

Waka Kotahi New Zealand Transport Agency

STATE HIGHWAY 1 AND STATE HIGHWAY 29 INTERSECTION UPGRADE PRELIMINARY SITE INVESTIGATION

18 June 2021



STATE HIGHWAY 1 AND STATE HIGHWAY 29 INTERSECTION UPGRADE PRELIMINARY SITE INVESTIGATION

Waka Kotahi New Zealand Transport Agency

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REV	DATE	DETAILS
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EXECUTIVE SUMMARY

WSP New Zealand Limited (WSP) has undertaken a Preliminary Site Investigation (PSI) on behalf of Waka Kotahi New Zealand Transport Agency (Waka Kotahi) for the State Highway 1 (SH1) and State Highway 29 (SH29) Intersection Upgrade Project (the Project). The Project involves a proposed roundabout and associated stormwater infrastructure to be constructed within the proposed designation boundaries at the intersection of SH1 and SH29 (the 'site').

The Project involves the construction of a roundabout on the adjacent pasture to the northwest of the existing intersection and a stormwater wetland pond on properties adjacent to SH1. WSP has undertaken this PSI to assess if it is more likely than not that industries or activities described in the Ministry for Environment (MfE, 2011a) Hazardous Activities and Industries List (HAIL) are occurring, or have historically been undertaken, on or within 100 m of the site.

The scope of works for the PSI comprised a desktop study review of the site geology, hydrogeology and historical information including aerial imagery and council records. A site visit was undertaken by a WSP Contaminated Land Specialist (CLS) on 19 January 2021. During this site visit, nine surface soil samples were collected on the properties located on the eastern side of SH29 from within the approximate area of proposed soil disturbance. The site history review showed that the site was largely in agricultural use by 1943 and remains so today.

The PSI determined that a HAIL activity occurred historically on part of the site at 1898 SH1. This is the proposed location of a stormwater wetland. The activity is listed as an unverified HAIL site, F7 (Service Stations). Council records describe this property as the location of a service station from 1970 to 1980, however, aerial imagery indicates a service station could potentially have been present since 1961.

The soil sampling undertaken has indicated that there are low concentrations of cadmium, lead and zinc present in the shallow soils. The concentrations detected are above Waikato Regional Council (WRC): Natural background concentrations. However, they are below the National Environmental Standards for Contaminated Soils (NESCS) and the Soil Contaminant Standards (SCS) for a future commercial/industrial land use. A commercial/industrial land use was adopted to reflect the future use of the land for a roundabout.

As an activity on the HAIL (i.e. being a service station) has historically been undertaken in an area of planned soil disturbance, that the soil sampling did not include this area and that the sampling did not constitute a detailed site investigation (DSI) in accordance with the NESCS, the disturbance of the soil on the HAIL site would be a discretionary activity in accordance with the NESCS. If a DSI is undertaken that includes the former service station area, then the NESCS consent activity status would be a restricted discretionary or controlled activity depending on the findings of the DSI.

The limited soil sampling that occurred indicates that if soil is to be disposed of outside of the proposed designation boundaries, it is unlikely to be able to be disposed of as cleanfill. If the material is to be disturbed and remain on site, the requirements of the WRC Waikato Regional Plan and the NESCS should be considered prior to construction commencing to determine if there are any consenting requirements.

Depending on the requirements of the WRC Waikato Regional Plan, the NESCS and the findings of additional soil sampling, a site management plan (SMP) may be required. At a minimum the

requirement for an unexpected discovery protocol should be included as a condition of the NESCS consent. An unexpected discovery protocol outlines operational requirements if unexpected soil contamination is encountered during construction of the roundabout and the stormwater wetland.

1 INTRODUCTION

1.1 OVERVIEW

WSP has undertaken a PSI, with limited soil sampling, on behalf of Waka Kotahi for a proposed roundabout and associated stormwater infrastructure to be constructed, as part of the Project. Refer to Figure 1, Appendix A.

This PSI informs the Assessment of Effects on the Environment Report (AEE) and supports two Notice of Requirements (NoR) for alterations to designations to Matamata-Piako District Council (MPDC) and South-Waikato District Council (SWDC) and applications for regional resource consent to Waikato Regional Council (WRC). A full description of the NoRs and regional resource consents required for the Project is provided in Section 4 of the AEE. A full description of the background and strategic context for the Project is provided in Section 2 of the AEE.

