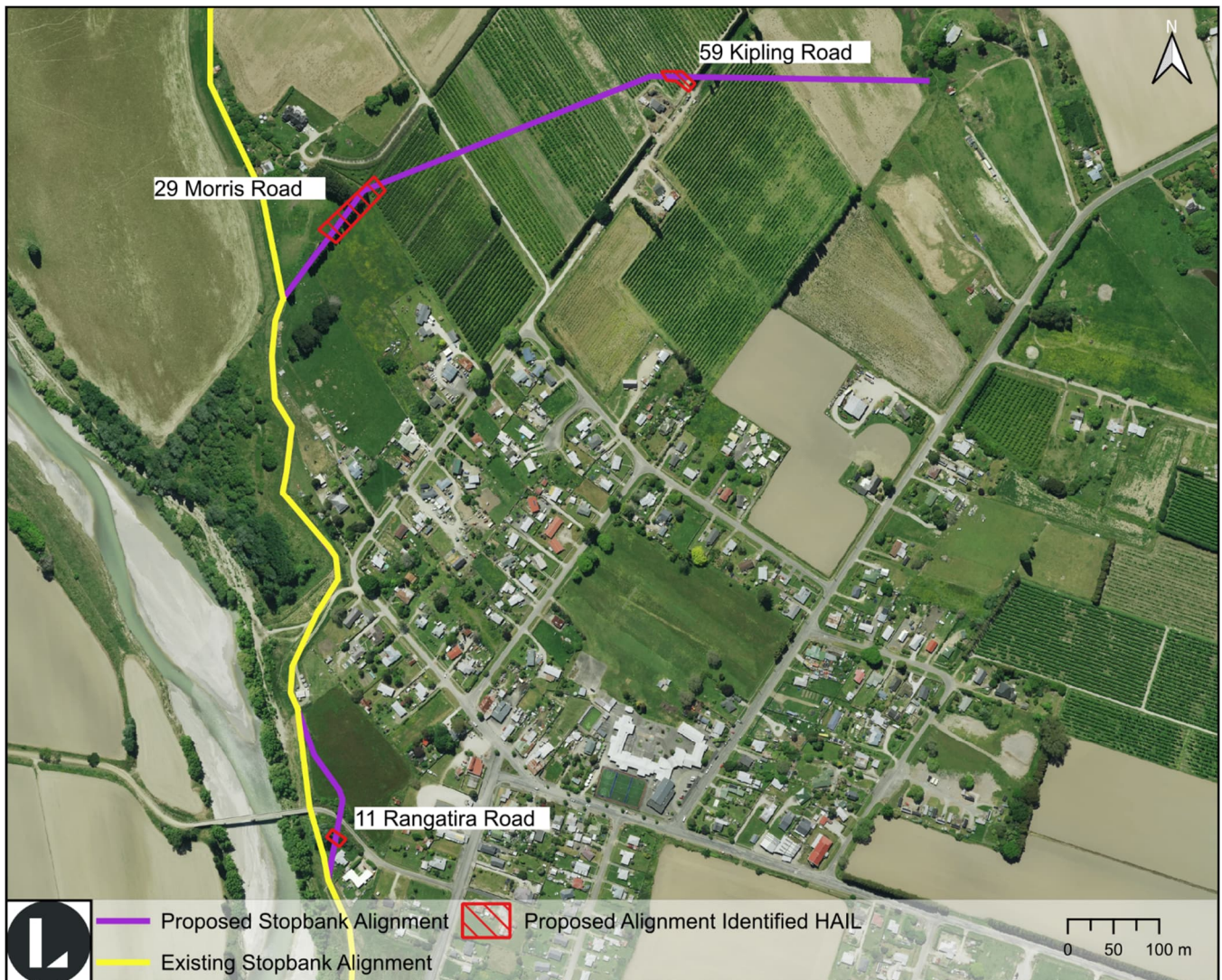


Figure 5. Summary plan showing location of identified HAIL sites along the proposed stopbank alignment. HAIL A10 also identified at various orchards along the proposed alignment. No additional HAIL activities were identified following the updated proposed alignment (March 2026).

3 DETAILED SITE INVESTIGATION

3.1 Site Walkover

A site walkover was undertaken on 23 February 2026 by an LDE scientist. The site walkover included areas identified as HAIL sites during the PSI, and a walkover of the wider proposed alignment and proposed borrow site. No visual or olfactory evidence of actual or potential contamination was identified during the site walkover.

Rows of crops, including apples, citrus, corn, beets are present along the proposed alignment length.



Figure 6. Various crops / orchards visible along the proposed alignment.



Figure 7. Various crops visible along the proposed alignment.



Figure 8. Section of proposed alignment used for pasture.



Figure 9. Farm shed at 44 Morris Road – proposed borrow site. Piles of fencing wire visible.

3.2 Sampling and analysis plan

The field investigation was undertaken concurrently with the site walkover on 23 February 2026 by an LDE scientist. Each one of the sample locations was selected based on the proposed development, site history, and visual site characteristics. Discrete surface (topsoil) samples from locations S1 to S18 were collected across the proposed development area. All samples were tested for heavy metals, and selected samples were also analysed for asbestos in soil and organochlorine pesticides (OCPs) where historic or current site activities indicated a potential for these contaminants. The sample locations and details are shown in Figure 10 to Figure 13.

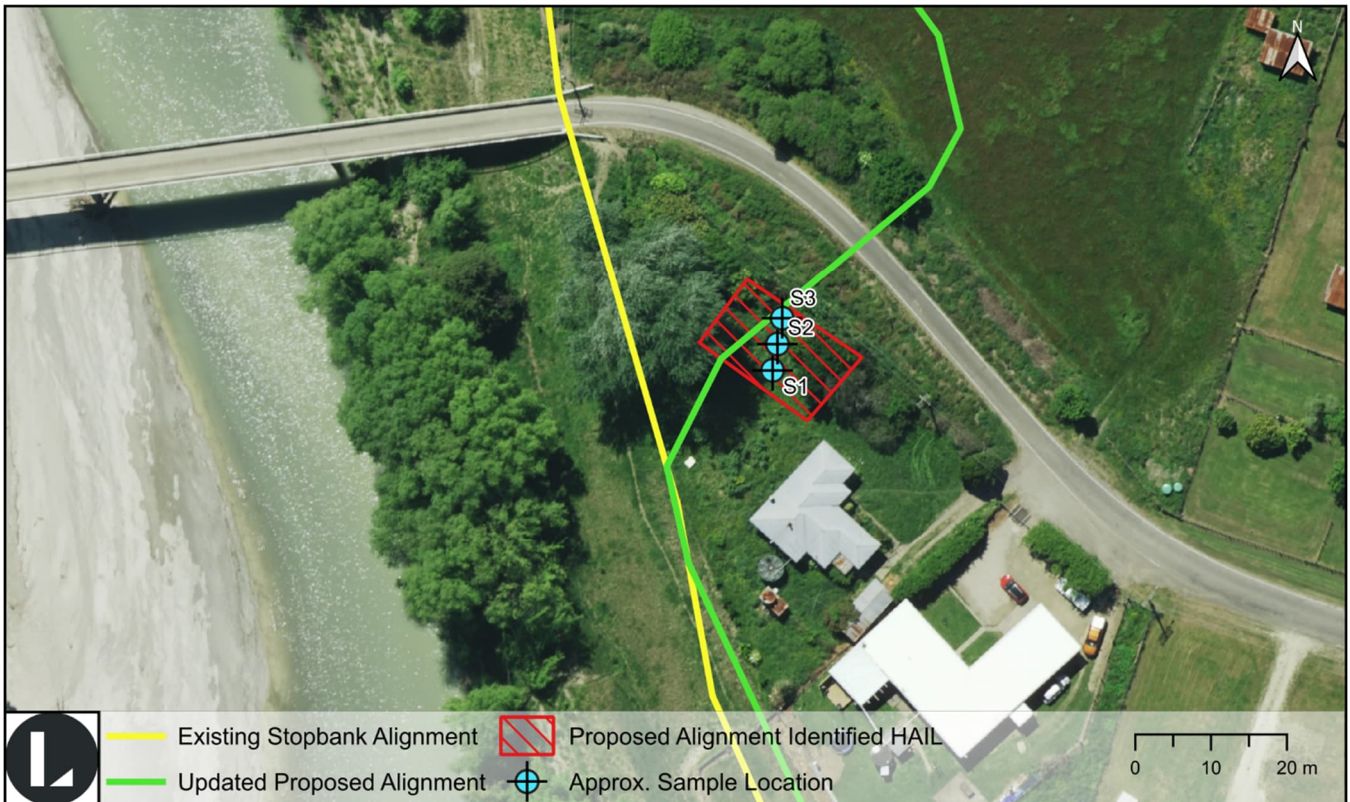


Figure 10. Site sampling plan along proposed stopbank alignment, sample locations S1-S3.

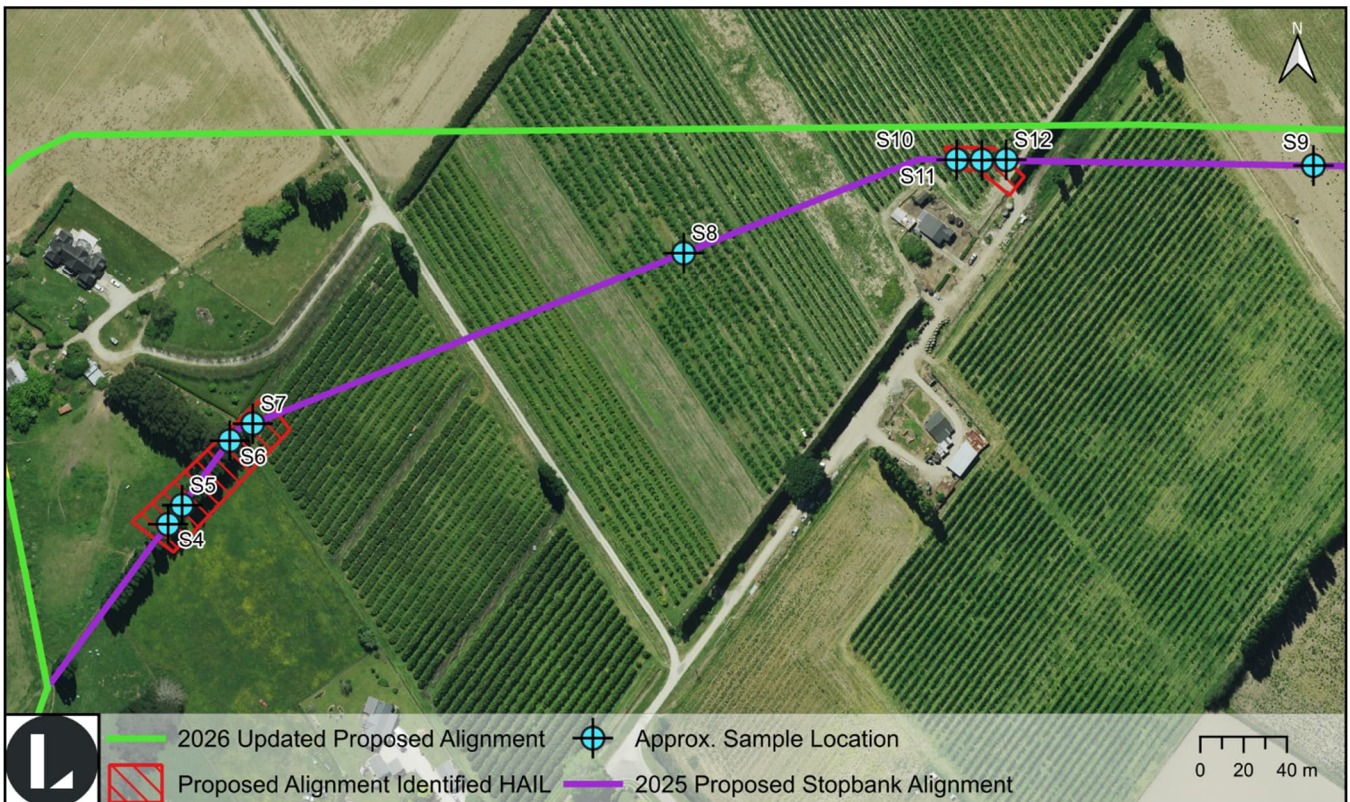


Figure 11. Site sampling plan along proposed stopbank alignment, sample locations S4-S9.

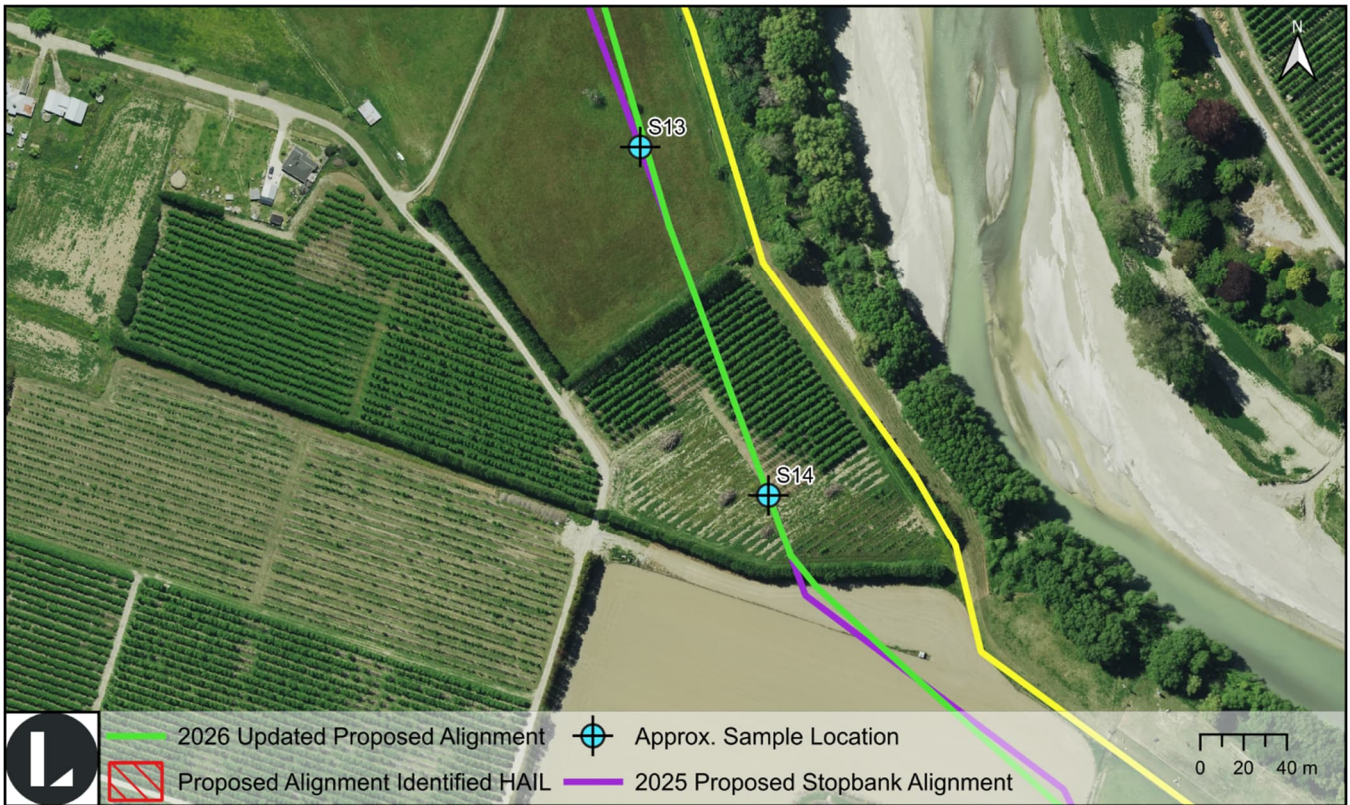


Figure 12. Site sampling plan along proposed stopbank alignment, sample locations S13-S14.

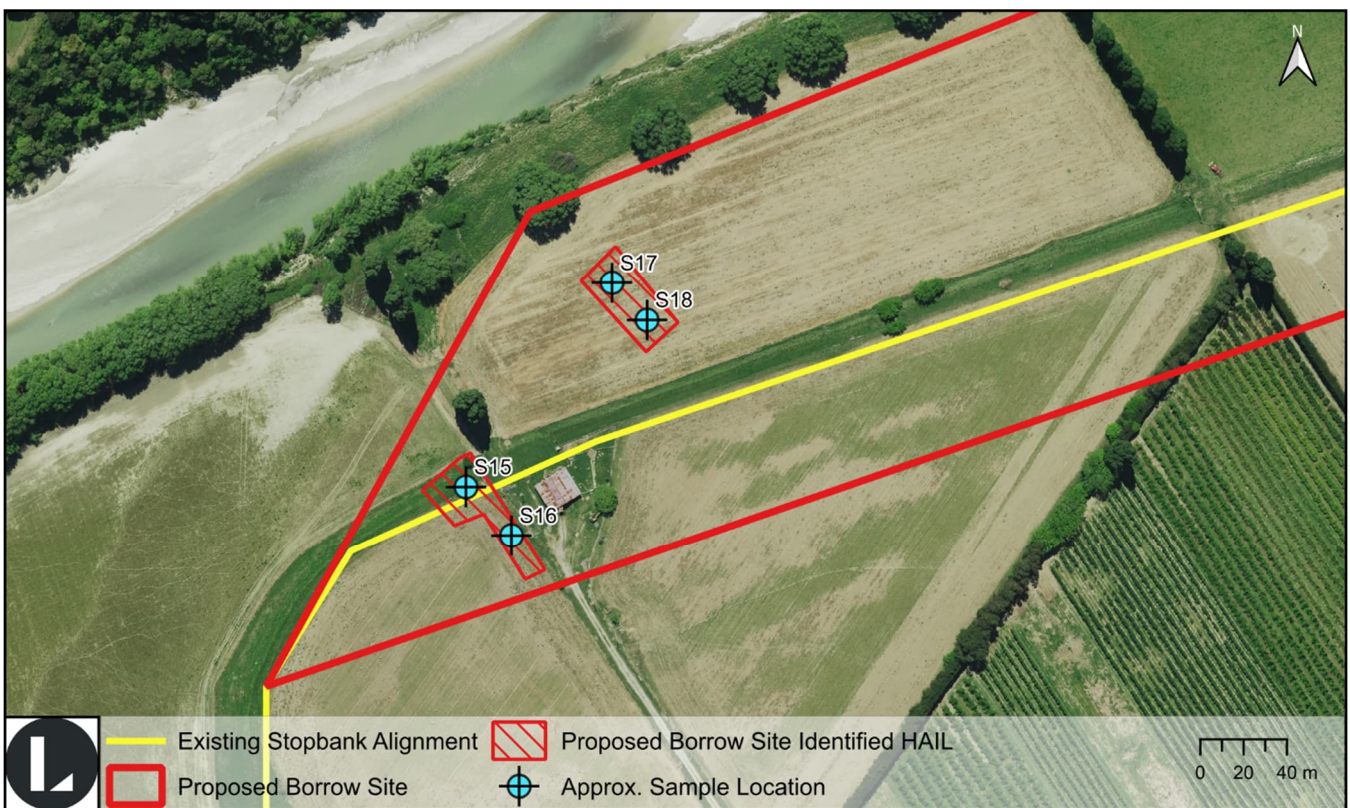


Figure 13. Site sampling plan within proposed borrow site, sample locations S15-S18

3.3 Quality Assurance and Quality Control

3.3.1 Field QA/QC

The following procedures were adopted during soil investigation works:

- All fieldwork was carried out in compliance with a project specific Health and Safety Plan prepared for the site works.
- All works were conducted by trained LDE staff with precautions including implementation of procedures for the appropriate handling of potentially contaminated material.
- Prior to sampling, and between sample locations, equipment used to retrieve samples was cleaned by washing with potable water to minimise the chance of cross contamination.
- Soil samples were collected using a hand trowel / hand auger.
- A clean pair of nitrile gloves was also used for each sample location. All samples were placed into labelled laboratory supplied sample containers.
- Additional laboratory containers were taken to the site as a contingency for grab samples (one-off samples of material or soil that are of interest and observed by the sampler during a site inspection or sampling event) including soil stains, burn patches or pits, filled areas, and treated timber stockpiles.
- Following collection, all samples were transported, under standard chain of custody procedures, to an IANZ accredited laboratory (Hill Labs) for analysis. The chain of custody documentation is attached in Appendix B.

3.3.2 Laboratory QA/QC

Laboratory reports from Hill Labs have been included in Appendix B. These include the analytical methods and detection limits used by the laboratory and the laboratory accreditation for analytical methods used.

All Laboratory Analysis was completed through Hill Labs. Hill Labs are 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.

3.4 Background Concentrations, Soil Contaminant Standards (SCSs) and Guideline Values (SGVs)

3.4.1 Human Health

The NESCS references the Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health (MfE, 2011). This is a national risk-based methodology for deriving soil contaminant concentrations protective of human health. Soil Contaminant Standards (SCS) and Soil Guideline Values (SGVs) have been selected in accordance with regulation 7.