The works for the intersection upgrade are proposed to take place within four different properties, which are located within two territorial authority boundaries. Two properties are within the South Waikato District and two are within the Matamata-Piako District.

1.2 PURPOSE AND SCOPE OF REPORT

WSP has undertaken this PSI to address the requirements of and to determine the need for resource consent to be sought by the contractor under the NESCS¹. The objective of this PSI is to assess if it is more likely than not that industries or activities described in the Ministry for Environment (MfE, 2011a) Hazardous Activities and Industries List (HAIL) are occurring, or have historically been undertaken, on or near the site.

Though not a requirement of the PSI, some limited soil sampling was undertaken during the PSI site walkover on the eastern side of SH29. The objective of the soil sampling was to gain a general understanding of soil conditions to help inform soil management/disposal options during future soil disturbance works. The limited soil sampling does not meet the requirements of a detailed site investigation (DSI) in accordance with the NESCS.

1.3 SCOPE OF WORKS

The scope of works for the PSI comprised:

- A desktop study review of:
 - geology and hydrogeology maps and databases
 - historical aerial imagery available on Retrolens and Google Earth information on the WRC land use information register (LUIR)
 - information on MPDC and SWDC HAIL site records

- preliminary design plans of the roundabout and the stormwater infrastructure
- We undertook a site walkover with limited soil sampling undertaken in the paddocks adjacent to the south-east of SH29. Samples were not able to be collected from the land adjacent to the west of SH29, where the proposed roundabout is to be constructed, as property access was not available. Collected soil samples were analysed for heavy metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc). At the time of the soil sampling taking place it was not known that the service station location was included within the works area and therefore no sampling was undertaken on the service station property,

This PSI is reported with reference to the MfE, CLMG No. 1: Reporting on Contaminated Sites in New Zealand (MfE, 2011b).

2 SITE LOCATION AND SETTING

2.1 SITE AND SURROUNDING LAND USES

The proposed roundabout and associated infrastructure includes land on the western side of SH29, the eastern side of SH29 and a property to the south of the existing SH1 road corridor. It also includes the existing SH1 and SH29 road corridors.

The surrounding area generally comprises pasture, with farm buildings, to the north, east and west. To the south, is an un-developed area of land currently covered with vegetation. with an unnamed tributary of the Waikato River. The land that is proposed to be designated is shown in Figure 1 below.