Regulation 7 states that if the contaminant of concern is a priority contaminant¹ and the land use fits within an exposure scenario adopted in the Methodology², the applicable standard is the soil contaminant standard for the priority contaminant. If the contaminant of concern is a priority contaminant and the land use does not fit within an exposure scenario adopted in the Methodology, the applicable standard is whichever of the following is more appropriate in the circumstances:

- a) the guideline value derived in accordance with the methods and guidance on site-specific risk assessment provided in the Methodology:
- b) the soil contaminant standard for the priority contaminant of the exposure scenario adopted in the Methodology with greater assumed exposure than the actual exposure.

If the contaminant of concern is not a priority contaminant, the applicable standard is whichever of the following is more appropriate in the circumstances:

- a) the guideline value derived in accordance with the methods and guidance on site-specific risk assessment provided in the Methodology:
- b) a guideline value for the protection of human health that is chosen in accordance with the current edition of Contaminated Land Management Guidelines No. 2–Hierarchy and Application in New Zealand of Environmental Guideline.

Following the guidance, the Soil Contaminant Standards (SCS) for selected priority contaminants and for non-priority contaminants guidelines values were selected following Regulation 7 and the Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values (Revised 2021) as screening criteria for the risk to humans at the site and to inform on-site management actions. If exceeded, further investigation and a Tier 2 assessment would be considered.

No applicable New Zealand guideline criteria exist for some of the tested metals (i.e., nickel and zinc) and therefore Health Investigation Level (HIL) values from the Australian Guideline on the Investigation Levels for Soil and Groundwater have been used under the residential land-use scenario as outlined in the MfE document.

The soil samples were tested at the laboratory for total chromium. However, the methodology document distinguishes between the stable chromium III and the potentially toxic and less stable chromium VI. For the purposes of this analysis all total chromium results have been conservatively compared to the chromium VI.

Asbestos results are compared against the New Zealand Guidelines for Assessing and Managing Asbestos in Soils (NZ GAMAS) for Fibrous Asbestos (FA), Asbestos Fines (AF) and Asbestos Containing Materials (ACM).

¹ a contaminant for which the Methodology derives a soil contaminant standard.

² The current edition of the Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health.

3.4.2 Environmental

All results are compared against the Predicted Background Soil Concentrations (Landcare Research Limited)³ to determine if soil concentrations are anthropologically affected and the applicability of the NESCS.

All results are also compared with the '*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 Recreational land use.*'

3.5 Results

3.5.1 Heavy Metals

Table 3 summarises the laboratory results of soil samples tested for heavy metals.

- All metal concentrations were below the respective SCS for a '*Recreational*' land-use scenario.
- There are several exceedances of the Predicted Background Soil Concentrations for arsenic, cadmium, lead, nickel and/or zinc.
- Zinc is seen to be elevated above the Ecological SGV for a recreational site in one sample only (S6), which is now outside the proposed realignment.

The full lab results are included in Appendix B.

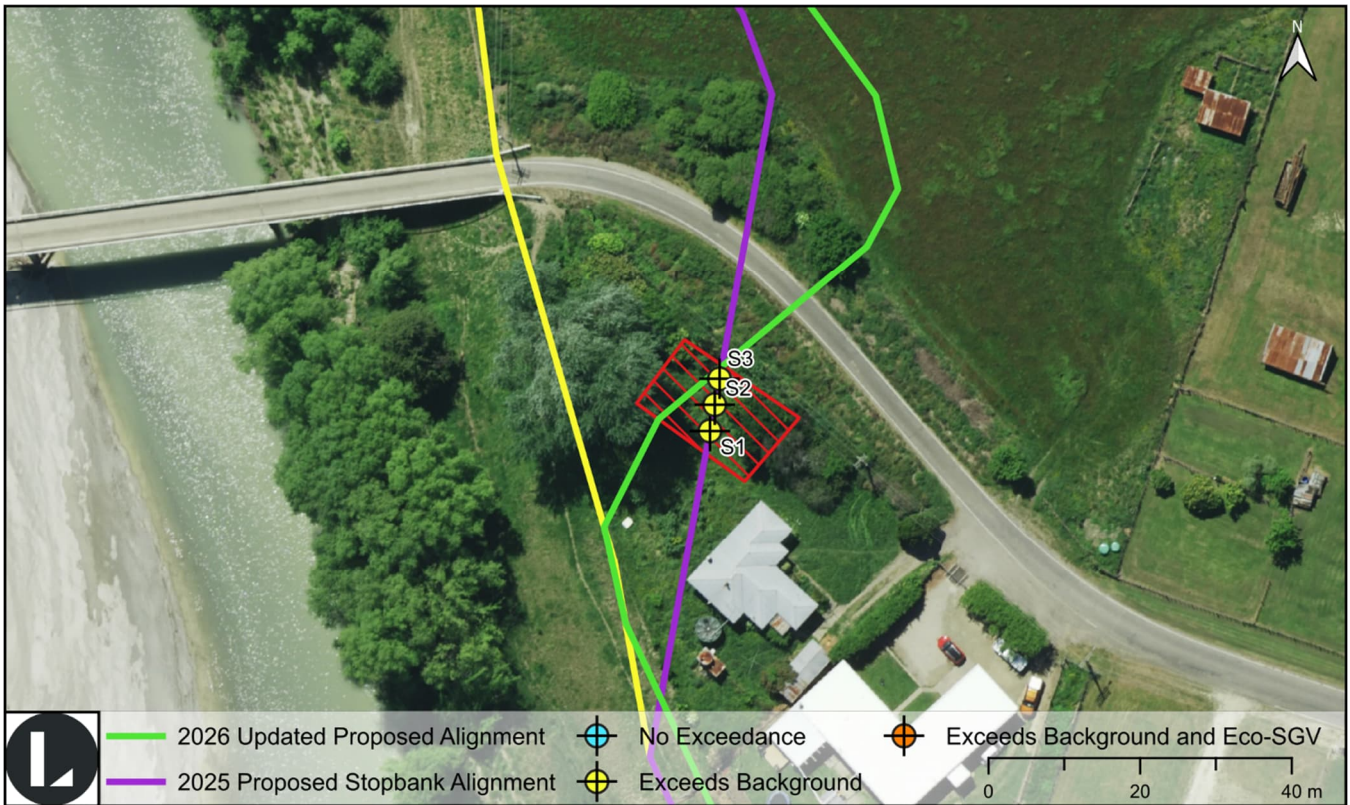
³ <https://iris.scinfo.org.nz/layer/48470-pbc-predicted-background-soil-concentrations-new-zealand/>

Table 3. Laboratory tests (heavy metal) compared against the soil contaminant standard (SCS) for a 'Recreational' land-use.

Sample ID	Depth (mm)	Sample Description	Arsenic	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
Proposed Stopbank Alignment									
S1	0-50	Topsoil	5	0.27	23	24	49	26	115
S2	0-50	Topsoil	5	0.36	23	21	57	26	125
S3	0-50	Topsoil	6	0.23	22	18	42	25	89
S4	0-50	Topsoil	6	0.41	26	21	40	37	109
S5	0-50	Topsoil	7	0.43	27	21	71	33	149
S6	0-50	Topsoil	5	0.43	23	19	37	28	390
S7	0-50	Topsoil	6	0.23	24	17	15.4	29	109
S8	0-50	Topsoil	8	0.21	26	16	9.2	30	84
S9	0-50	Topsoil	6	0.2	29	17	10.8	32	76
S10	0-50	Topsoil	5	0.18	26	18	12.9	31	86
S11	0-50	Topsoil	10	0.13	31	23	16.9	40	93
S12	0-50	Topsoil	6	0.19	27	19	16.2	31	89
S13	0-50	Topsoil	6	0.19	29	22	14.3	39	83
S14	0-50	Topsoil	7	0.13	31	24	11.3	42	85
Proposed Borrow Site									
S15	0-50	Topsoil	6	0.14	22	18	11.1	30	76
S16	0-50	Topsoil	5	0.23	23	19	43	28	146
S17	0-50	Topsoil	5	0.21	25	17	30	30	72
S18	0-50	Topsoil	5	0.18	25	16	28	29	79
Recreation¹			80	400	2700	10000	880	1200	30000
Background soil concentrations²			9.97	0.33	56.88	48.14	25.83	35.15	97.97
Ecological-SGV³			60	12	390	240	900	-	300

Notes: All results and standard values are presented in mg/kg (dry weight). All metals tested for 'Total Recoverable' at screen level. Depths are mm below ground level.

- 1 Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Ministry for the Environment, 2011.
- 2 [Predicted Background Soil Concentrations, New Zealand, Landcare Research Limited.](#)
Updated Development of Soil Guideline Values for the Protection of Ecological Receptors (Eco-SGVs): Technical Document (Landcare Research, June 2019). Eco-SGVs for
- 3 typical soil, aged contamination source, and a recreational land use'



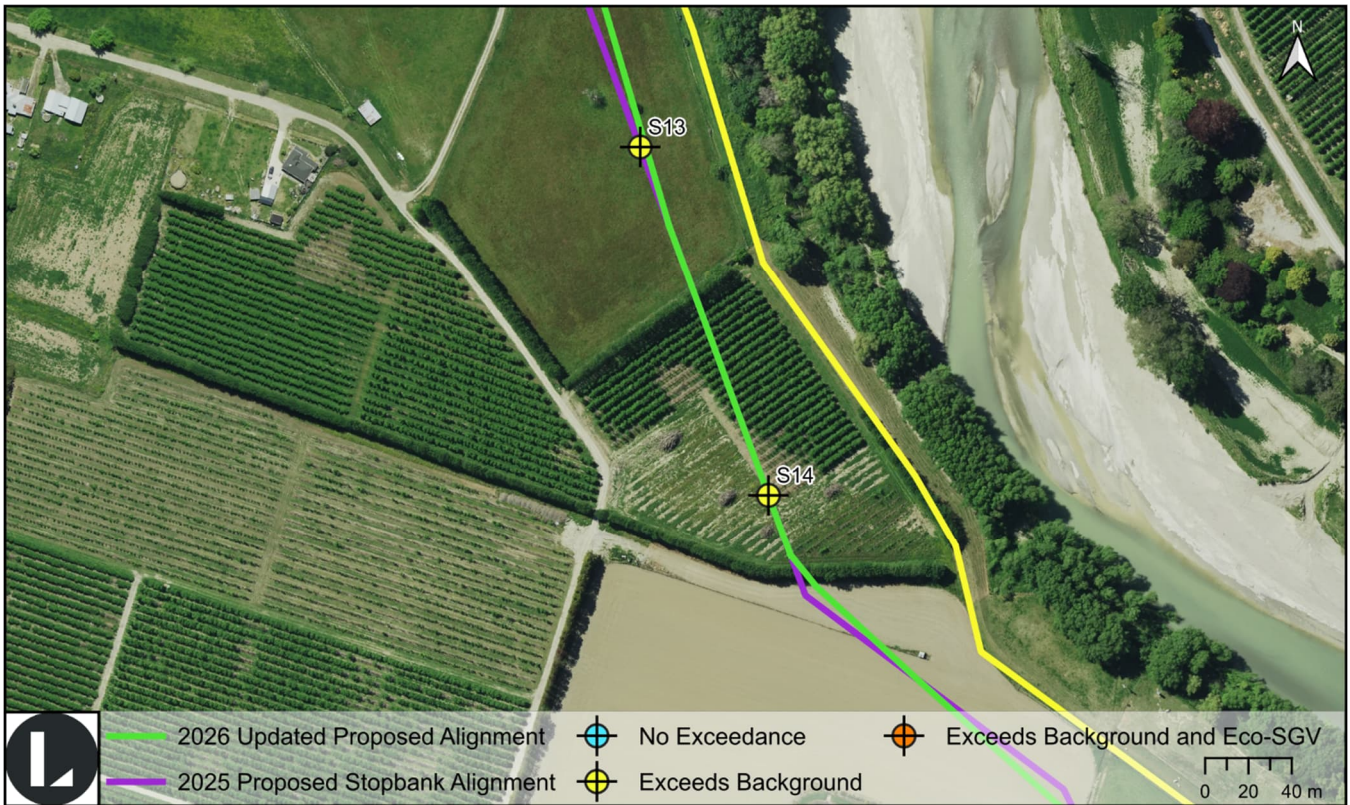


Figure 16. Soil sample results for samples S13-S14 along the proposed stopbank alignment.

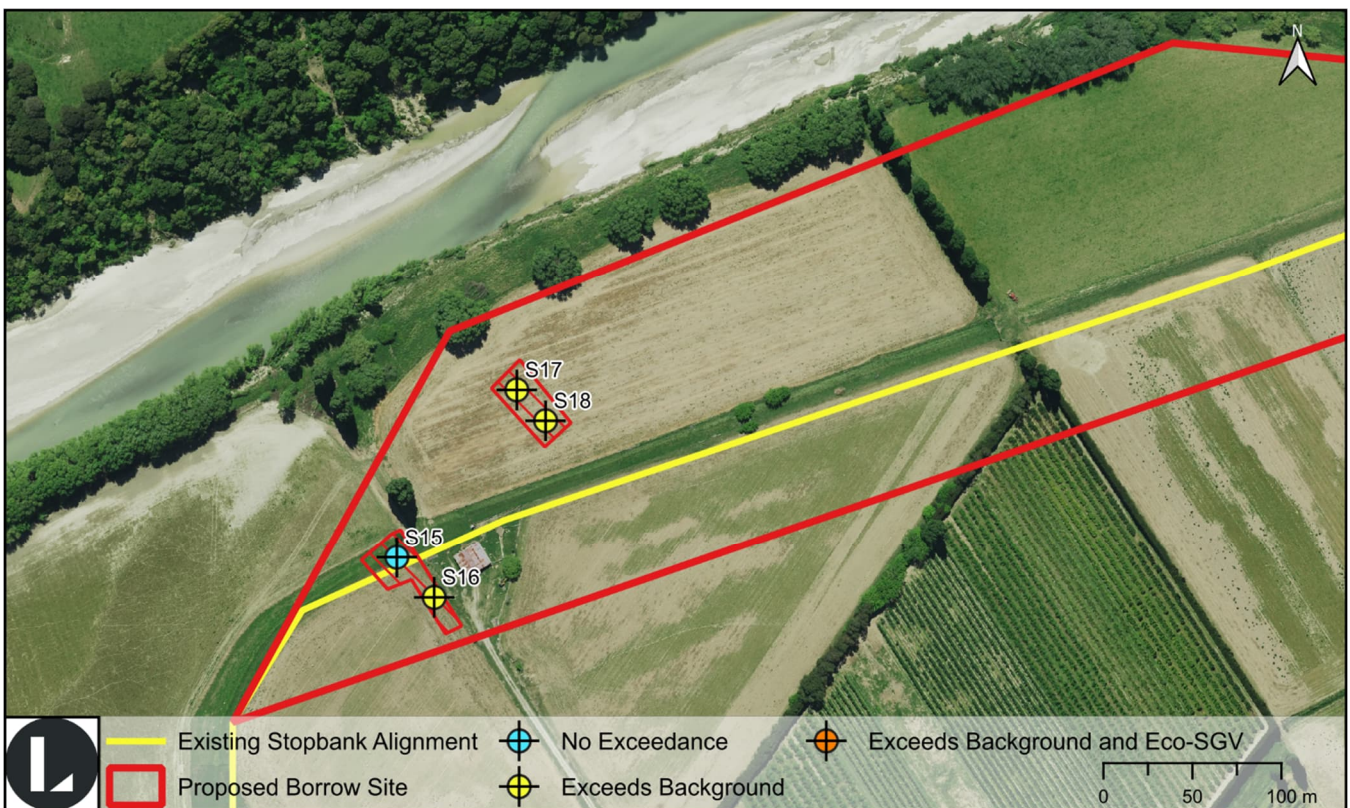


Figure 17. Soil sample results for samples S15-S18 within the proposed borrow site.

3.5.2 Organochlorine Pesticide (OCP) Results

Table 4 summarises OCP results. OCPs in all samples were below the guideline value. The laboratory transcripts are appended in Appendix B.

Table 4. Laboratory test results for OCP.

Sample ID	Depth (mm)	Description	Total DDT	Dieldrin	Aldrin	Aldrin+Dieldrin
Proposed Stopbank Alignment						
S8	0-50	Topsoil	<0.08	<0.013	<0.013	<0.026
S9	0-50	Topsoil	<0.08	<0.013	<0.013	<0.026
S13	0-50	Topsoil	<0.08	<0.013	<0.013	<0.026
S14	0-50	Topsoil	<0.08	<0.013	<0.013	<0.026
Recreation¹			400	70	70	70

Notes: All results and standard values are presented in mg/kg (dry weight). Depths are mm below ground level.

Total DDT = sum of DDT, DDD, and DDE.

DDT = dichlorodiphenyltrichloroethane.

DDD = dichlorodiphenyldichloroethane.

DDE = dichlorodiphenyldichloroethylene.

¹ Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Ministry for the Environment, 2011.

3.5.3 Asbestos Results

Table 5 shows the semi-quantitative asbestos analysis completed for the site. No asbestos was detected in any analysed sample. The laboratory transcripts are appended in Appendix B.

Table 5. Asbestos Semi-Quantitative Analysis.

Sample ID	Depth (mm)	Trace Asbestos (Presence / Absence)	Asbestos (Presence / Absence)	ACM (W/W%)	AF / FA (W/W%)
Proposed Stopbank Alignment					
S2	0-50	Absent	Absent	<0.001	<0.001
S11	0-50	Absent	Absent	<0.001	<0.001
Proposed Borrow Site					
S15	0-50	Absent	Absent	<0.001	<0.001
S16	0-50	Absent	Absent	<0.001	<0.001
S17	0-50	Absent	Absent	<0.001	<0.001
S18	0-50	Absent	Absent	<0.001	<0.001
Recreational¹				0.020	0.001

Notes: Depths are mm below ground level.

ACM = asbestos containing material.

AF/FA = asbestos fines / fibrous asbestos.

W/W% = weight for weight %.

¹ New Zealand Guidelines for Assessing and Managing Asbestos in Soil (GAMAS). BRANZ Limited, 2017.

4 DSI RISK ASSESSMENT

This section uses a Conceptual Site Model (CSM) to assess the currently available information presented in this report to determine:

- if the project is covered by the NESCS Regulations.
- if soil contamination exceeds the applicable standard and to identify if the site is restricted discretionary or controlled under the NESCS.

4.1 DSI Conceptual Site Models

The preliminary site CSM for the proposed alignment is provided in Table 6. A human health risk can only occur where there is a complete pathway between contaminant source and a receptor. Building floors and paved or sealed areas will largely or completely prevent contact with underlying soils and therefore, direct exposure pathways are or will be incomplete for such areas. Table 6 and Table 7 detail the DSI CSM for both the proposed alignment and the proposed borrow site.

Table 6. Conceptual Site Model for proposed stopbank alignment at the DSI stage.

HAIL, Potential Contaminants and Location	Receptors	Potential Pathways
HAIL E1 – Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition. HAIL 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. 59 Kipling Road – Demolition of pre-2000's structure. 11 Rangatira Road - Demolition of pre-2000's structure.	Construction workers	Incomplete - Inhalation of dust (containing asbestos fibres). Contamination was not detected above the SCS or SGVs.
	Future site users	
HAIL A18 – Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside. 29 Morris Road - Miscellaneous storage of unknown materials including possible treated timber.	Construction workers	Incomplete - Ingestion or skin contact with exposed soil. Contamination was not detected above the SCS.
	Future site users	
	Ecological receptors	<i>Incomplete</i> - Although contamination (zinc) was detected in one location (S6) above the Eco-SGVs, the updated (March 2026) alignment no longer intersects with this area.
HAIL A10 – Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds. Along proposed alignment – various orchards noted since 1982 onwards.	Construction workers	Incomplete - Exposure via inhalation of contaminated dust or ingestion and skin contact (dermal). Contamination was not detected above the SCS or SGVs.
	Future site users	
	Ecological receptors	Incomplete - Sediment and surface water runoff to the receiving water bodies. Contamination was not detected above the SCS or Eco-SGVs.

Table 7. Conceptual Site Model for proposed borrow site at the DSI stage.

HAIL, Potential Contaminants and Location	Receptors	Potential Pathways
HAIL E1 – Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition. HAIL 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. 29 Morris Road – Demolition of pre-2000's structure within borrow site. Miscellaneous storage within borrow site. 44 Morris Road - Demolition of pre-2000's structure within borrow site.	Construction workers	Incomplete - Inhalation of dust (containing asbestos fibres). Ingestion or skin contact with exposed soil. Contamination was not detected above the SCS.
	Future site users	
	Ecological receptors	Incomplete - Sediment and surface water runoff to the receiving water bodies. Contamination was not detected above the SCS or Eco-SGVs.

4.1.1 NESCS Application

As per Regulation 9, soil contamination does not exceed the applicable standard in Regulation 7 (refer to section 3.4.1 for description of each human health standard selected and the section 3.5 for results showing no exceedances of the human health standards) but is above background concentrations as per Regulation 5(9). As a result, LDE considers the site to be controlled under the NESCS.

5 CONCLUSIONS AND RECOMMENDATIONS

Activities on the MfE HAIL were identified at the site. These included **HAIL A10**: '*Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds*', **HAIL A18**: '*Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside*', **HAIL E1**: '*Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition*', and **HAIL 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.*'

Soil sampling and analysis was therefore undertaken to identify if these activities have contributed to soil contamination that would be unacceptable for the proposed development.