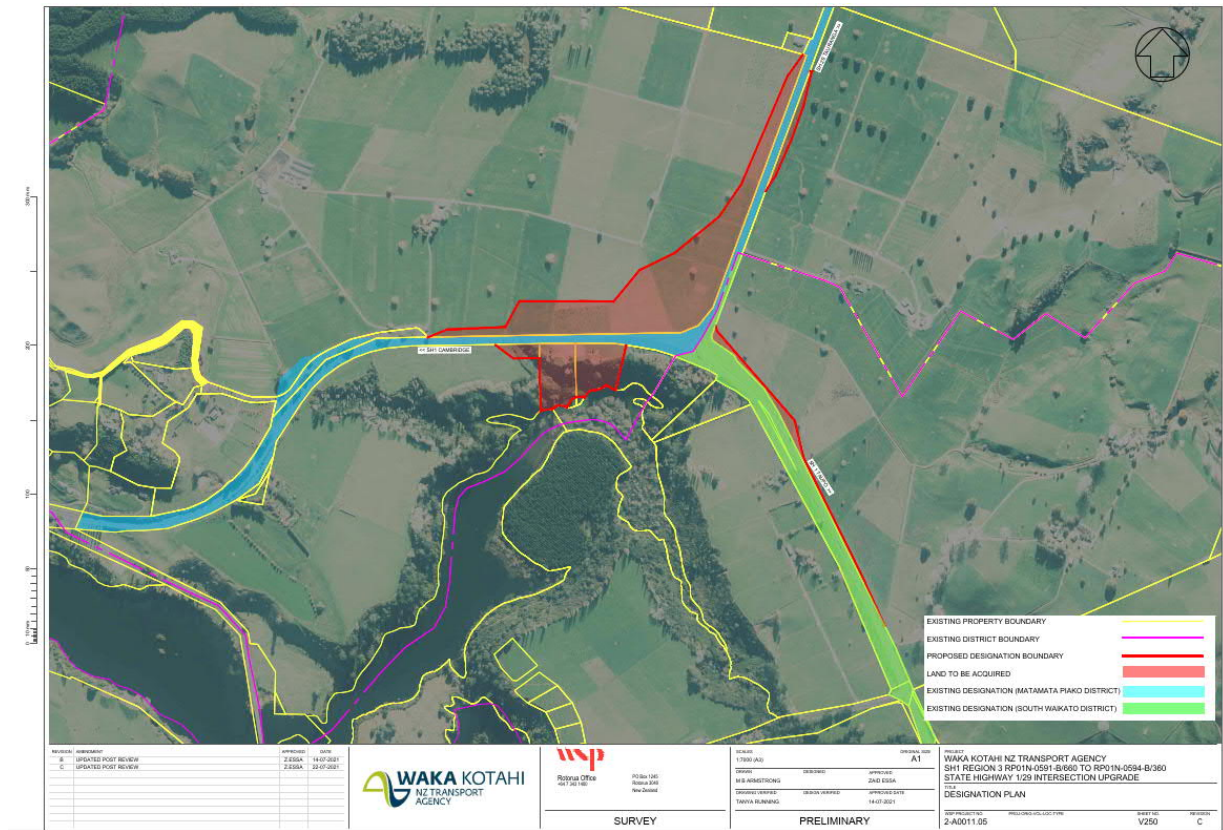


Figure 1: Site layout - site area is shaded in red.

The site identification details are provided in Table 2-1 below:

Table 2-1 Site Property Details

Site address	1831A State Highway 1	85 State Highway 1	5969A and B State Highway 29	1896 SH1	2400 Maungatautari Road
Landowner	Thistlehurst Dairy Limited	Woodlock Trustees (2011) Limited and Watkins	The Milky Way Limited	Crown Land	Mattise Holdings Limited
Record of Title	SA69C/317	SA646/95	SA1701/33	SA32A/615	806061
Local Authority	Matamata-Piako District Council	South Waikato District Council	Matamata-Piako District Council	Matamata-Piako District Council	Matamata-Piako District Council
Current Site use	Agricultural	Agricultural	Agricultural	Agricultural and gully area	Agriculture and gully area
Proposed site use	Road / road reserve / stormwater infrastructure	Road / road reserve stormwater infrastructure	Road / road reserve stormwater infrastructure	Stormwater infrastructure	Geotechnical works for the road

2.2 GEOLOGY AND SOIL

The geological map of the area (Leonard, 2010) describes the geology underlying the site as Hinuera Formation (Tauranga Group) comprising laminated, commonly cross-bedded, fluvial sands and gravels dominated by volcanic clasts (pumice, ash, quartz and feldspar) with the younger part derived from reworked Oranui Formation with some primary ignimbrite.

Underlying soil across the site consists of four distinct soil types which include the Temuka soil type, characterised by poorly drained clay, Otorohanga soil type, characterised by well drained silt, Oronoko soil type, characterised by well drained loam, and the Airfield soil type, characterised imperfectly drained clay.

2.3 SURFACE WATER AND HYDROGEOLOGY

The nearest sensitive receptor to the site is an unnamed river which drains to the Waikato River and from there to Lake Karapiro in the north. The Waikato River runs adjacent to SH1 from Piarere

towards Cambridge and is located approximately 190 m to the south of the site at its closest point. An ephemeral stream runs north to south through the land to the east and west of SH29.

The WRC groundwater bore database identified no bores within the proposed site boundaries. The database did identify one bore within 100 m of the proposed site boundaries. This bore is located 80m to the south west of the property at #2 SH1. The use and depth of the well is unknown. No depth to groundwater was recorded on the WRC groundwater bore database.

3 DESKTOP REVIEW

3.1 HISTORICAL AERIAL PHOTOGRAPHS

WSP reviewed historical aerial photographs for the site and surrounding area sourced from Retrolens and Google Earth, dating between 1943 and 2020. A summary of observed land uses and land use changes are described in Table 3-1 below. Copies of the aerial photographs are included in Appendix B.