The results determined that contamination present at the site is below the applicable soil contaminant standard for a Recreational land-use, however, remain above the predicted background concentrations.

One location (S6) reported concentrations of zinc above the Ecological Soil Guideline Values (SGVs), however following an update to the proposed alignment (March 2026), this no longer intersects with the identified HAIL (sample location S6). The revised realignment of the stopbank has moved it away from a number of potential HAIL, reducing the risk of the proposed works to human health and the environment.

As a number of samples report concentrations above predicted background ranges, under a controlled activity consent from Gisborne District Council, a Site Management Plan (SMP) should be prepared to outline appropriate

site management procedures to mitigate any offsite impacts during stopbank construction works. ***A resource consent may be required before groundworks can commence. As per Regulation 9 (3)(c) the regulatory authority must be provided a copy of this report.***

5.1 Site Investigation Certifying Statement

The document signatories of LDE certify that:

1. this preliminary and detailed site investigation meets the requirements of the Resource Management (National Environmental Standard for assessing and managing contaminants in soil to protect human health) Regulations 2011 because it has been:
 - a. done by a suitably qualified and experienced practitioner, and
 - b. done in accordance with the current edition of Contaminated land management guidelines No 5 – Site investigation and analysis of soils, and
 - c. reported on in accordance with the current edition of Contaminated land management guidelines No 1 – Reporting on contaminated sites in New Zealand, and
 - d. the report is certified by a suitably qualified and experienced practitioner.

This detailed site investigation concludes that:

- a. [For activities under Regulation 9 of the NESCS] does not exceed the applicable standard in Regulation 7 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations.

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) (SQEPs) who have done this investigation and have certified this report is included in Appendix C.

6 LIMITATIONS

This investigation presents a preliminary and detailed site investigations of the potential for ground contamination, prepared exclusively for Gisborne District Council with respect to the brief given to us.

Information, opinions, and recommendations contained in it cannot be used for any other purpose or by any other entity without our review and written consent. LDE Ltd accepts no liability or responsibility whatsoever for or in respect of any use or reliance upon this report by any third party.

Opinions given in this report are based on a review of existing data, evidence gathered during a site walkover, anecdotal information, and specific soil sampling at discrete locations. There is still some possibility that contaminating activities have taken place or contamination at the site is more than that described in this report and LDE should be contacted immediately if the conditions are suspected to differ from that described.

7 REFERENCES

- ANZECC. (2000). *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Auckland: Australian and New Zealand Environment and Conservation Council.
- Auckland Regional Council. (2001). *Background Concentrations of Inorganic Elements in Soils in the Auckland Region*. Auckland: ARC.
- BRANZ. (2017). *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*. Porirua: BRANZ.
- MfE. (2004). *Landfill Waste Acceptance Criteria and Landfill Classification*. Wellington: Ministry for the Environment.
- MfE. (2011). *Users' guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health*. Wellington: Ministry for the Environment.
- MfE. (2021). *Contaminated Land Management Guidelines No 1*. Wellington: Ministry for the Environment.
- MfE. (2021). *Contaminated Land Management Guidelines No 5*. Wellington: Ministry of the Environment.
- NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure*. Canberra: National Environmental Protection Council.
- Parliamentary Counsel Office. (2015). *Health and Safety at Work Act 2015*. Wellington: Parliamentary Counsel Office.
- PDP. (2015). *Guidance for Analysis of Soil Contamination Using a Portable X-Ray Fluorescence Spectrometer*. Auckland: PATTLE DELAMORE PARTNERS LTD.
- WasteMinz. (2018). *Technical Guidelines for Disposal to Land*. Auckland: Waste Management Institute New Zealand.

APPENDIX A

LDE PRELIMINARY SITE INVESTIGATION (2026)



Gisborne District Council

PRELIMINARY SITE INVESTIGATION (PSI)

Te Karaka Stopbank

DOCUMENT CONTROL

Version	Date	Comments
A	5/02/2026	PSI Issued for Information.
B	17/03/2026	Report updates due to updated proposed stopbank alignment provided by Client.

Version	Issued For	Prepared By	Reviewed & Authorised By
B	Issued for Information	 Erin Gasston Environmental Scientist	  James Gladwin Environmental Group Manager SQEP

EXECUTIVE SUMMARY

A contamination preliminary site investigation (PSI) has been conducted for the proposed new stopbank alignment and proposed borrow site, located within the Te Karaka township. LDE understands that the site is to undergo soil disturbance and therefore requires an assessment under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NESCSC).

This PSI is therefore required to identify if there are or were any current or historical land-use activities that could have caused soil contamination that is a risk to human health in order to determine if the NESCSC applies to the land and whether further investigation is required to accompany the consent application for the proposed development.

Evidence from the PSI and site history review, indicates **HAIL A10**: '*Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds*', **HAIL A18**: '*Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside*', **HAIL E1**: '*Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition*', and **HAIL 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*' are more likely than not to have occurred at the site.

Based on the currently available information presented in this report LDE considers that the NESCSC applies. This is because soil disturbance is covered by Regulations 5(4). The land is also covered by the NESCSC because of HAIL activities that are more than likely to have been carried out at the site.

A detailed site investigation (DSI) is recommended to establish if soil contamination exceeds the applicable standard to determine if the site is a restricted discretionary or controlled consent under the NESCSC. Soil sampling is proposed to be undertaken within the identified HAIL locations, as well as systematic sampling along the proposed alignment where orchards are or were historically present.

A resource consent will be required before groundworks can commence.

CONTENTS

1	INTRODUCTION	3
1.1	Investigation Objectives	3
1.2	Site Identification	3
1.2.1	Proposed and Existing Stopbank Alignment	3
1.2.2	Proposed Borrow Site	7
2	SITE DESCRIPTION	7
2.1	Environmental Setting	7
2.1.1	Geology	7
3	HISTORIC SITE USE	8
3.1	Historical Aerial Imagery – Proposed Alignment	8
3.1.1	Potential Areas of Contamination	17
3.2	Historical Aerial Imagery – Borrow Site	17
3.2.1	Potential Areas of Contamination	22
3.3	Gisborne District Council Information	23
3.3.1	Property File Information	24
4	RISK ASSESSMENT	25
4.1	Conceptual Site Model – Proposed Alignment	25
4.2	Conceptual Site Model – Proposed Borrow Site	29
4.3	Applicability of NESCS	30
5	CONCLUSION	30
5.1	Preliminary Site Investigation Certifying Statement	30
6	LIMITATIONS	31
APPENDIX A SEARCH OF COUNCIL RECORDS / PROPERTY FILE RECORDS		
APPENDIX B QUALIFICATIONS AND EXPERIENCE OF THE SQEPS		

1 INTRODUCTION

LDE has been engaged by Gisborne District Council to undertake a soil contamination Preliminary Site Investigation (PSI) for the proposed stopbank alignment in Te Karaka, Gisborne. LDE understands the existing stopbank soils will be utilised within the proposed stopbank, along with soils from an identified 'borrow site'.

This PSI is therefore required to identify if there are or were any current or historical land-use activities that could have caused soil contamination that is a risk to human health in order to determine if the NESCS applies to the land and whether further investigation is required to accompany the consent application for the proposed development.

This site investigation has been prepared in accordance with the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2021. It has been managed by a suitably qualified and experienced practitioner (SQEP); carried out in general accordance with the Contaminated Land Management Guidelines No.1- Reporting on Contaminated Sites in New Zealand (revised 2021) and Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils (revised 2021).

1.1 Investigation Objectives

The objectives of the investigation are to:

- Assess whether there has been (or there is more likely than not to have been) a potentially contaminating land use.
- Assess the nature and source of potential or likely contaminants.
- Identify the possible locations of contamination.
- Identify known or potential exposure pathways by which identified receptors could be exposed to the contaminants whilst undertaking the current or proposed future land use.
- Identify known or potential human and ecological receptors that could be exposed to contaminants.
- Assess if the project is covered by the NESCS Regulations.
- Determine if further investigation in the form of a Detailed Site Investigation (DSI) is required.

1.2 Site Identification

1.2.1 Proposed and Existing Stopbank Alignment

The proposed stopbank alignment borders the Te Karaka township to the west, north and east. The proposed alignment closely follows the existing alignment to the west and east of the township. To the north, the proposed alignment is between 140 - 370m closer to the township than the existing alignment. Refer to Table 1 and Figure 1 for the proposed alignment, and Figure 2 and Figure 3 for the updated proposed alignment locations.

Table 1. Address and Legal Description of area covered by the Existing and Proposed stopbank alignment.

Address (Clockwise W-E)	Legal Description	Alignment
Matawai Road	Lot 2 DP 570263	Proposed (tunnel bund)
23-27 Cliff Road	Lot 1, Pt Lot 2 DP 3062 Lots 1-4 DP 4355 Lot 1 DP 3109	Existing and proposed.
9-11 Rangatira Road	Pt Lot 25 DP 1287 Lot 1 DP 3768	Existing and proposed.
Library Road	Sec 1, Sec 3 SO 494650	Existing and proposed.
1 Kipling Road	Lot 15 DP 1145	Existing and proposed.
7 Kipling Road 27 Kipling Road Morris Road/Kipling Road	Pt Lot 16 DP 1145 Lot 2 DP 2786 Pt Lot 18 DP 1145 Lot 1-2 DP 3322	Proposed.
29-44 Morris Road	Lot 21-23 DP 1145	Existing.
Kipling Road	Te Karaka 16E Block Pt Karaka 15 Block	Existing.
59 Kipling Road	Lot 1 DP 2909 Lot 1 DP 8784	Proposed.
69 Kanakanaia Road	Pt Sec 44 Block IV Waikohu SD Pt Karaka 17 Block	Existing and proposed.
90 Kanakanaia Road	Karaka 11A2 Block	Proposed.
35 Paulson Road	Te Karaka 11B2 Block	Existing and proposed.
32 Main Road	Lot 9 DP 1326	Existing and proposed.
Matawai Road	Pt Karaka 7 Block	Existing and proposed.
2424 Matawai Road	Karaka 8 Block	Existing and proposed.
Matawai Road	Sec 3 Block IV Waikohu SD	Proposed.

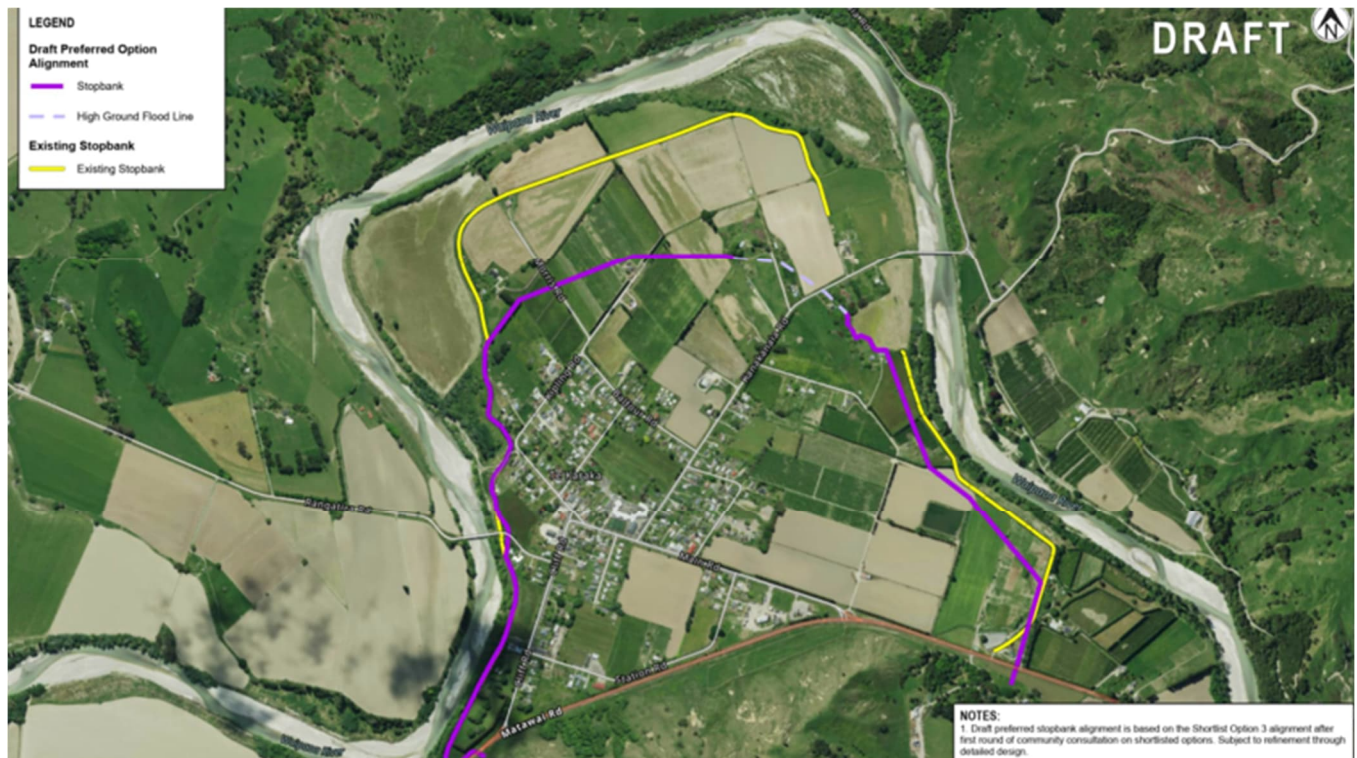


Figure 1. Draft alignment of proposed stopbank (purple) and existing stopbank (yellow). Source: Supplied by Client.



Figure 2. Updated alignment changes (dated 19/02/2026).



Figure 3. Tunnel bund located across Main Road, south of the western-most extent of the proposed stopbank (dated 02/2026).

1.2.2 Proposed Borrow Site

The proposed borrow site includes part of the existing stopbank alignment. The site borders the Waipaoa River to the north. The borrow site is proposed to be excavated to a maximum depth of 1.5m. The address and legal descriptions of the area covered by the proposed borrow site is shown in Table 2.

Table 2. Address and legal descriptions of area covered by the proposed borrow site.

Address (Clockwise W-E)	Legal Description
44 Morris Road, Te Karaka	Lots 21-23 DP 1145-INCLS ACCRE
Kanakanaia Road, Te Karaka	PT Te Karaka 17 Te Karaka 16F Te Karaka 16E PT Te Karaka 15 – INCLS ACCRE



Figure 4. Proposed borrow site, outlined in red. Source: Supplied by Client.

2 SITE DESCRIPTION

2.1 Environmental Setting

Te Karaka township sits at approximately 40 m above sea level. The Waipaoa River borders the township to the west, north and east, with Matawai Road / State Highway 2 bordering the township to the south.

2.1.1 Geology

The New Zealand Geology Web Map by GNS¹ Science identifies the majority of the Te Karaka township as being underlain by 'Holocene River Deposits' described as 'Gravel, sand and silt.' Minor deposits of 'Late Pleistocene River Deposits' (described as 'Gravel, sand and silt') also intersect the Te Karaka township in several locations.

¹ <http://data.gns.cri.nz/geology/>. Retrieved December 2025.

3 HISTORIC SITE USE

The following information was reviewed in order to establish the history of the site:

- Historical aerial photographs
- Council Records

3.1 Historical Aerial Imagery – Proposed Alignment

Aerial images from 1949 to 2024 have been analysed as part of this investigation for the proposed and existing stopbank alignments. This section has been updated following the updated stopbank alignment received March 2026. This section outlines LDEs assessment of the aerals with a tubulised summary provided in section 3.1.1.

1949: The majority of the proposed and exiting stopbank alignments pass through pasture. A single dwelling to the north and a small shed to the east are the only visible structures the proposed alignment crosses. The tunnel located south of the western-most alignment extent is visible in this historic aerial.



Figure 5. Aerial imagery 1949. Full (top) and Zoomed-in (bottom) aers. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1952: A second dwelling has been constructed along the proposed alignment route to the west. The remainder of the proposed alignment is unchanged.

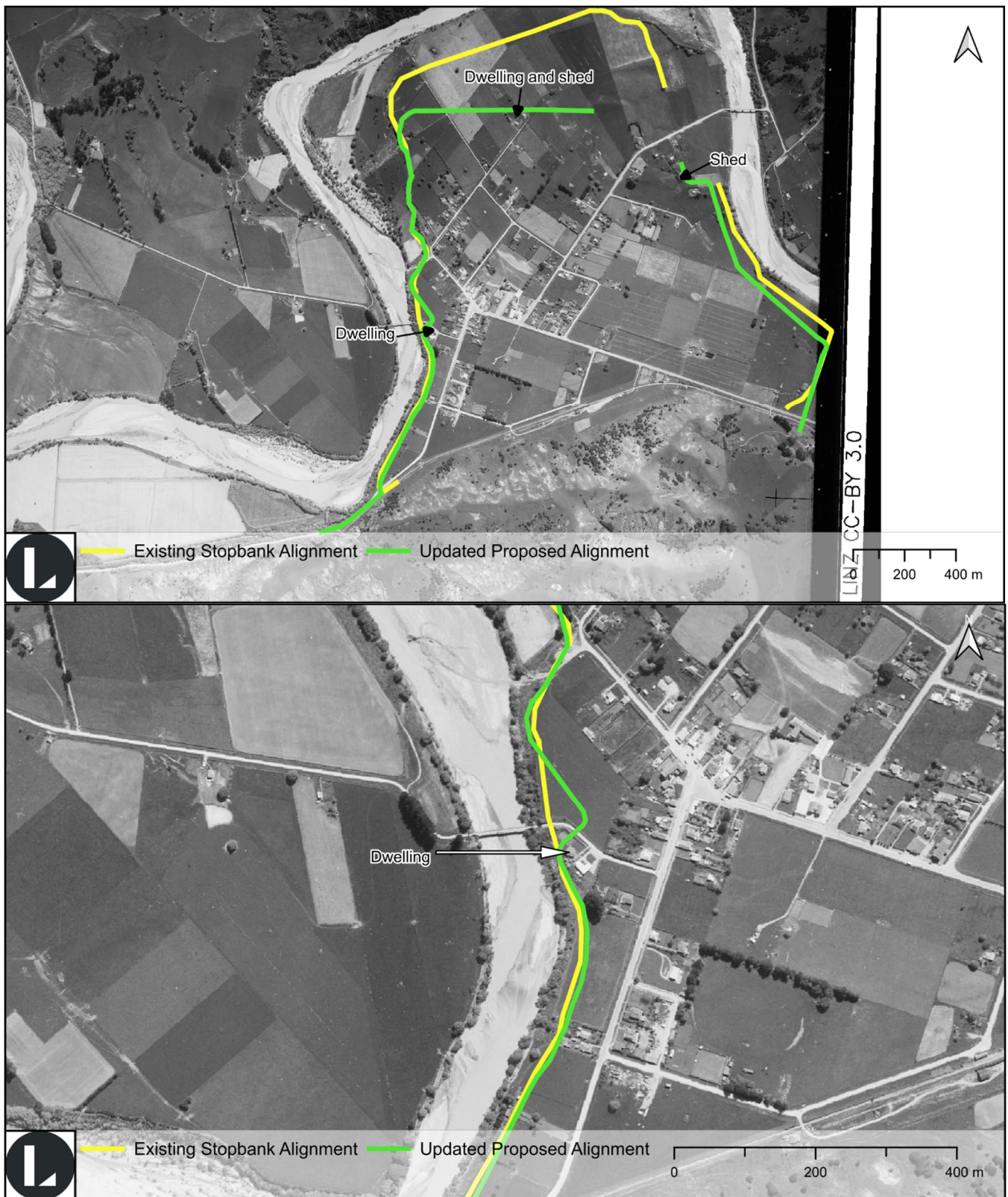


Figure 6. Aerial imagery 1952. Full (top) and Zoomed-in (bottom) aerals. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1960: The dwelling and shed to the north of the proposed alignment have been removed. Miscellaneous storage, possible timber, is visible close to the northern bend of the proposed alignment. The remaining proposed alignment passes through pasture.