Table 3-1: Historical Aerial Photograph Review

YEAR AND SOURCE	SITE	SURROUNDING AREA
1943 (Retrolens)	SH1/29 intersection is visible in the same location as the present day.	Predominately pasture, incised gully marking a tributary of the Waikato River can be seen to the south of the site. Some residential buildings are visible in the aerials to the northwest and south of the site.
1961 (Retrolens)	A row of trees is along a fence line toward the northwest of the site. The remainder of the site is unchanged. The service station at 1898 SH1 is visible.	Lake Karapiro has been formed and is located 250 m to the south of the site at its closest point.
1966 (Retrolens)	The site remains unchanged.	The surrounding area remains mostly unchanged. Earthworks to recontour the curve of the intersection are visible in this photo.
1977 (Retrolens)	The row of trees from the 1961 image has been removed. The rest of the site remains unchanged.	The three residential buildings to the south of the site have been replaced with one larger house.
1995 (Retrolens)	The layout of the intersection has been changed to include a turning lane for east-bound traffic.	The surrounding area remains unchanged.
2007 (Google Earth)	The site remains unchanged.	The surrounding area remains unchanged.
2012 (Google Earth)	The service station building appears to have been removed and the area is surfaced with gravel. The remainder of the site remains unchanged.	A residential building on the south of SH1 has been removed.
2020 (Google Earth)	The site remains unchanged.	The surrounding area remains unchanged.

3.2 WRC LAND USE INFORMATION REGISTER

WSP requested information from WRC on the site from its LUIR. Based on the response from WRC, most of the site is not recorded as a HAIL on its LUIR. However, 1896 SH1 (the Crown land) is listed as an unverified HAIL site, F7: Service Stations. WRC states that the site is included on the register for land use information only, as no soil sampling or contaminated land investigation have been undertaken on this site. A copy of the LUIR response is included in Appendix C.

3.3 MPDC AND SWDC HAIL SITE RECORDS

WSP requested information from MPDC on the site from its LUIR. Based on the response from MPDC, the site is not recorded as a HAIL on its HAIL records. Additionally, no adjacent properties were recorded on the HAIL Records. A copy of the HAIL response is included in Appendix D.

WSP applied to SWDC for HAIL Information and no response had been received at the time of writing this report.

3.4 WRC CONSENTS

The WRC Local Maps online portal provide a history of resource consents in the area. One consent was issued within 100 m of the site consisting of a Land Use Consent to undertake earthworks in relation to safety improvements on SH1.

3.5 HAIL CATEGORIES H AND I

This PSI considers a HAIL categorisation to apply, with respect to the NESCS, based on evidence that a HAIL is, or has been, occurring, or evidence that it is 'more likely than not' to have occurred. The HAIL review focuses on activities and industries identified on the MfE HAIL that are located within the designation boundaries for the site, also considers adjacent HAIL activities and industries with potential to cause soil/groundwater contamination. The activities and industries described on the HAIL are not exhaustive and the potential for soil/groundwater contamination may exist from other sources not specifically described on the HAIL. This is addressed under two generic categories of the HAIL described as:

- Category H: Any land that has been subject to the migration of hazardous substances from adjacent land in sufficient quantity that it could be a risk to human health or the environment; and
- Category 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.

The HAIL review takes these categories into account when assessing the potential for migration of, or the deposition or release of contaminants into or onto the road reserve.

4 SITE WALKOVER

The site was visited by a WSP Contaminated Land Specialist (CLS) on 19 January 2021. The Milky Way property was accessed by the private driveway to the house. The weather at the time of the site visit was cool with scattered heavy showers. This property is generally flat agricultural land with a slight dip in the land where the ephemeral stream bed was located. Part of this stream was culverted under the formed driveway and also in the paddock with concrete culvert pipes. Paddocks were pastured with grass and appeared healthy. Soils were observed to be slightly moist brown silts.

The Woodlock Trustee's property was also visited and accessed from the layover at the corner of SH1 and SH29. This portion of the site was observed to have a number of large oak trees growing in agricultural land. A slight embankment was observed on the south edge of the paddock, following the contour of the SH1/29 intersection. Soils in this portion of the site were observed to be slightly drier silts than soils on the Milky Way property.

No buildings were observed within the site and both properties visited were tidy, with no rubbish piles or burn pits observed.

The former service station property at 1898 SH1 was not visited at this time and access to the Thistlehurst Dairy Limited property has not been made available, no site inspection was undertaken.