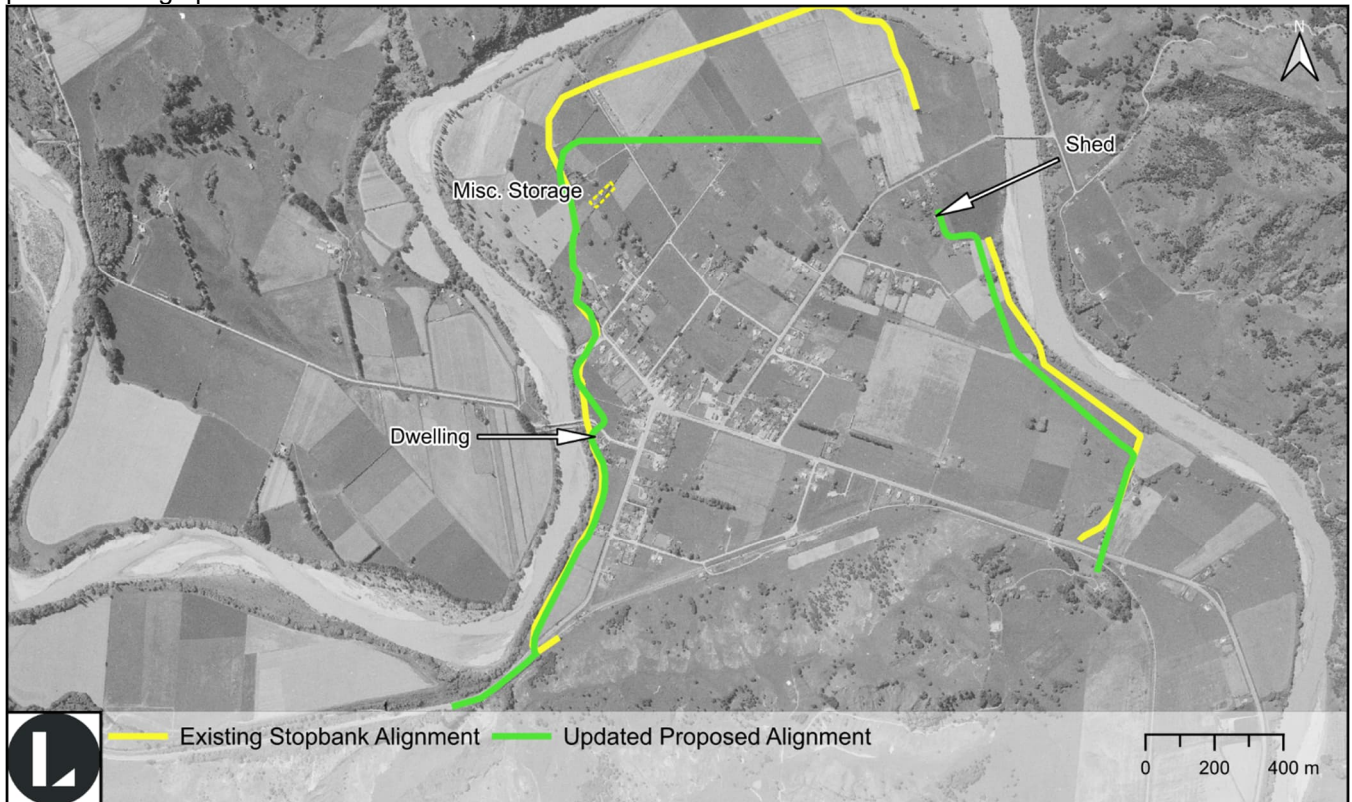


Figure 7. Aerial imagery 1960. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1974: Miscellaneous storage, possibly timber, is present adjacent to the proposed alignment. A series of large sheds or glasshouses have been constructed to the west adjacent to the proposed alignment. The remaining proposed alignment is unchanged.



Figure 8. Aerial imagery 1974. Full (top) and Zoomed-in (bottom) aeriels. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1982: Sheds / glasshouses along the NW proposed alignment are being removed. The alignment crosses several newly established orchards in the north and east, and is adjacent to another recently established orchard in the SE.

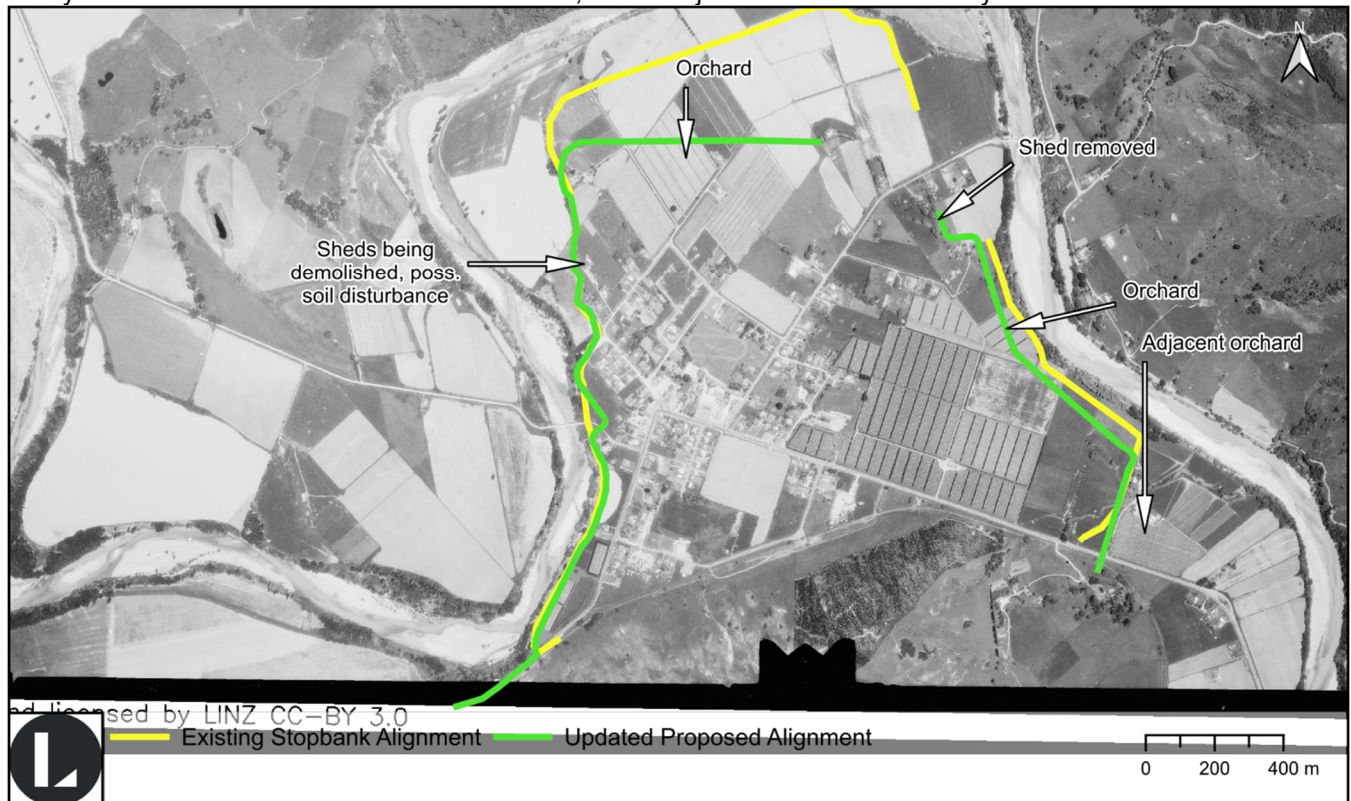


Figure 9. Aerial imagery 1982. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

2003: The existing stopbank has been constructed. A dwelling close to the Rangatira Road bridge has been removed. The remainder of the proposed alignment is unchanged.

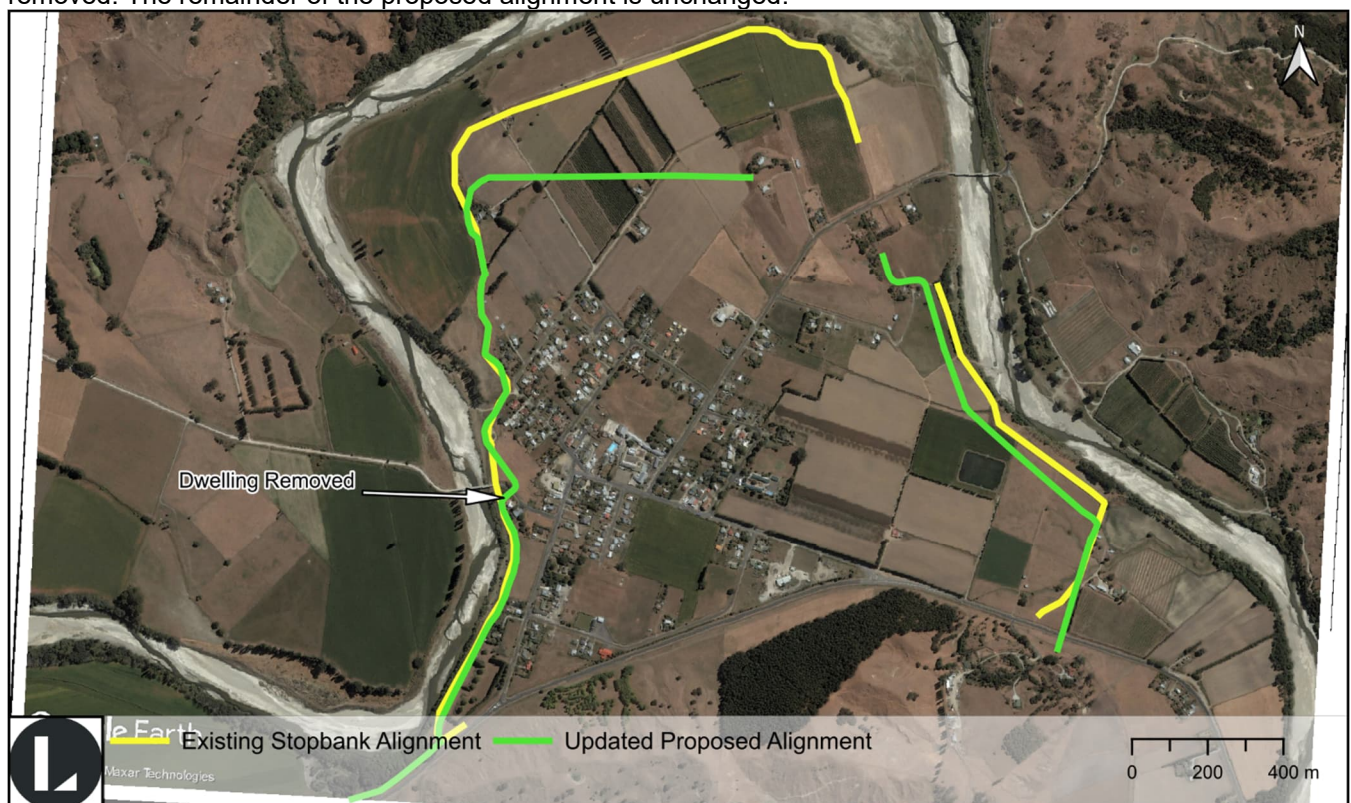


Figure 10. Aerial imagery 2003. Sourced from Google Earth (annotated image).

2013: The majority of the proposed alignment remains unchanged. A stock yard or possible sheep dip is present near the SE proposed alignment.



Figure 11. Aerial imagery 2013. Zoomed-in aerial shown below to highlight possible dip along the proposed alignment. Sourced from LINZ (annotated image).

2019: The stock yards have expanded. The remainder of the proposed alignment remains unchanged.



Figure 12. Aerial imagery 2019. Zoomed-in aerial shown below to highlight expansion of stock yards along the proposed alignment. Sourced from LINZ (annotated image).

2024: The majority of the proposed alignment remains unchanged. The proposed alignment crosses a small area of silt storage to the north.

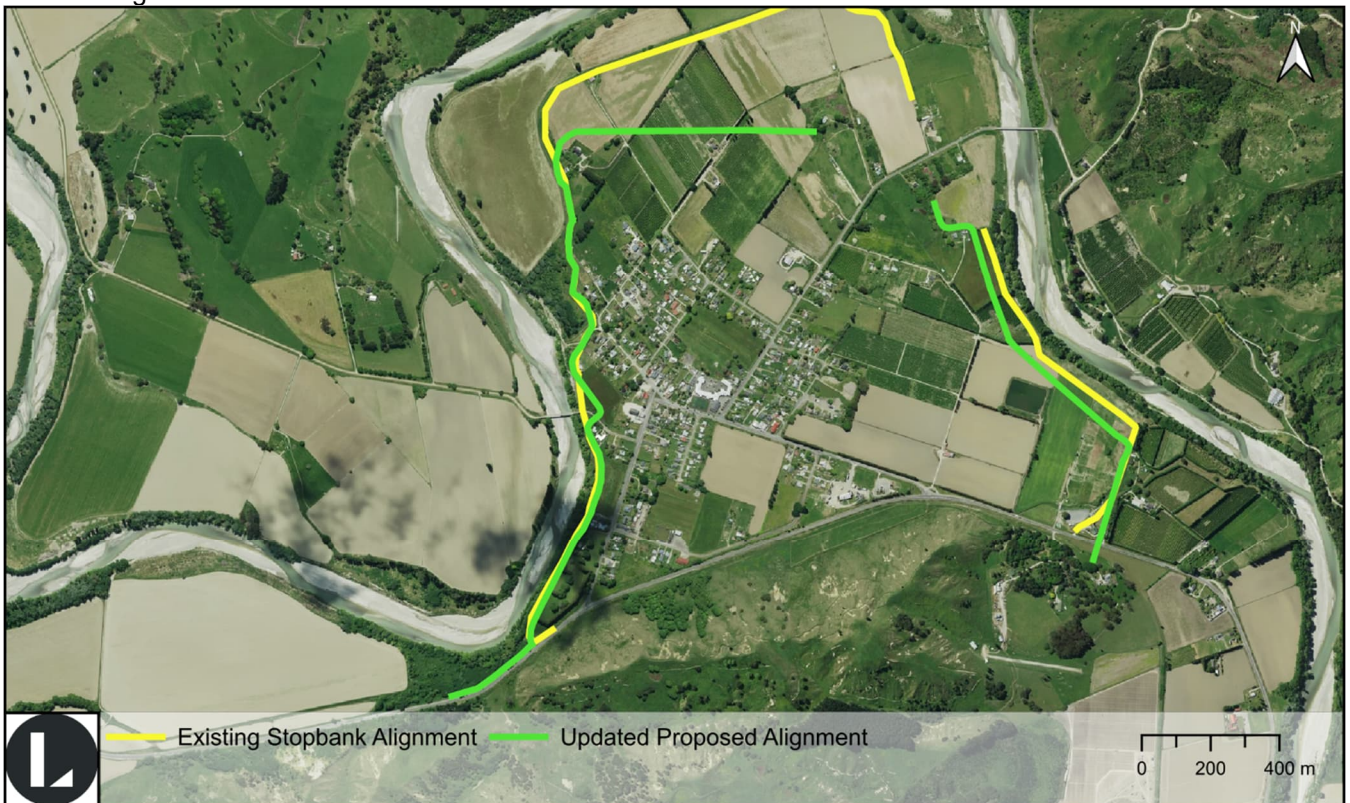


Figure 13. Aerial imagery 2024. Sourced from Tairawhiti Maps².

² [Tairāwhiti Aerial Imagery](#). Accessed December 2025.

3.1.1 Potential Areas of Contamination

Table 3 below summarises the identified potential areas of contamination based on the aerial photograph review. No additional potential areas of contamination were identified following the updated proposed alignment (March 2026).

Table 3. Potential areas of contamination observed from aerial photograph review.

Address	HAIL Category and date observed	Potential contamination (Y/N) for	Alignment affected
59 Kipling Road 11 Rangatira Road	HAIL E1/I – 1949+	Y – demolition of structures built prior to 2000s possibly containing asbestos and/or lead paint.	Proposed - 59 Kipling Road
90 Kanakanaia Road	HAIL E1/I – 1949+	N - demolition of minor shed structure built prior to 2000s. Possibly containing asbestos and/or lead paint however size is unlikely to have resulted in significant contamination.	Proposed
29 Morris Road	HAIL A18 – 1960	Y – storage of potential treated timber and miscellaneous storage	Proposed
7 Kipling Road	HAIL A10 – 1974-1982 HAIL I – 1982	Y – possible glasshouses Y – Demolition	Existing – further soil disturbance not anticipated in this location.
69 Kanakanaia Road	HAIL I – 2024	N – storage of silt from flooding. Unlikely to contain contaminants based on available silt testing to date.	N/A
2424 Matawai Road	HAIL A8 – 2013+	N – date of presence unlikely to indicate typical dip contaminants (Arsenic, Pesticides).	N/A
Morris Road / Kipling Road / Paulson Road / Matawai Road	HAIL A10 – 1982+	Y – various orchards cross the proposed alignment.	Proposed

3.2 Historical Aerial Imagery – Borrow Site

Aerial images from 1949 to 2024 have been analysed as part of this investigation for the proposed borrow site. This section outlines LDEs assessment of the aerals with a tubulised summary provided in section 3.2.1.

1949: The majority of the borrow site is pasture. A single dwelling is present to the west.

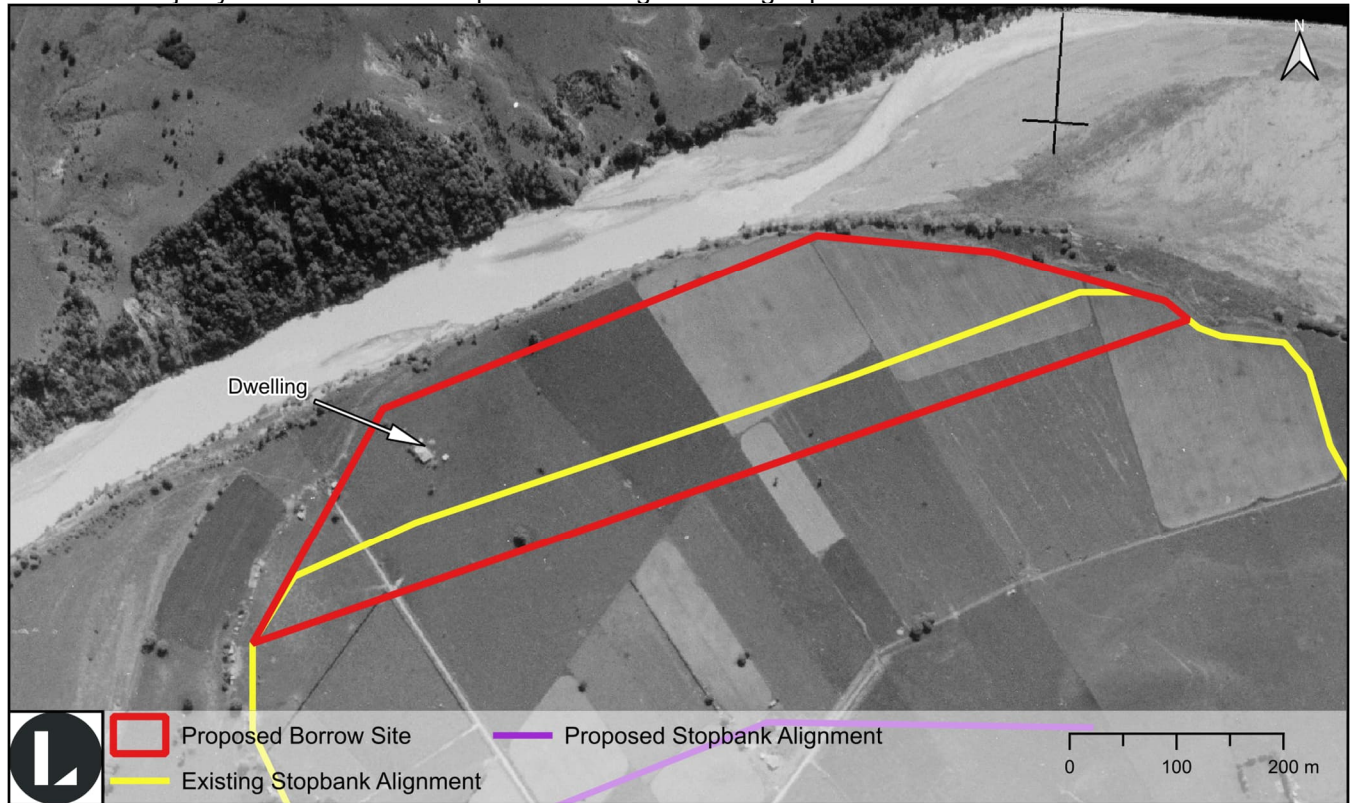


Figure 14. Aerial imagery 1949. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1952: A second dwelling is present. The remainder of the borrow site is unchanged.