5 SAMPLING AND ANALYSIS

5.1 METHODOLOGY

The CLS attended the land to the east of SH29 site on the 19 January 2021 to undertake limited soil sampling. The limited soil sampling comprised collecting nine surface samples from the two properties adjacent to the east of SH29. Samples were collected in the approximate areas of proposed soil disturbance. Plans for the construction of the roundabout have not been finalised at the time of writing.

The CLS collected the nine samples to an approximate depth of 0.1 m below ground level (bgl). All samples were collected by hand using a stainless-steel trowel and gloved hands. Nitrile gloves were replaced between collection of each sample. All non-dedicated sampling equipment was washed and decontaminated using a phosphate-free soap between each sample location. Soil sample locations are presented in Appendix A: Figure 2.

Samples were placed directly into jars provided by an R J Hill Laboratories Limited (Hills) and stored in a cooler, before being transported to Hills under a chain of custody for heavy metals/metalloids (arsenic, cadmium, chromium, copper lead, nickel and zinc) analysis to assess the likelihood that the site has been contaminated from the use of agricultural chemicals. Hills is accredited by International Accreditation New Zealand (IANZ) for the analysis undertaken.

Copies of the laboratory chain of custody and certificates of analysis have been included in Appendix E.

5.2 SAMPLE ANALYSIS AND ASSESSMENT CRITERIA

5.2.1 ASSESSMENT CRITERIA

Soil samples were analysed for a standard suite of metals (arsenic, cadmium, copper chromium, nickel lead and zinc) to determine whether or not they would be considered a risk to human health under the proposed land use of the site and also if they would have any specific disposal requirements. The following selected contaminant standards (SCS) soils were therefore chosen:

- Human Health

Soils were assessed in accordance with the NESCS against the SCS for a Commercial/Industrial land use. This is to protect site workers while constructing the road and future maintenance workers.

- Soil disposal

To determine whether soil can be disposed as cleanfill or reused onsite without potential controls, the analytical results were compared to the WRC: Natural background concentrations in the Waikato region.

5.2.2 RESULTS DISCUSSION

All of the samples analysed contained concentrations of metals that complied with the NESCS SCS for the protection of human health in a Commercial/Industrial land use scenario.

All samples contained concentrations of cadmium and zinc above the WRC Natural regional background values, whilst the lead concentrations were above regional background concentrations in five samples.

If soils cannot be re-used for the Project and are to be removed from site, they are unlikely to be certified for use as cleanfill and may be required to be disposed of as managed fill. The soil may be able to be retained onsite with no or minimal controls subject to meeting requirements, if any, of the WRC Waikato Regional Plan.

Laboratory certificates are included in Appendix E and tabulated results in Appendix F.

6 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The PSI has determined that one activity on the HAIL occurred historically on part of the site located at the proposed northern stormwater wetland (at 1896 SH1, Cambridge). This property is listed as an unverified HAIL site, F7 (Service Stations). Council records describe this property as the location of a service station from 1970 to 1980, however, aerial imagery indicates a service station could potentially have been present since 1961.

At the time of the limited soil sampling the HAIL site (service Station) was not considered to be within in the designation and therefore no soil sampling was undertaken on this property. The limited soil sampling was undertaken to provide information for soil management and disposal options. The limited soil sampling undertaken indicated that there are low concentrations of cadmium, lead and zinc present in the shallow soils. The concentrations detected were above WRC: Natural background concentrations, however below the NESCS SCS for a future commercial/industrial land use. A commercial/industrial land use was adopted to reflect the future use as a roundabout.

As an activity on the HAIL (i.e. being a service station) has historically been undertaken in an area of planned soil disturbance, that the soil sampling did not include this area and that the sampling did not constitute a detailed site investigation (DSI) in accordance with the NESCS, the disturbance of soils would be a discretionary activity in accordance with the NESCS. If a DSI is undertaken that includes the former service station area, then the NESCS consent activity status would be a restricted discretionary or controlled activity consent depending on the findings of the DSI.

The limited soil sampling that did occur indicates that if soil is to be disposed of outside of the designation, it is unlikely to be able to be disposed of as cleanfill.

6.2 RECOMMENDATION

Based on this PSI and the limited soil sampling undertaken, earthworks for the Project would be a controlled activity under the NESCS. However, the PSI and soil sampling was undertaken before it was known that the property located at 1898 SH1 was to be included in designation boundaries. WSP therefore recommends a detailed site investigation is undertaken on that Crown owned property where the service station was formerly situated, prior to the construction of the stormwater wetland.