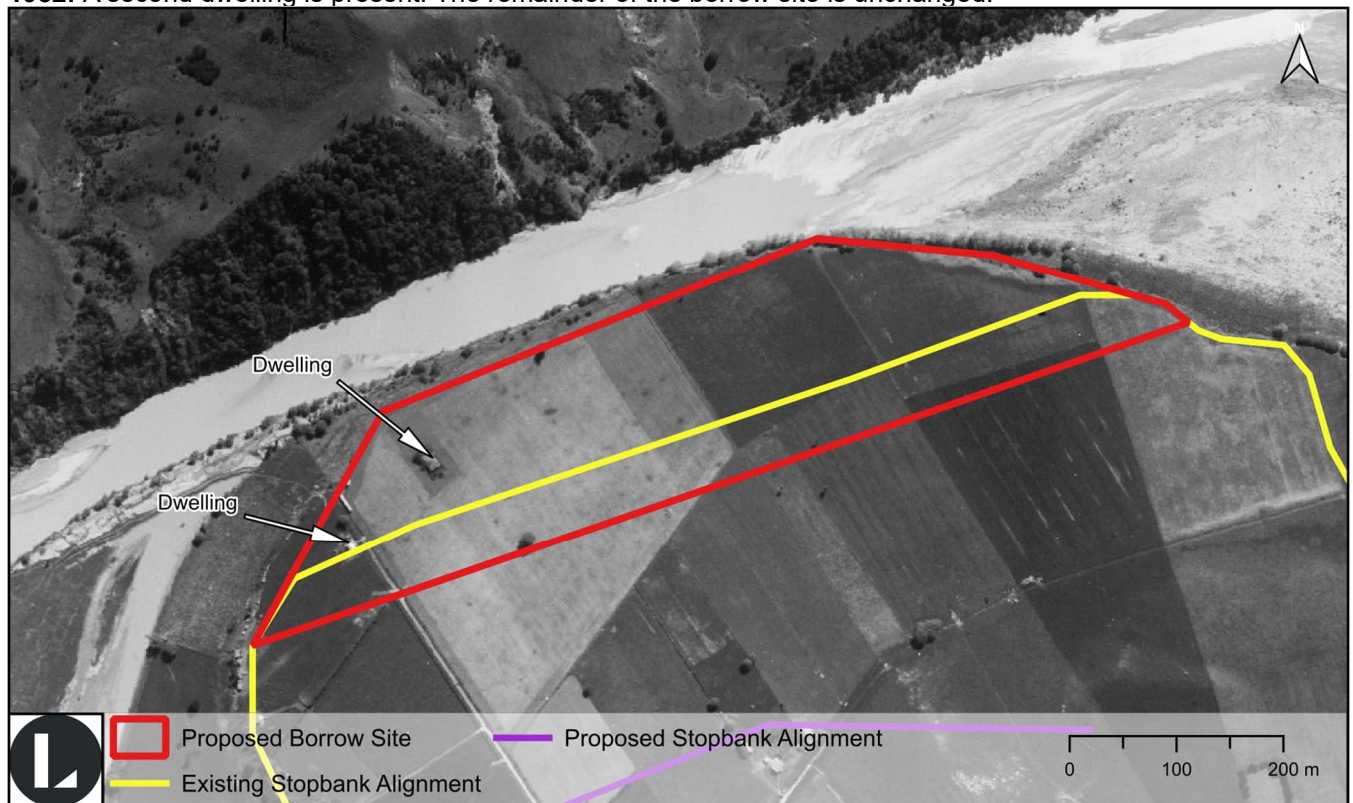


Figure 15. Aerial imagery 1952. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1960: The additional dwelling present in the 1952 aerial has been removed. An additional dwelling and shed are present to the south of the original dwelling. The remainder of the borrow site is unchanged.

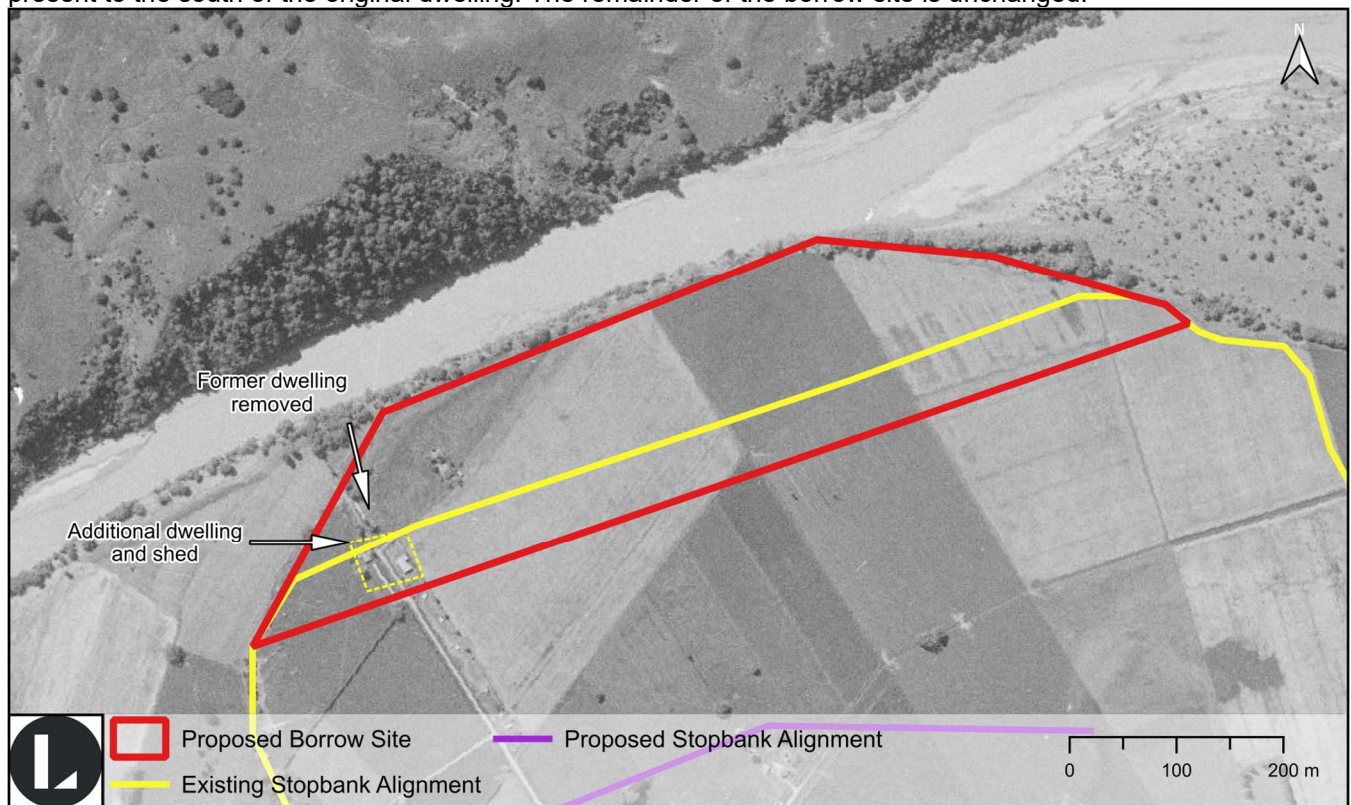


Figure 16. Aerial imagery 1960. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1974: A row of miscellaneous storage is noted to the west of Morris Road. The remaining borrow site is unchanged.

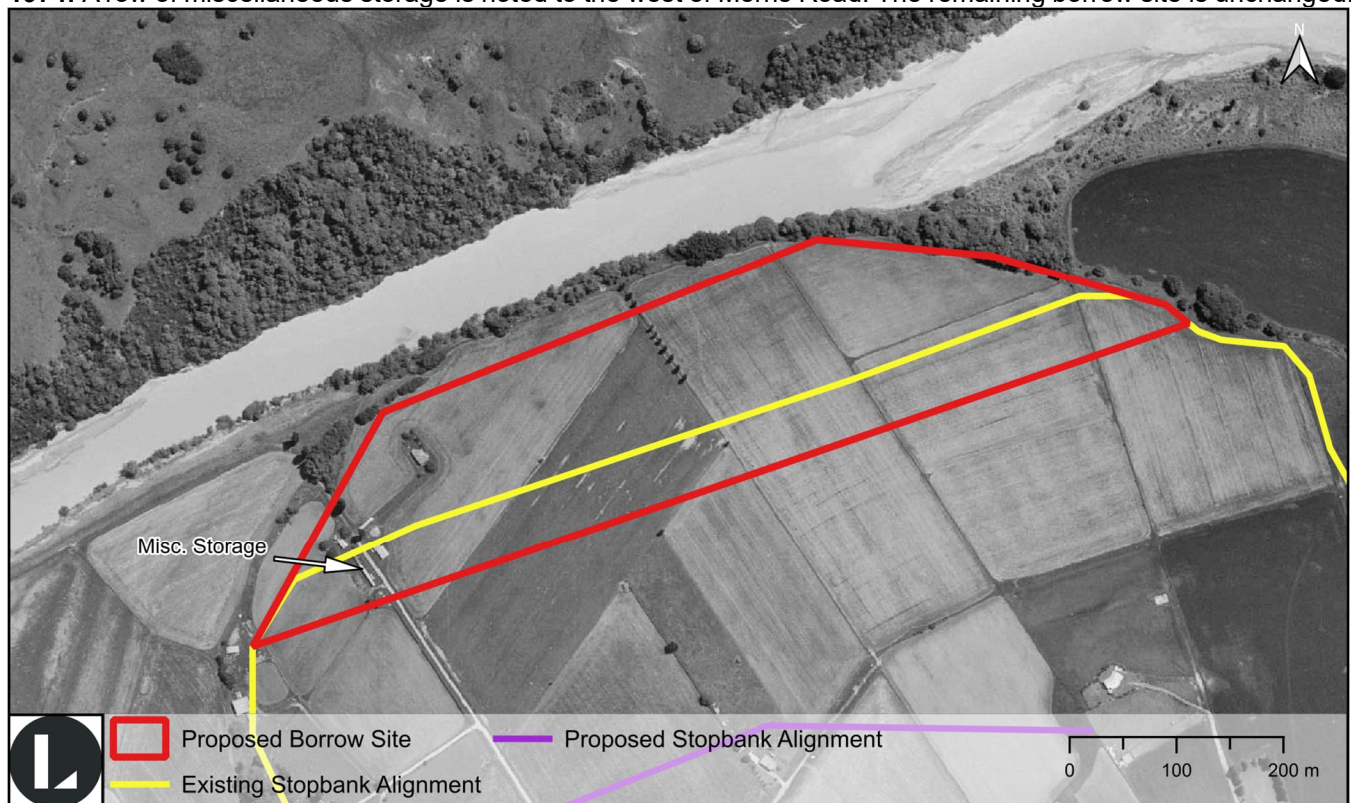


Figure 17. Aerial imagery 1974. Sourced from Retrolenz.nz and licensed by LINZ (annotated image).

1982: The borrow site remains unchanged.

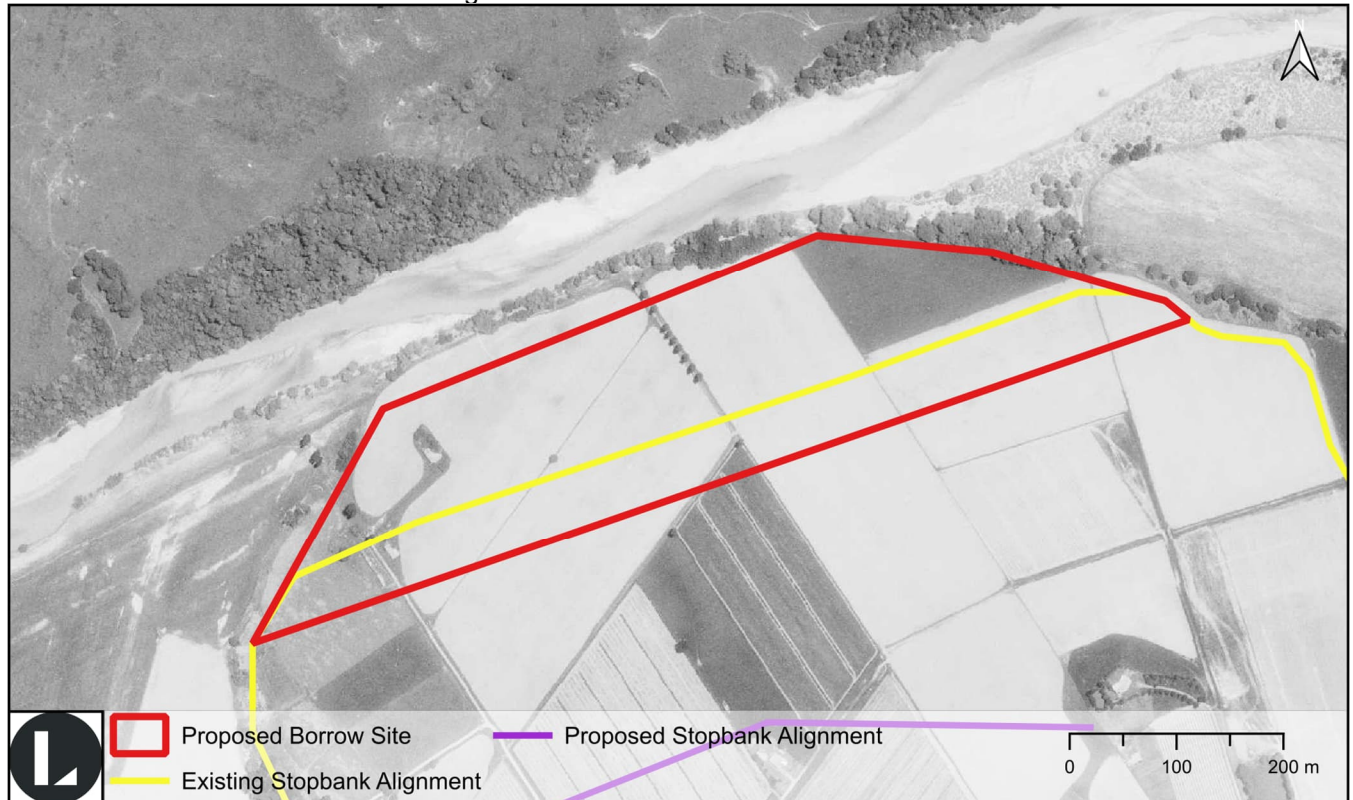


Figure 18. Aerial imagery 1982. Sourced from Retrolenz.nz and licensed by LINZ (annotated image). Approximate site boundary shown in yellow.

2003: The existing stopbank has been constructed through the borrow site. The original dwelling from 1949 has been removed. Stock yards are visible adjacent to the dwelling south of the existing stopbank. The remainder of the borrow site is unchanged.

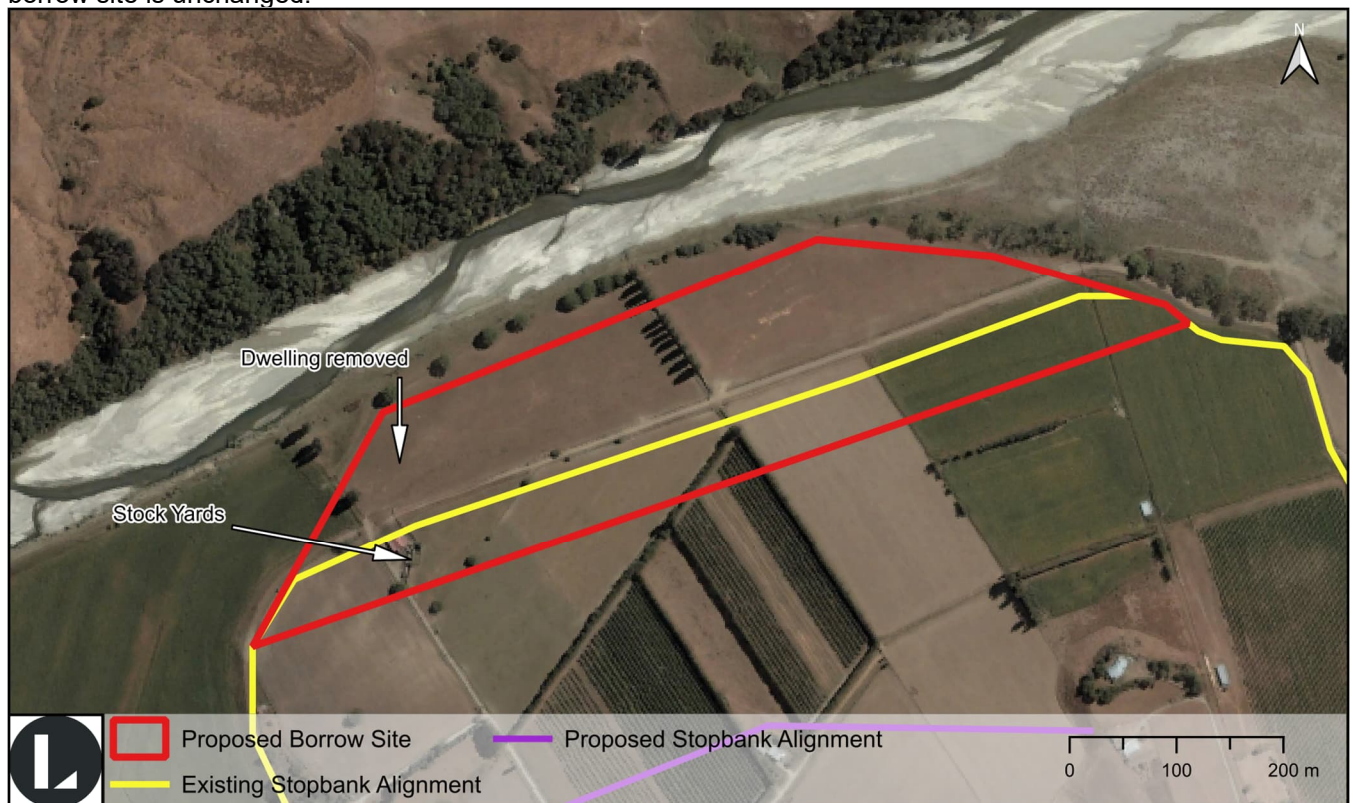


Figure 19. Aerial imagery 2003. Sourced from Google Earth (annotated image). Approximate site boundary shown in yellow.

2013: The borrow site remains unchanged.

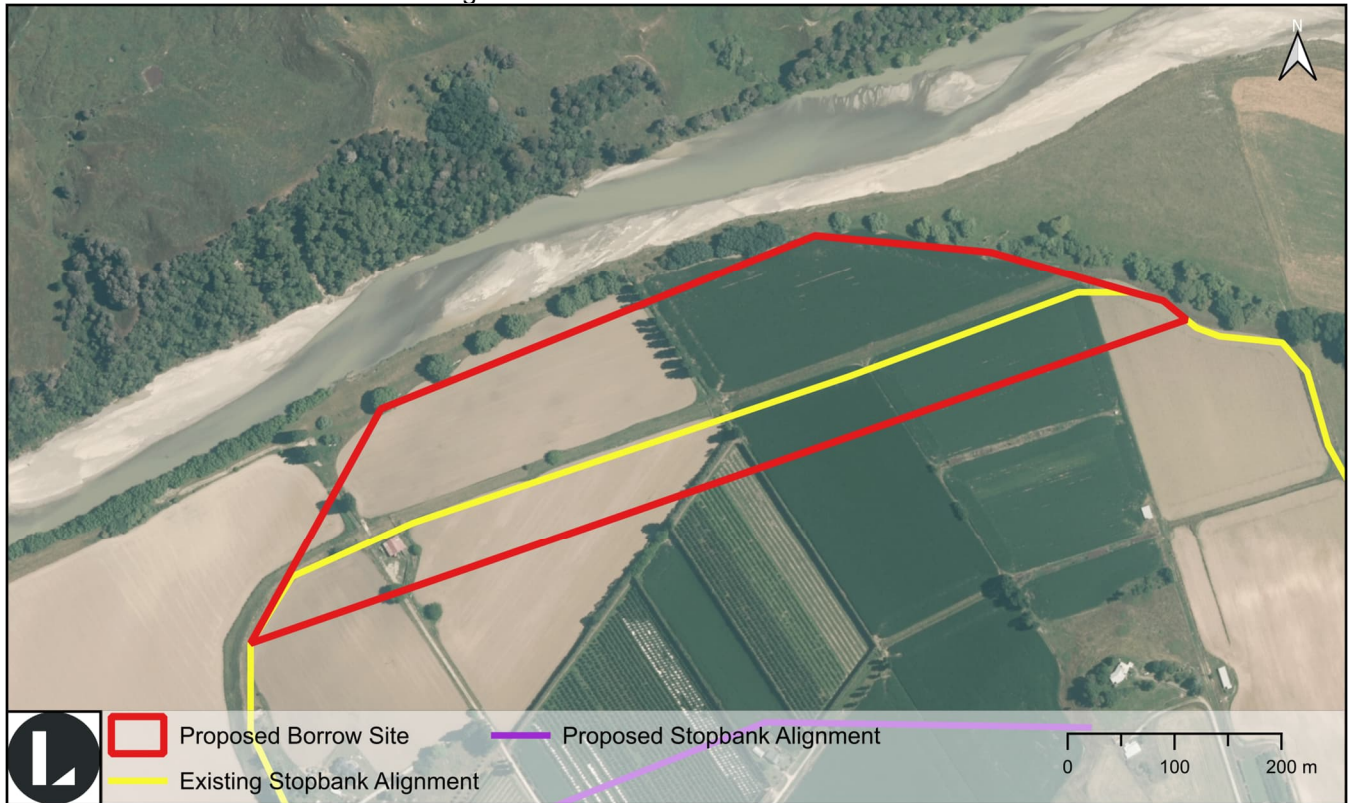


Figure 20. Aerial imagery 2013. Sourced from LINZ (annotated image). Approximate site boundary shown in yellow.

2019: The borrow site remains unchanged.

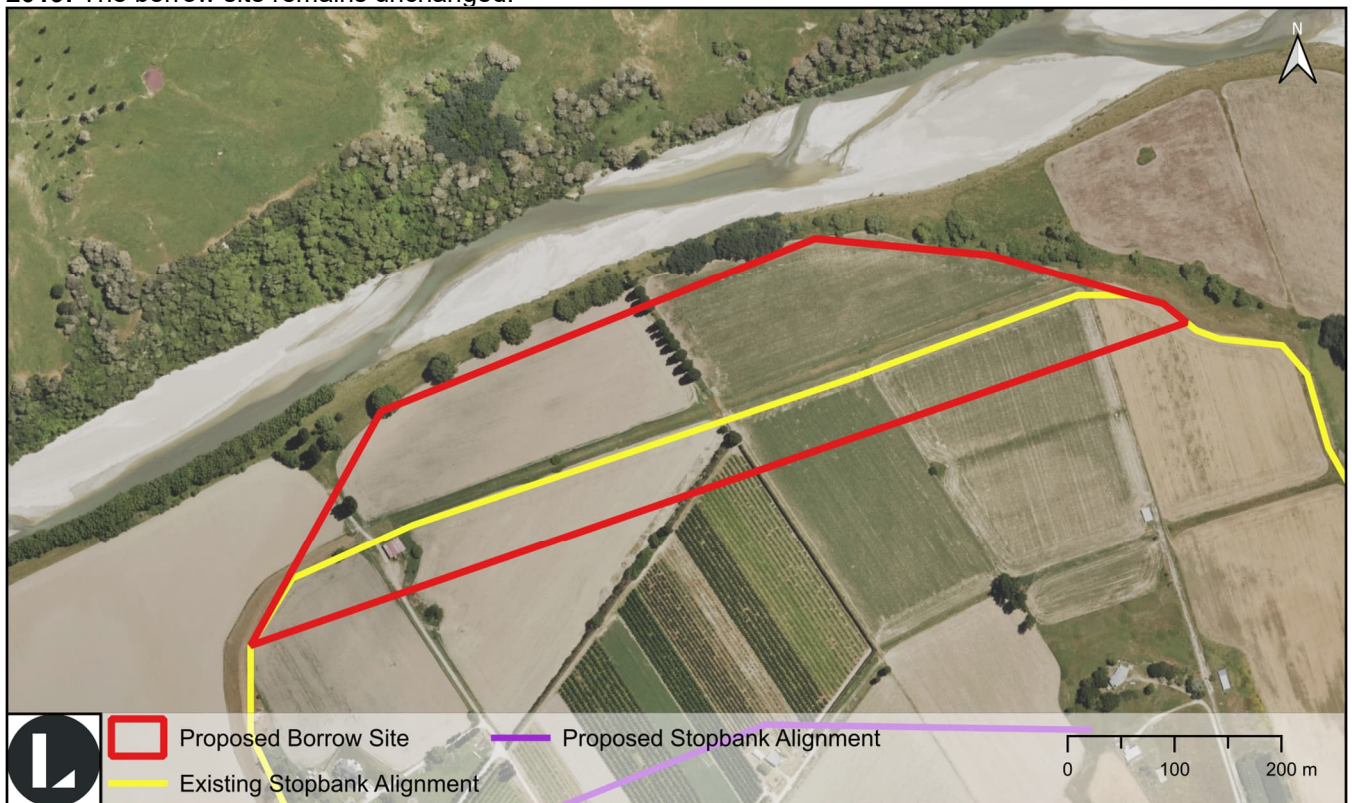


Figure 21. Aerial imagery 2019. Sourced from LINZ (annotated image). Approximate site boundary shown in yellow.

2024: The borrow site remains unchanged.

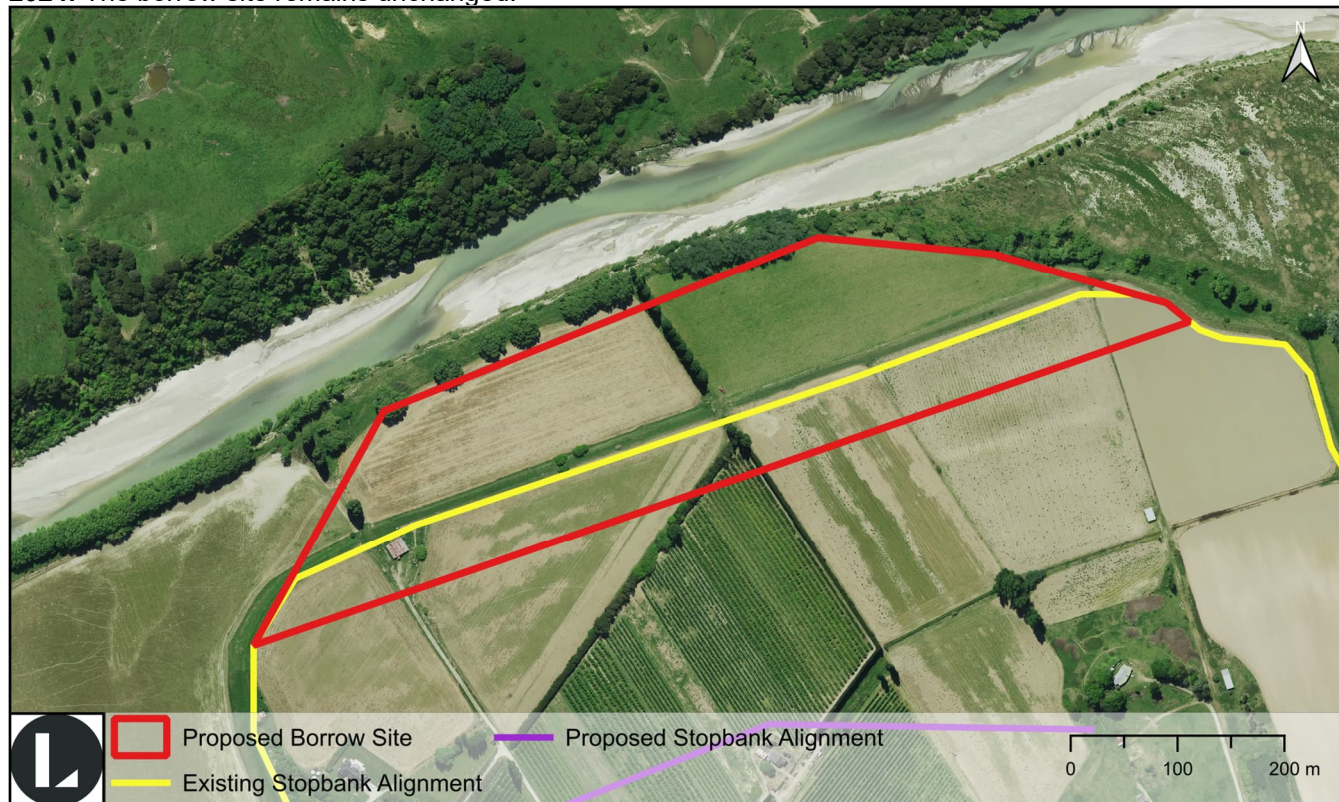


Figure 22. Aerial imagery 2024. Sourced from Tairāwhiti Maps³. Approximate site boundary shown in yellow.

3.2.1 Potential Areas of Contamination

Table 4 below summarises the identified potential areas of contamination based on the aerial photograph review.

Table 4. Potential areas of contamination observed from aerial photograph review.

Address	HAIL Category and date observed	Potential for contamination (Y/N)
44 Morris Road	HAIL E1/I – 1949+	Y – demolition of structures prior to 2000s possibly containing asbestos and/or lead paint.
	HAIL A8 – 2003+	N - date of presence of stock yards unlikely to indicate typical dip contaminants (Arsenic, Pesticides).
29 Morris Road	HAIL I – 1960+	Y – demolition of structures prior to 2000s possibly containing asbestos and/or lead paint. Miscellaneous storage.

³ [Tairāwhiti Aerial Imagery](#). Accessed December 2025.

3.3 Gisborne District Council Information

The Gisborne District Council (GDC) HAIL register⁴ was reviewed as part of this investigation. No registered HAIL sites intersect with either the proposed alignment or the proposed borrow site.

A summary of registered HAIL sites in the Te Karaka township in relation to the proposed alignment and proposed borrow site is provided in Table 5 below.

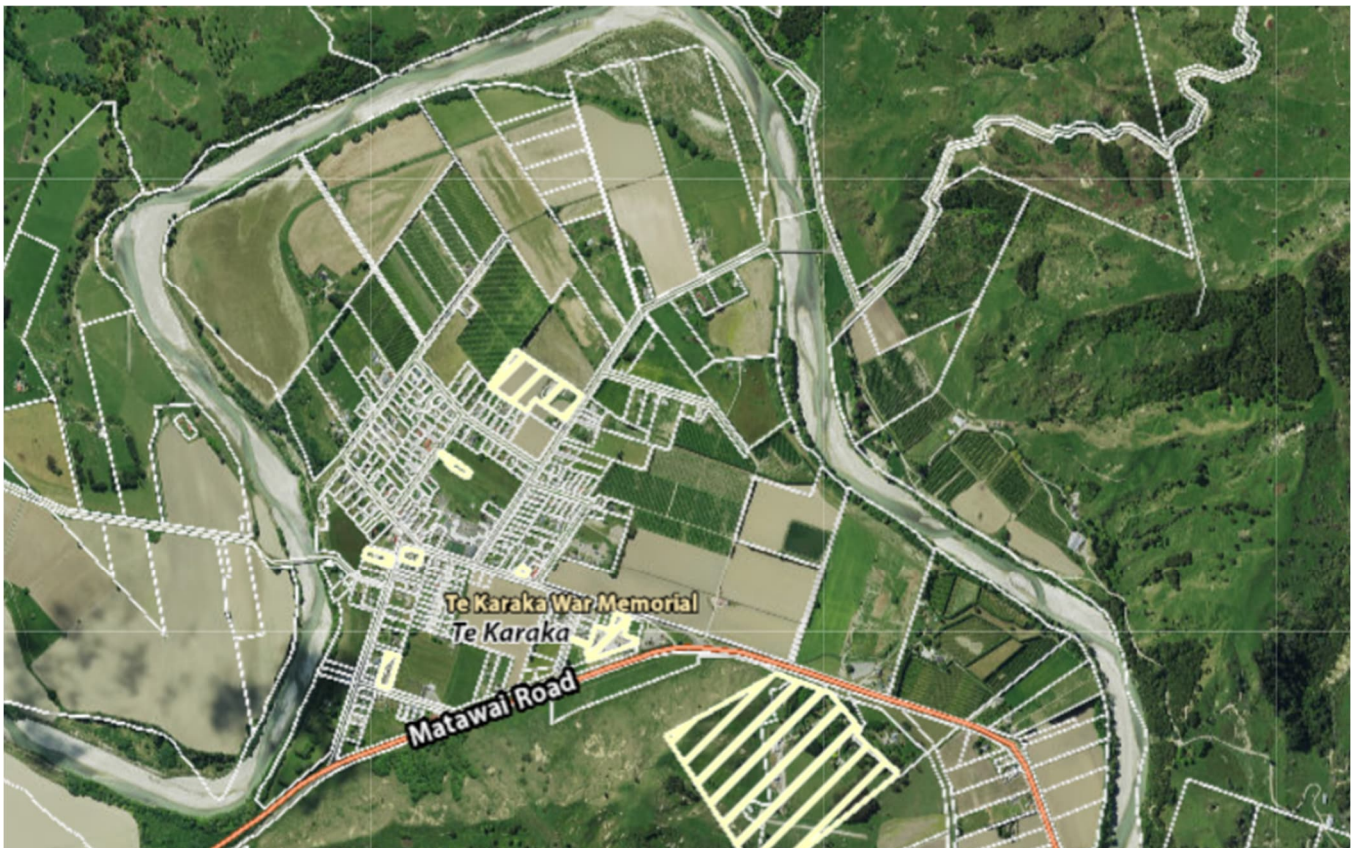


Figure 23. Extract from GDC HAIL Register, showing location of known HAIL sites within the Te Karaka township.

⁴ [Tairāwhiti External](#). Accessed December 2025.

Table 5. Identified HAIL sites within the Te Karaka township. Information sourced from GDC HAIL register.

Address	HAIL Category	Potential for contaminant migration?
70 Station Road	E7 – Mining industries	N – existing adjacent stopbank already in place
52 Main Road	F4 – Motor vehicle workshop (Te Karaka Motors)	N - >200m from proposed alignment.
59 Cliff Road	A17 – Service station (Graham Motors) F4 –Motor vehicle workshop	N - Possible offsite migration of hydrocarbons if any leaks/spills are recorded, however only likely to affect deeper site soils (if contamination present). Development of proposed stopbank unlikely to entail deep excavation. Proposed alignment between service station and river, therefore groundwater flow is presumed to pass through the proposed alignment location.
83 Main Road	F4 – Motor vehicle workshop	N – unlikely for offsite migration of contaminants unless any leaks/spills or underground tanks in disrepair are present on site.
5 Kanakanaia Road	A10 – Persistent pesticide use (Waikohu College)	N - >200m from proposed alignment.
2433 Matawai Road	F8 – Transport depot A6 –fertiliser manufacture or bulk storage	N – unlikely. ~100m from proposed alignment end at Matawai Road.
25 Main Road	F8 – Transport depot	N - >200m from proposed alignment.
53 Kanakanaia Road	F8 – Transport depot	N - >200m from proposed alignment.

3.3.1 Property File Information

Following a review of historic aerals for the proposed alignment, property file information was requested from GDC for selected sites. The following information is noted to be relevant to the existing investigation. The relevant information from each of the property file is included in Appendix A.

11 Rangatira Road:

- 1967 – consent to extend car shed. External wall covering noted to be corrugated iron and asbestos.

59 Kipling Road:

- No information relevant to potential contamination noted.

7 Kipling Road:

- No information relevant to potential contamination noted.

29 – 44 Morris Road:

- 1983 – consent to install covered deer yards and shed for machinery storage.
- 2007 – consent for new dwelling at 29 Morris Road. Dwelling has an external cladding of plaster fibre cement, which given the date of building, is unlikely to contain asbestos.

4 RISK ASSESSMENT

This section uses a Conceptual Site Model (CSM) to assess the currently available information presented in this report to determine:

- whether there has been (or there is more likely than not to have been) a potentially contaminating land use.
- the nature and source of potential or likely contaminants.
- the possible locations of contamination.
- known or potential exposure pathways by which identified receptors could be exposed to the contaminants whilst undertaking the current or proposed future land use.
- known or potential human and ecological receptors that could be exposed to contaminants.

4.1 Conceptual Site Model – Proposed Alignment

The preliminary site CSM for the proposed alignment is provided in Table 6, Figure 24 and Figure 25. No additional HAIL activities were identified following the updated proposed alignment (March 2026). A human health risk can only occur where there is a complete pathway between contaminant source and a receptor. Building floors and paved or sealed areas will largely or completely prevent contact with underlying soils and therefore, direct exposure pathways are or will be incomplete for such areas.

Table 6. Conceptual Site Model for proposed stopbank alignment at the PSI stage.

HAIL, Potential Contaminants and Location	Receptors	Potential Pathways
HAIL E1 – Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition. HAIL 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. 59 Kipling Road – Demolition of pre-2000's structure. 11 Rangatira Road - Demolition of pre-2000's structure.	Construction workers	Inhalation of dust (containing asbestos fibers), Exposure via inhalation of contaminated dust or ingestion and skin contact (dermal).
	Future site users	Inhalation of dust (containing asbestos fibers), Ingestion or skin contact with exposed soil.
	Workers at soil disposal sites	Inhalation of dust (containing asbestos fibers) during placement at an offsite disposal site.
	Ecological receptors	Discharges to air / water / land. Sediment runoff, shallow groundwater flows.
HAIL A18 – Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside. 29 Morris Road - Miscellaneous storage of unknown materials including possible treated timber.	Construction workers	Exposure via inhalation of contaminated dust or ingestion and skin contact (dermal).
	Future site users	Ingestion or skin contact with exposed soil
	Workers at off-site soil disposal sites	Inhalation of contaminated dust during placement at offsite disposal site.
	Ecological receptors	Sediment runoff, shallow groundwater flows.
HAIL A10 – Persistent pesticide bulk storage or use including sports turfs, market gardens, orchards, glass houses or spray sheds. Along proposed alignment – various orchards noted since 1982 onwards.	Construction workers	Exposure via inhalation of contaminated dust or ingestion and skin contact (dermal).
	Future site users	Ingestion or skin contact with exposed soil
	Workers at off-site soil disposal sites	Inhalation of contaminated dust during placement at offsite disposal site.
	Ecological receptors	Sediment runoff, shallow groundwater flows.

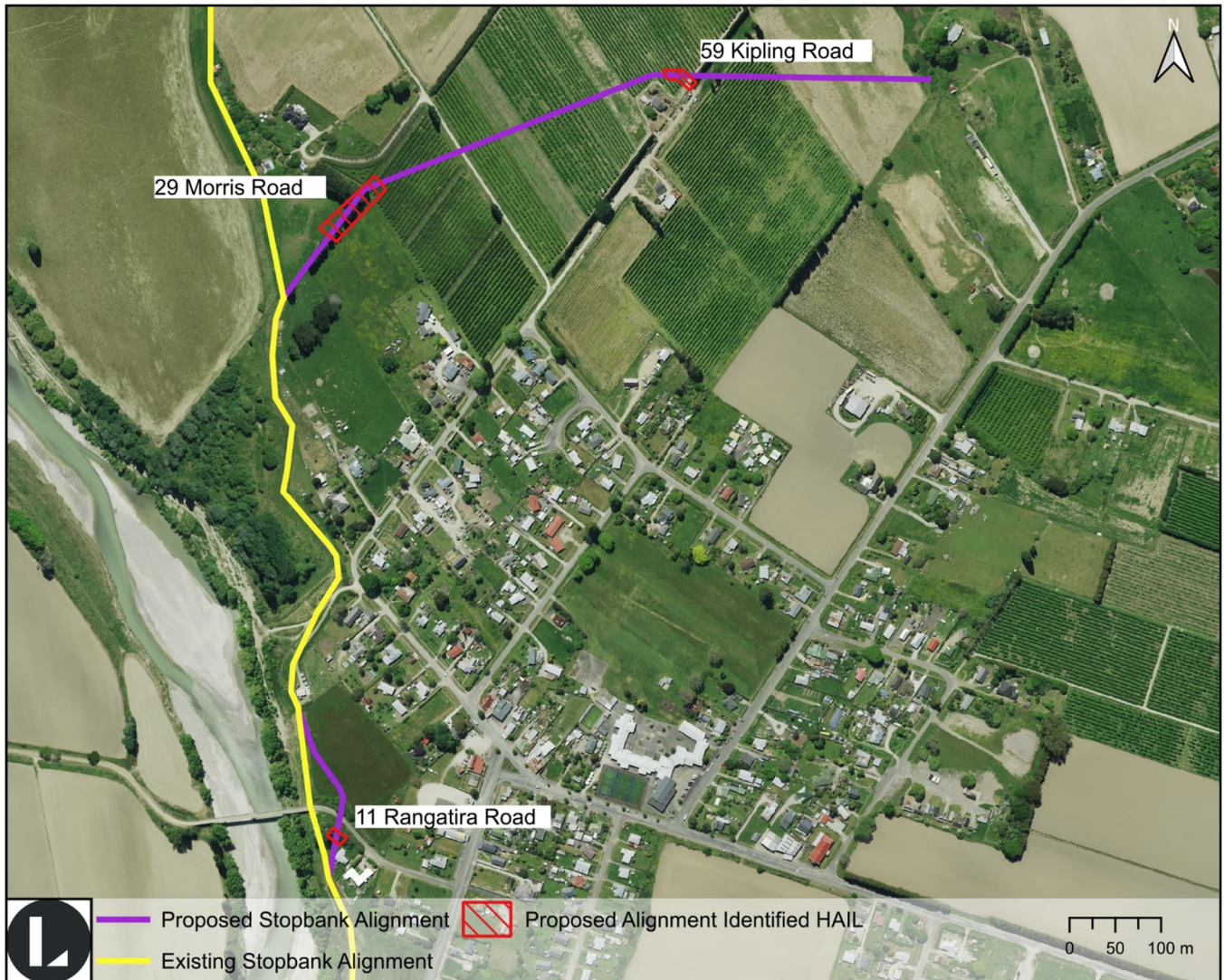


Figure 24. Summary plan showing location of identified HAIL sites along the proposed stopbank alignment. HAIL A10 also identified at various orchards along the proposed alignment. Refer to Figure 25 for zoomed-in plan. No additional HAIL sites were identified following the updates to the proposed alignment (March 2026).

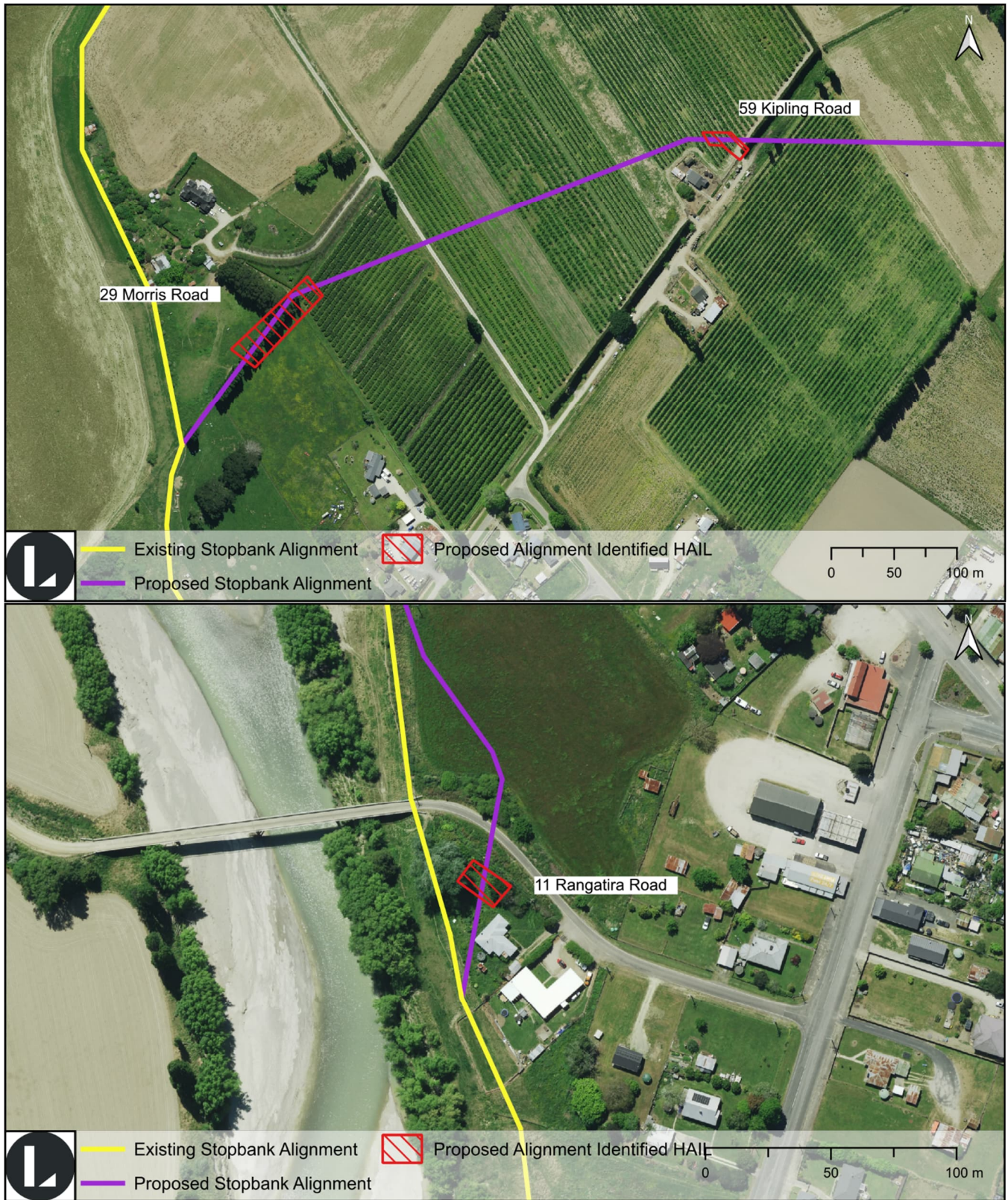


Figure 25. Zoomed-in plans showing identified HAIL locations along proposed stopbank alignment. No additional HAIL sites were identified following the updates to the proposed alignment (March 2026).

4.2 Conceptual Site Model – Proposed Borrow Site

The preliminary site CSM for the proposed borrow site is provided in Table 7 and Figure 26. A human health risk can only occur where there is a complete pathway between contaminant source and a receptor. Building floors and paved or sealed areas will largely or completely prevent contact with underlying soils and therefore, direct exposure pathways are or will be incomplete for such areas.

Table 7. Conceptual Site Model for proposed borrow site at the PSI stage.

HAIL, Potential Contaminants and Location	Receptors	Potential Pathways
HAIL E1 – Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition. HAIL 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. 29 Morris Road – Demolition of pre-2000's structure. Miscellaneous storage. 44 Morris Road - Demolition of pre-2000's structure.	Construction workers	Inhalation of dust (containing asbestos fibers), Exposure via inhalation of contaminated dust or ingestion and skin contact (dermal).
	Future site users	Inhalation of dust (containing asbestos fibers), Ingestion or skin contact with exposed soil.
	Workers at off-site soil disposal sites	Inhalation of dust (containing asbestos fibers) during placement at an offsite disposal site.
	Ecological receptors	Discharges to air / water / land. Sediment runoff, shallow groundwater flows. Inhalation of dust (containing asbestos fibers), Exposure via inhalation of contaminated dust or ingestion and skin contact (dermal).

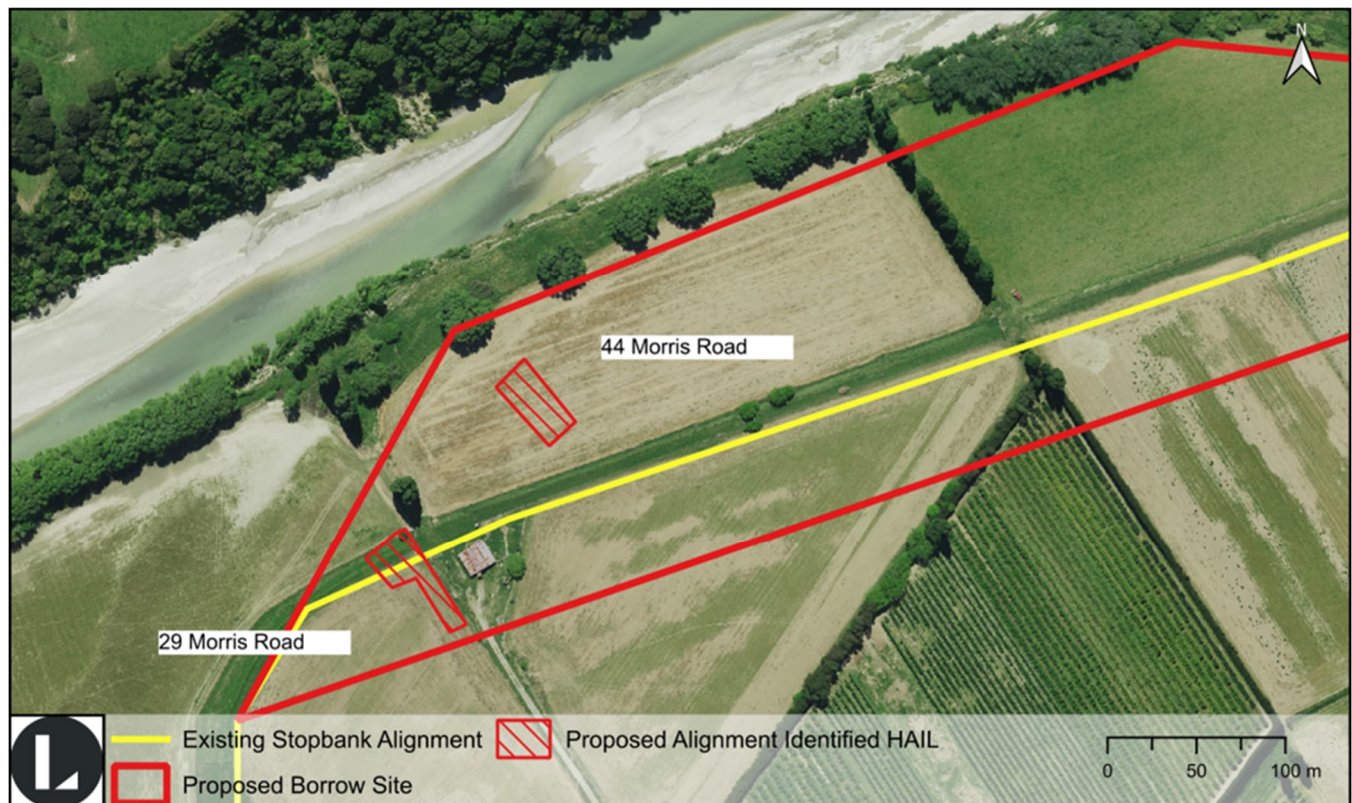


Figure 26. Site plan showing location of identified HAIL sites along the proposed borrow site.

4.3 Applicability of NESCS

As per Regulation 6 (3) it is considered that it is more likely than not an activity or industry described in the HAIL has been undertaken on the piece of land (HAIL A10, HAIL A18, HAIL E1 and HAIL I). Soils in the locations identified could be contaminated and could be a risk to human health. As per Regulation 8(4)(b), LDE considers that there could be a risk to human health if the activity is done to the piece of land.

5 CONCLUSION

Evidence from the PSI and site history review, indicates **HAIL A10**: '*Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds*', **HAIL A18**: '*Wood treatment or preservation including the commercial use of anti-sapstain chemicals during milling, or bulk storage of treated timber outside*', **HAIL E1**: '*Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition*', and **HAIL 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*' are more likely than not to have occurred.

No additional HAIL sites were identified following the updates to the proposed alignment (March 2026).

Based on the currently available information presented in this report LDE considers that the NESCS applies. This is because soil disturbance is covered by Regulations 5(4). The land is also covered by the NESCS because of HAIL activities that are more than likely to have been carried out at the site.

A detailed site investigation (DSI) is recommended to establish if soil contamination exceeds the applicable standard to determine if the site is a restricted discretionary or controlled consent under the NESCS. Soil sampling is proposed to be undertaken within the identified HAIL locations, as well as systematic sampling along the proposed alignment where orchards are or were historically present.

A resource consent will be required before groundworks can commence.

5.1 Preliminary Site Investigation Certifying Statement

The document signatories of LDE certify that:

1. this preliminary site investigation meets the requirements of the Resource Management (National Environmental Standard for assessing and managing contaminants in soil to protect human health) Regulations 2011 because it has been:
 - a. done by a suitably qualified and experienced practitioner, and
 - b. reported on in accordance with the current edition of Contaminated land management guidelines No 1 – Reporting on contaminated sites in New Zealand, and

- c. the report is certified by a suitably qualified and experienced practitioner.

For activities under Regulation 8(4) of the NESCS this preliminary site investigation concludes is not highly unlikely that there will be a risk to human health if the activity is done to the piece of land.

The activity to be undertaken as defined in Regulation 5(4) is described:

- a. on page 3 of this preliminary site investigation.

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner(s) (SQEPs) who have done this investigation and have certified this report is included in Appendix B.

6 LIMITATIONS

This investigation presents a preliminary site investigations of the potential for ground contamination, prepared exclusively for Gisborne District Council with respect to the particular brief given to us. Information, opinions, and recommendations contained in it cannot be used for any other purpose or by any other entity without our review and written consent. LDE Ltd accepts no liability or responsibility whatsoever for or in respect of any use or reliance upon this report by any third party.

Opinions given in this report are based on a review of existing data available to LDE. There is still some possibility that contaminating activities have taken place or contamination at the site is in excess of that described in this report and we should be contacted immediately if the conditions are suspected to differ from that described.

APPENDIX A

SEARCH OF COUNCIL RECORDS / PROPERTY FILE RECORDS

807/85/3.

018504

Zeke 334

Pec. No- feS'Q
50e.

W A I K O H U COUNTY COUNCIL

BUILDING APPLICATION FORM

SCANNED

Date: 2/- 8-67

The Engineer,
Haikohu County Council,
TE K A R A K A

Dear Sir,

I hereby apply for permission to (full particulars) Extend Car Shed at
Te Karaka for Presbyterian Church Manse of
Timber Frame & Cor Iron according to locality plan and detailed plans, elevations, cross
sections and specifications of building deposited herewith in duplicate.

Particulars of land: Lot No. Section D.p. 3768 Kftnala Bite

Length of boundaries area 2.36 Estimated Starting date 28-8-67

Particulars of building: Foundations Concrete finishing date ... T T&Z ...
Walls Gw Iron & Asbestos Roof Cor. J-C

Area of ground floor 80 sq. feet. Area of outbuildings P.W. sq. feet.

Estimated Cost: Building £ Go
Plumbing £ — Total &Go

Proposed purposes for which every part of building is to be used or occupied (describing separately each
part intended for use or occupation for a separate purpose) Car Shed extension

Proposed use or occupancy of other part of building

Nature of ground on which building is to be placed and of the subjacent strata K«Q?r...lp.<?yy>.....

Yours faithfully,

A. R. Townsend.
PP Presbyterian blui fiL Roberts VtaiMbvV&t

Postal Address The Manse, Te Karaka A. R. Townsend Builder

Drainlajfng -

llaoc of Subcontractors:

Plumbing-



BC

807/85/3.

018504

File 374

Rec. No. 6512
50c.

W A I K O H U COUNTY COUNCIL

BUILDING APPLICATION FORM

Date: 2/- 8-6/

The Engineer,
Waikohu County Council,
TE K A R A K A.

Dear Sir,

I hereby apply for permission to .XtqIUaxtVMtor.s.) Extend Car Shed at

Te Karaka for Presbyterian Church Manse of

Timber Frame & Cor Iron according to locality plan and detailed plans, elevations, cross

sections and specifications of building deposited herewith in duplicate.

Particulars of Land: Lot No. 1 Section 37/ fl Kcirakft fth
O.P. 72

Length of boundaries area 2.36 Estimated Starting date 28-8 finishing date 7.7.72

Particulars of building: Foundations CpnfXlte..fiU Walls CjC; Iron & Ashlar Roof Cor..T-X

Area of ground floor 80 sq. feet. Area of outbuildings \$0 sq. feet.

Estimated Cost: Building £ C?O
Plumbing £ ■ Total £60

Proposed purposes for which every part of building is to be used or occupied (describing separately each part intended for use or occupation for a separate purpose)..... Car Shed extension

Proposed use or occupancy of other part of building

Nature of ground on which building is to be placed and of the subjacent strata River loam

Yours faithfully,

A. R. Townsend
pP- Presbyterian Church Property ffiMciOwner

Postal Address The Manse, Te Karaka A. R. Townsend Builder

Drainlajing - ■

Name of Subcontractors: Pluobing- ■

SPECIFICATIONS FOR BUILDERS.

FOUNDATIONS - Concrete, continuous or otherwise Concrete Pile

PILES - Material, size and distance apart both ways Concrete 9"x9" 4 ft Apart.

STRINGERS - Size and spacing, and type of timber /

FLOOR JOISTS - Size and distance apart, and type of timber /

FRAMING - Size & type of timber, height of stud & distance apart 4"x2" treated timbers,
6'6" studs @ 18" spacing

RAFTERS - Size, type of timber and distance apart 4"x2" Ramin 3'3" spacing

PURLINS - Size, type of timber and distance apart 3X2" treated, 11vnw 2'6"

ROOF COVERING - Type of Material Cor Iron

ROOF BRACING - Description of /

EXTERNAL WALL COVERING - Type of material Cor Iron & 4'6" slates

PARTITION WALL COVERING, Type of materials /

NAME OF PLUMBER /

ADDRESS: /

WAIKOHU COUNTY COUNCIL

OFFICES:
MAIN ROAD
TE KARAKA

TELEPHONE TTK 809

ALL COMMUNICATIONS
TO BE ADDRESSED TO
THE COUNTY CLERK

SCANNED

REF. No.

YOUR REF.

P.O. BOX 17

TE KARAKA

APPLICATION FOR A BUILDING PERMIT.

The Engineer,
Waikohu County Council.
Te Karaka.

Please print clearly.

Sir, I hereby apply for a permit to:-

Description of work.

Covered Deer yards + 2 stand shearing
shed and machinery storage area

For:-

Owner.

Name... R M TRAFFORD

Mailing Address... MORRIS RD TEKARAKA

Phone... 646 T.K.K.

Builder.

Name... self

Mailing Address...

Phone...

Location of work.

Address... MORRIS RD

Te KARAKA

NOTE:

If location vague give description
of route to site.

Legal Description.

Lot... 23... DP. 1145

Block No.....

Survey District... WAIKOHU.

Valuation Ref. 8070-114-0-000

Estimated Values.

Building \$ 7800

Plumbing \$ -

Drainage \$ -

TOTAL \$ 7800

Applicants Name... R M TRAFFORD

Applicants Signature... R M Trafford

Date of application... 29/11/83

For Office Use Only

Date Received... 29-11-83

Building Fee \$ 30-00

BRANZ Levy \$ -

TOTALS: \$ 30-00

Receipt No... 3152

Building permit No... 45134

Date Issued... 13/12/83

File No... 1541

Issuing Officer... [Signature]

Related D & P Permit No.....



R m TRAFFORD Deer shed.

Area. $15\text{ m} \times 13.5 = 202.5\text{ sq m.}$

Construction 4 7 metre trusses with 2 4 metre beam to each side.

Materials Purlins and Rafter - 150×50 Timber
Truss and Rafter supports Heavy gauge Railway
Iron. Trusses Bolted on to same by
welded on brackets.

Woolshed Floor. 100×100 plates. 150×50 Joists
T.O.G. Flooring. concrete piles

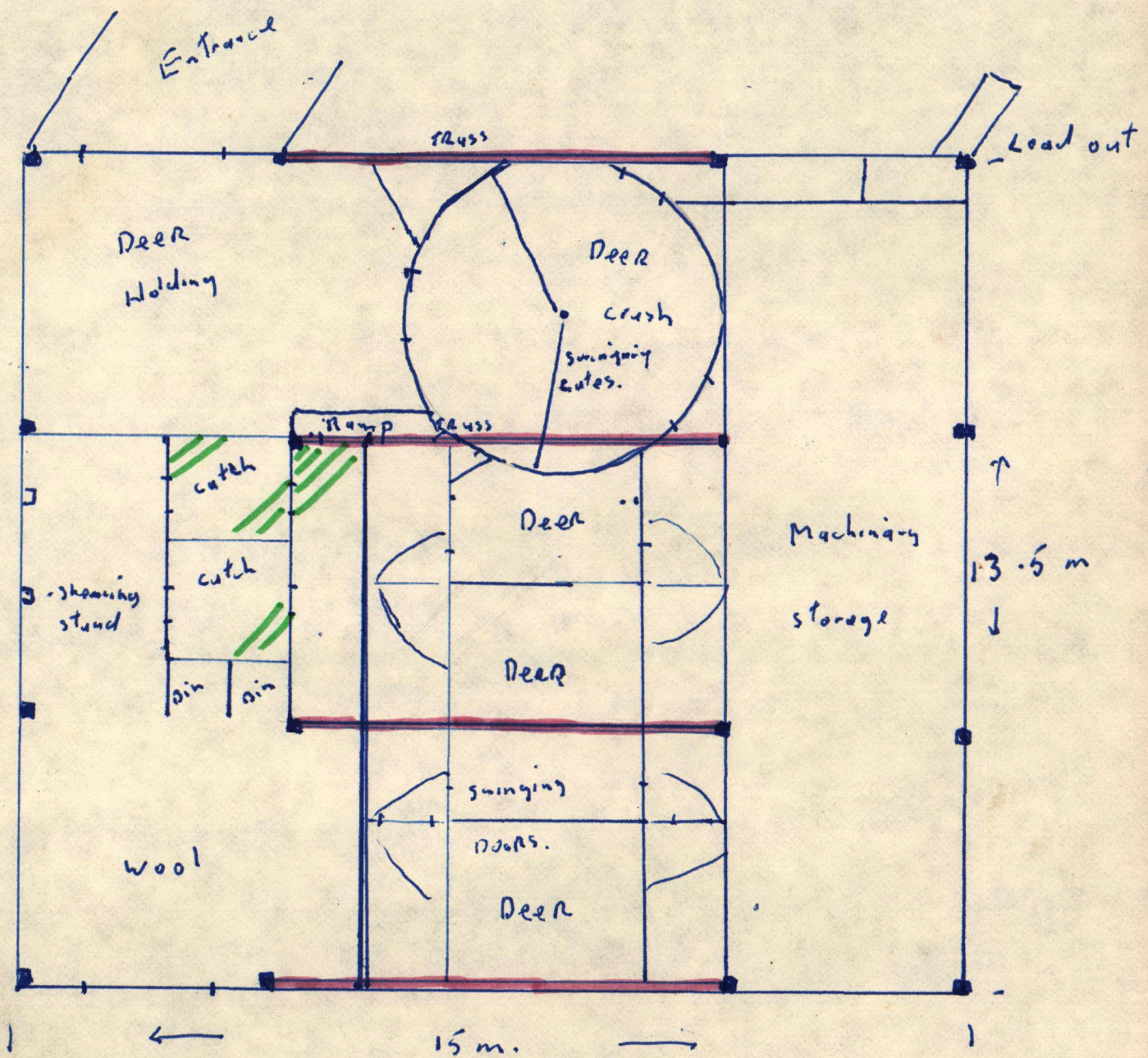
Roof. Insulation over wire netting. Corrugated
Iron.

Exterior. Implement shed side open.
Woolshed corrugated Iron.

Interior. Deer walls construction ply or 6×1
on 100×50 studs on 2.7 metre
 $\frac{1}{4}$ Round deer posts with 250×50
cap Rail.

R. M. TRAFFORD
Deer shed. + woolshed.

scale 1cm = 1 metre



/// GRATED AREA.

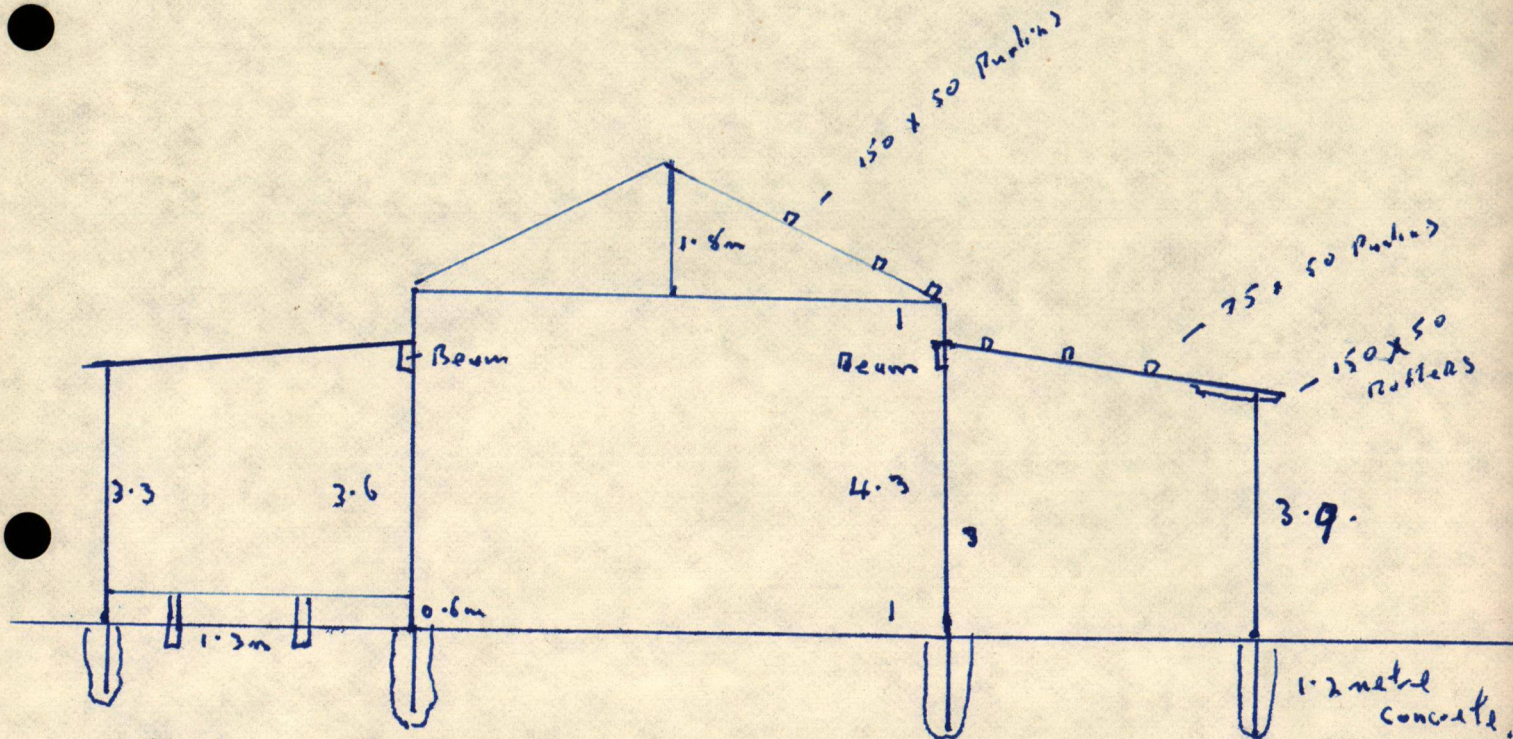
— 7 metre Trusses.

■ Heavy duty Railway Iron sunk 1.2 metre in ground

Rm TRAFFORD

Deer shed

scale 1 cm = 1 metre



Truss,

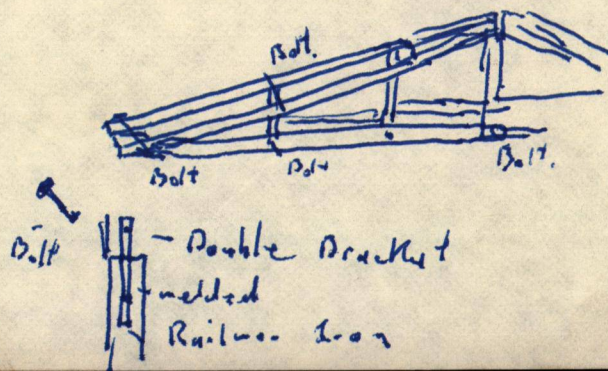
□ Purlins. 150mm x 50 spaced 7 metre apart (approx 2.6")

Lean to Rafter 150 x 50 spaced 7 metres

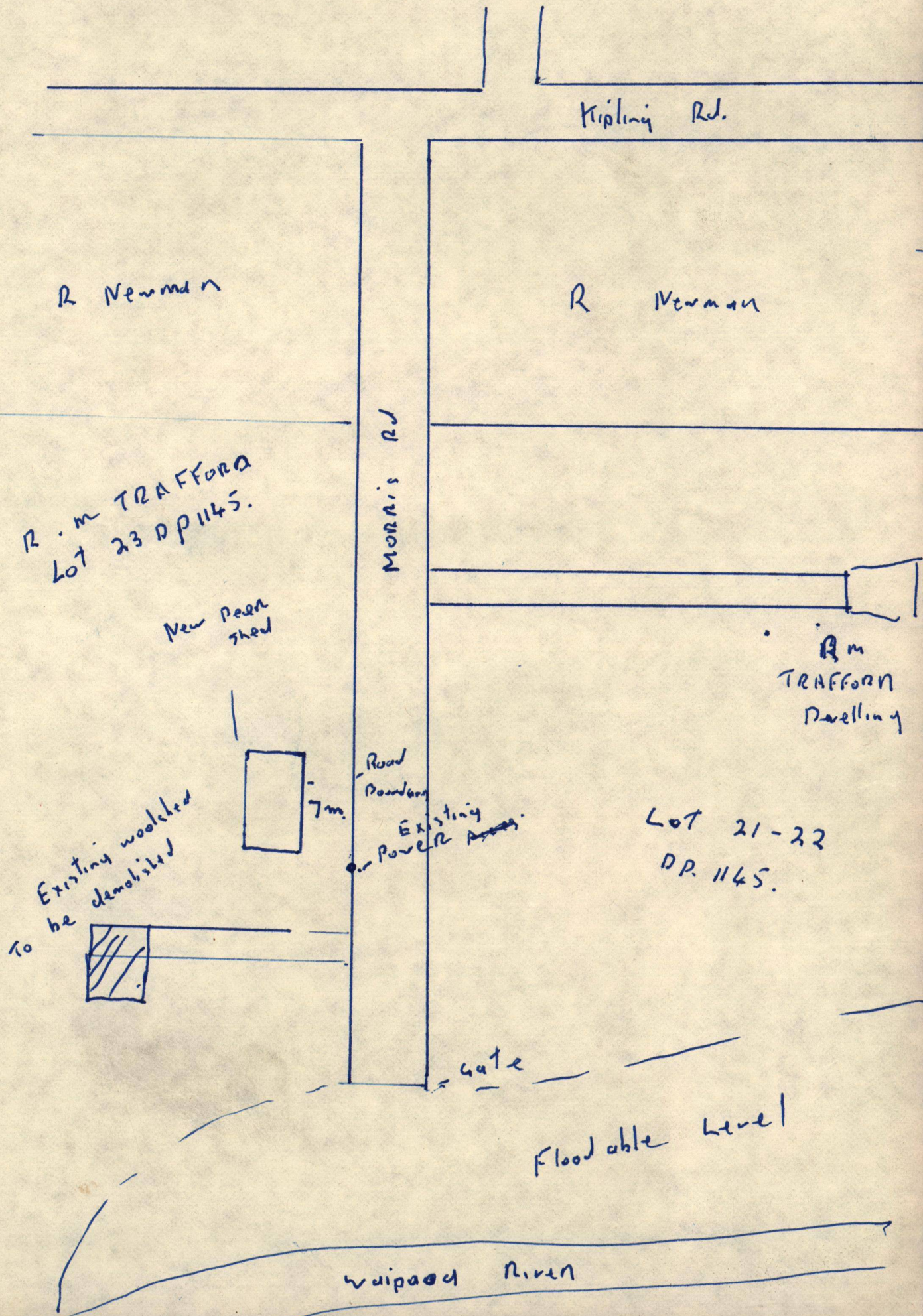
Beam to support Rafter 250 x 75. Bolted to supporting
Railway Iron

Truss Detail

2 100 x 50 main supports Bolted together
with 100 x 50 Bracing in between.



R M TRAFFORN Deer shed site Plan



APPENDIX B

QUALIFICATIONS AND EXPERIENCE OF THE SQEPS

James Gladwin - BSc (Hons) Environmental Science, PgDip in Soil Science, CEnvP.

James is a Suitably Qualified and Experience Practitioners (SQEP). He has +15 years of experience in contaminated land covering a wide range of sites and contamination types, and as a result has an excellent understanding of the National Environmental Standards for Contaminated Land (NESC) and the Contaminated Land Management Guidelines (CLMG).

James is a certified environmental practitioner (CEnvP) and has provided a wide range of contaminated land services to an array of clients. Key clients include the District and City Councils of the Bay of Plenty, the Bay of Plenty Regional Council, Christchurch City Council, Gisborne City Council, New Plymouth District Council and the NZ Transport Agency. He has been a panel member that provided technical review and guidance for the development of contaminated sites. He has also provided technical reviews for contaminated land investigations completed by third parties.

James worked on the Kopeopeo Canal Remediation Project, providing independent technical analysis for dioxin contamination in soils, sediment, water and air. He monitored and reported on the effectiveness of the dredge trial within resource consent requirements. This provided proof that the remediation methods were effective and practical so that the full-scale remediation of the canal could be completed. James continued to provide technical input through the remediation stage of the project.

APPENDIX B

LABORATORY TEST RESULTS AND CHAIN OF CUSTODY RECORDS

Certificate of Analysis

Page 1 of 3

Client:	LDE Limited	Lab No:	4113583	SPv1
Contact:	Erin Gasston C/- LDE Limited 27 Hobson Avenue Kerikeri 0230	Date Received:	27-Feb-2026	
		Date Reported:	03-Mar-2026	
		Quote No:	115238	
		Order No:	30019	
		Client Reference:	30019	
		Submitted By:	Erin Gasston	

Sample Type: Soil

Sample Name:	S1 24-Feb-2026	S2 24-Feb-2026	S3 24-Feb-2026	S4 24-Feb-2026	S5 24-Feb-2026
Lab Number:	4113583.1	4113583.2	4113583.3	4113583.4	4113583.5
Heavy Metals, Screen Level					
Total Recoverable Arsenic mg/kg dry wt	5	5	6	6	7
Total Recoverable Cadmium mg/kg dry wt	0.27	0.36	0.23	0.41	0.43
Total Recoverable Chromium mg/kg dry wt	23	23	22	26	27
Total Recoverable Copper mg/kg dry wt	24	21	18	21	21
Total Recoverable Lead mg/kg dry wt	49	57	42	40	71
Total Recoverable Nickel mg/kg dry wt	26	26	25	37	33
Total Recoverable Zinc mg/kg dry wt	115	125	89	109	149

Sample Name:	S6 24-Feb-2026	S7 24-Feb-2026	S8 24-Feb-2026	S9 24-Feb-2026	S10 24-Feb-2026
Lab Number:	4113583.6	4113583.7	4113583.8	4113583.9	4113583.10
Individual Tests					
Dry Matter g/100g as rcvd	-	-	80	81	-
Heavy Metals, Screen Level					
Total Recoverable Arsenic mg/kg dry wt	5	6	8	6	5
Total Recoverable Cadmium mg/kg dry wt	0.43	0.23	0.21	0.20	0.18
Total Recoverable Chromium mg/kg dry wt	23	24	26	29	26
Total Recoverable Copper mg/kg dry wt	19	17	16	17	18
Total Recoverable Lead mg/kg dry wt	37	15.4	9.2	10.8	12.9
Total Recoverable Nickel mg/kg dry wt	28	29	30	32	31
Total Recoverable Zinc mg/kg dry wt	390	109	84	76	86

Organochlorine Pesticides Screening in Soil					
Aldrin mg/kg dry wt	-	-	< 0.013	< 0.013	-
alpha-BHC mg/kg dry wt	-	-	< 0.013	< 0.013	-
beta-BHC mg/kg dry wt	-	-	< 0.013	< 0.013	-
delta-BHC mg/kg dry wt	-	-	< 0.013	< 0.013	-
gamma-BHC (Lindane) mg/kg dry wt	-	-	< 0.013	< 0.013	-
cis-Chlordane mg/kg dry wt	-	-	< 0.013	< 0.013	-
trans-Chlordane mg/kg dry wt	-	-	< 0.013	< 0.013	-
2,4'-DDD mg/kg dry wt	-	-	< 0.013	< 0.013	-
4,4'-DDD mg/kg dry wt	-	-	< 0.013	< 0.013	-
2,4'-DDE mg/kg dry wt	-	-	< 0.013	< 0.013	-
4,4'-DDE mg/kg dry wt	-	-	< 0.013	< 0.013	-
2,4'-DDT mg/kg dry wt	-	-	< 0.013	< 0.013	-
4,4'-DDT mg/kg dry wt	-	-	< 0.013	< 0.013	-
Total DDT Isomers mg/kg dry wt	-	-	< 0.08	< 0.08	-
Dieldrin mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endosulfan I mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endosulfan II mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endosulfan sulphate mg/kg dry wt	-	-	< 0.013	< 0.013	-



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:		S6 24-Feb-2026	S7 24-Feb-2026	S8 24-Feb-2026	S9 24-Feb-2026	S10 24-Feb-2026
Lab Number:		4113583.6	4113583.7	4113583.8	4113583.9	4113583.10
Organochlorine Pesticides Screening in Soil						
Endrin	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endrin aldehyde	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endrin ketone	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Heptachlor	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Methoxychlor	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Sample Name:		S11 24-Feb-2026	S12 24-Feb-2026	S13 24-Feb-2026	S14 24-Feb-2026	S15 24-Feb-2026
Lab Number:		4113583.11	4113583.12	4113583.13	4113583.14	4113583.15
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	79	78	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	10	6	6	7	6
Total Recoverable Cadmium	mg/kg dry wt	0.13	0.19	0.19	0.13	0.14
Total Recoverable Chromium	mg/kg dry wt	31	27	29	31	22
Total Recoverable Copper	mg/kg dry wt	23	19	22	24	18
Total Recoverable Lead	mg/kg dry wt	16.9	16.2	14.3	11.3	11.1
Total Recoverable Nickel	mg/kg dry wt	40	31	39	42	30
Total Recoverable Zinc	mg/kg dry wt	93	89	83	85	76
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	< 0.013	< 0.013	-
alpha-BHC	mg/kg dry wt	-	-	< 0.013	< 0.013	-
beta-BHC	mg/kg dry wt	-	-	< 0.013	< 0.013	-
delta-BHC	mg/kg dry wt	-	-	< 0.013	< 0.013	-
gamma-BHC (Lindane)	mg/kg dry wt	-	-	< 0.013	< 0.013	-
cis-Chlordane	mg/kg dry wt	-	-	< 0.013	< 0.013	-
trans-Chlordane	mg/kg dry wt	-	-	< 0.013	< 0.013	-
2,4'-DDD	mg/kg dry wt	-	-	< 0.013	< 0.013	-
4,4'-DDD	mg/kg dry wt	-	-	< 0.013	< 0.013	-
2,4'-DDE	mg/kg dry wt	-	-	< 0.013	< 0.013	-
4,4'-DDE	mg/kg dry wt	-	-	< 0.013	< 0.013	-
2,4'-DDT	mg/kg dry wt	-	-	< 0.013	< 0.013	-
4,4'-DDT	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Total DDT Isomers	mg/kg dry wt	-	-	< 0.08	< 0.08	-
Dieldrin	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endosulfan I	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endosulfan II	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endrin	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endrin aldehyde	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Endrin ketone	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Heptachlor	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Methoxychlor	mg/kg dry wt	-	-	< 0.013	< 0.013	-
Sample Name:		S16 24-Feb-2026	S17 24-Feb-2026	S18 24-Feb-2026		
Lab Number:		4113583.16	4113583.17	4113583.18		
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	5	5	5	5
Total Recoverable Cadmium	mg/kg dry wt	0.23	0.21	0.21	0.18	0.18
Total Recoverable Chromium	mg/kg dry wt	23	25	25	25	25
Total Recoverable Copper	mg/kg dry wt	19	17	17	16	16
Total Recoverable Lead	mg/kg dry wt	43	30	30	28	28
Total Recoverable Nickel	mg/kg dry wt	28	30	30	29	29

Sample Type: Soil			
Sample Name:	S16 24-Feb-2026	S17 24-Feb-2026	S18 24-Feb-2026
Lab Number:	4113583.16	4113583.17	4113583.18
Heavy Metals, Screen Level			
Total Recoverable Zinc	mg/kg dry wt	146	72
			79

Summary of Methods

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

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1-18
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1-18
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	8-9, 13-14
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	8-9, 13-14

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

Testing was completed between 27-Feb-2026 and 03-Mar-2026. For completion dates of individual analyses please contact the laboratory.

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

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



Kim Harrison MSc
Client Services Manager - Environmental

Certificate of Analysis

Page 1 of 3

Client:	LDE Limited	Lab No:	4114024	A2Pv1
Contact:	Erin Gasston C/- LDE Limited 27 Hobson Avenue Kerikeri 0230	Date Received:	27-Feb-2026	
		Date Reported:	05-Mar-2026	
		Quote No:	115238	
		Order No:	30019	
		Client Reference:	30019	
		Submitted By:	Erin Gasston	

Sample Type: Soil

Sample Name:	S2 24-Feb-2026	S11 24-Feb-2026	S15 24-Feb-2026	S16 24-Feb-2026	S17 24-Feb-2026
Lab Number:	4114024.1	4114024.2	4114024.3	4114024.4	4114024.5
Asbestos Presence / Absence	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form	-	-	-	-	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001	% w/w < 0.001
As Received Weight	g 478.6	g 625.1	g 587.3	g 583.8	g 596.3
Dry Weight	g 359.0	g 495.0	g 478.6	g 485.7	g 497.6
Moisture*	% 25	% 21	% 18	% 17	% 17
Sample Fraction >10mm	g dry wt < 0.1	g dry wt 83.5	g dry wt 33.1	g dry wt 82.4	g dry wt 74.5
Sample Fraction <10mm to >2mm	g dry wt 127.0	g dry wt 218.7	g dry wt 149.7	g dry wt 170.3	g dry wt 169.6
Sample Fraction <2mm	g dry wt 231.3	g dry wt 191.8	g dry wt 294.9	g dry wt 231.9	g dry wt 252.1
<2mm Subsample Weight	g dry wt 50.2	g dry wt 50.5	g dry wt 55.2	g dry wt 54.8	g dry wt 56.7
Weight of Asbestos in ACM (Non-Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001	g dry wt < 0.00001

Sample Name:	S18 24-Feb-2026
Lab Number:	4114024.6
Asbestos Presence / Absence	Asbestos NOT detected.
Description of Asbestos Form	-
Asbestos in ACM as % of Total Sample*	% w/w < 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w < 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w < 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w < 0.001
As Received Weight	g 559.9
Dry Weight	g 461.4
Moisture*	% 18
Sample Fraction >10mm	g dry wt 140.1
Sample Fraction <10mm to >2mm	g dry wt 175.7



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:		S18 24-Feb-2026
Lab Number:		4114024.6
Sample Fraction <2mm	g dry wt	145.1
<2mm Subsample Weight	g dry wt	56.6
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)	g dry wt	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001

Glossary of Terms

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

For further details, please contact the Asbestos Team.

Please refer to the **BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil**.

<https://www.branz.co.nz/asbestos>

The following assumptions have been made:

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

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

Summary of Methods

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

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-6
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g	1-6
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1-6
Sample Fraction >10mm	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-6
Sample Fraction <10mm to >2mm	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-6
Sample Fraction <2mm	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch.	0.1 g dry wt	1-6
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1-6
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1-6
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-6

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Sample No
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-6
Weight of Asbestos as Fibrous Asbestos (Friable)	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-6
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-6
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; Unit 1, 17 Print Place, Middleton, Christchurch. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1-6
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-6
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1-6

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

Testing was completed on 05-Mar-2026. For completion dates of individual analyses please contact the laboratory.

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

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



John Keneth Paglingayen BAPSc
Laboratory Technician - Asbestos

APPENDIX C

QUALIFICATIONS AND EXPERIENCE OF THE SQEP(S)

James Gladwin - BSc (Hons) Environmental Science, PgDip in Soil Science, CEnvP.

James is a Suitably Qualified and Experience Practitioner (SQEP). With 15+ years of experience in contaminated land covering a wide range of sites and contamination types, James has an excellent understanding of the investigation and remediation of contaminated land in accordance with the National Environmental Standards for Contaminated Land (NЕСS) and the Contaminated Land Management Guidelines (CLMG).

James is a certified environmental practitioner (CEnvP) and has provided a wide range of contaminated land services to an array of clients. Key clients include the District and City Councils of the Bay of Plenty, the Bay of Plenty Regional Council, Christchurch City Council, Gisborne City Council, New Plymouth District Council, and the NZ Transport Agency. He has been a panel member that provided technical review and guidance for the development of contaminated sites. He has also provided technical reviews for contaminated land investigations completed by third parties. James currently sits on the Bay of Plenty Regional Council Environmental Panel and is a permanent member of ALGA.

James worked on the Kopeopeo Canal Remediation Project, providing independent technical analysis for dioxin contamination in soils, sediment, water, and air. He monitored and reported on the effectiveness of the dredge trial within resource consent requirements. This provided proof that the remediation methods were effective and practical so that the full-scale remediation of the canal could be completed. James continued to provide technical input through the remediation stage of the project.