Additionally, as the limited soil sampling identified some elevated concentrations of cadmium, lead and zinc, if the soil is not remaining on site for the Project, further soil sampling should be undertaken to support potential segregation of soil as cleanfill (concentration below background values) and managed fill (concentration above background values but below NESCS SCS). This sampling should also include the land to the west of SH29 and south of SH1.

Depending on the requirements of the WRC Waikato Regional Plan and the findings of additional soil sampling, a site management plan (SMP) may be required. At a minimum, an unexpected

discovery protocol should be developed as a condition of the NESCS consent for proposed construction of the roundabout and stormwater infrastructure to ensure any unidentified soil contamination encountered is appropriately managed.

7 REFERENCES

- Google Earth, 2021, https://earth.google.com/web/@-37.94359085,175.66758202,101.25201651a,1110.67121029d,35y,-0.29468513h,21.79410779t,359.99919713r?utm_source=earth7&utm_campaign=vine&hl=en
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- MfE. (2011a). Hazardous Activities and Industries List (HAIL). Ministry for the Environment, 2011.
- MfE. (2011b). Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (Revised 2011). Wellington: Ministry for the Environment. 2011.
- Retrolens, 2021, <https://retrolens.co.nz/map/#/1830135.5047401756/5791468.301059886/1846225.4991941836/5800812.727767737/2193/8>

8 LIMITATIONS

SCOPE OF SERVICES

This report ('Report') has been produced by WSP exclusively for Waka Kotahi New Zealand Transport Agency ('the Client') in relation to the preparation of a preliminary site investigation with limited soil sampling for the construction of a roundabout at the intersection of SH1 and SH29 ('Purpose') and in accordance with the proposal dated 4 May 2020 (Our Reference 2-32850.PP 02B). The findings in this Report are based on and are subject to the assumptions specified in the Report and the proposal dated 4 May 2020 (Our Reference 2-32850.PP 02B). WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

This Report has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the client and WSP ('the scope of services'). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information provided by the client and other individuals and organisations, most of which are referred to in the Report ('the data'). Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the Report ('the conclusions') are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. WSP will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

ENVIRONMENTAL CONCLUSIONS

In accordance with the scope of services, WSP has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the Report. The nature and extent of monitoring and/or testing conducted is described in the Report.

On all sites, varying degrees of non-uniformity of the vertical and horizontal soil or groundwater conditions are encountered. Hence no monitoring, common testing or sampling technique can eliminate the possibility that monitoring or testing results/samples are not totally representative of soil and/or groundwater conditions encountered. The conclusions are based upon the data and the environmental field monitoring and/or testing are therefore merely indicative of the environmental condition of the site at the time of preparing the Report, including the presence or otherwise of contaminants or emissions.

Also, it should be recognised that site conditions, including the extent and concentration of contaminants, can change with time.

Within the limitations imposed by the scope of services, preparation of this Report has been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

REPORT FOR BENEFIT OF CLIENT

The Report has been prepared for the benefit of the client and no other party. WSP assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the Report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the Report (including without limitation matters arising from any negligent act or omission of WSP or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the Report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

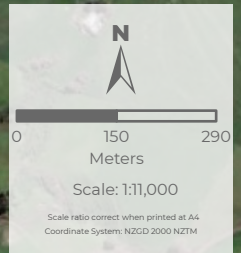
OTHER LIMITATIONS

WSP will not be liable to update or revise the Report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the Report.

The scope of services did not include any assessment of the title to or ownership of the properties, buildings and structures referred to in the Report nor the application or interpretation of laws in the jurisdiction in which those properties, buildings and structures are located.

Appendix A

Figures



LEGEND

- Sampling Locations
- Investigation Area
- Wetland Pond
- HAIL Site F7

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Figure 2 - Investigation Area and Sampling Locations

SH1 / SH29 Intersection, Waikato
C2P SH1/SH29 Roundabout

Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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Project Number: 2-A0011.04	Author: MB	Client:
Date: 18/05/2021	Approved by: ST	

Appendix B

Historical Aerial Photographs

1943



 Approximate Site Location

1961



 Approximate Site Location  Former Service Station Location

1966



 Approximate Site Location  Former Service Station Location

1977



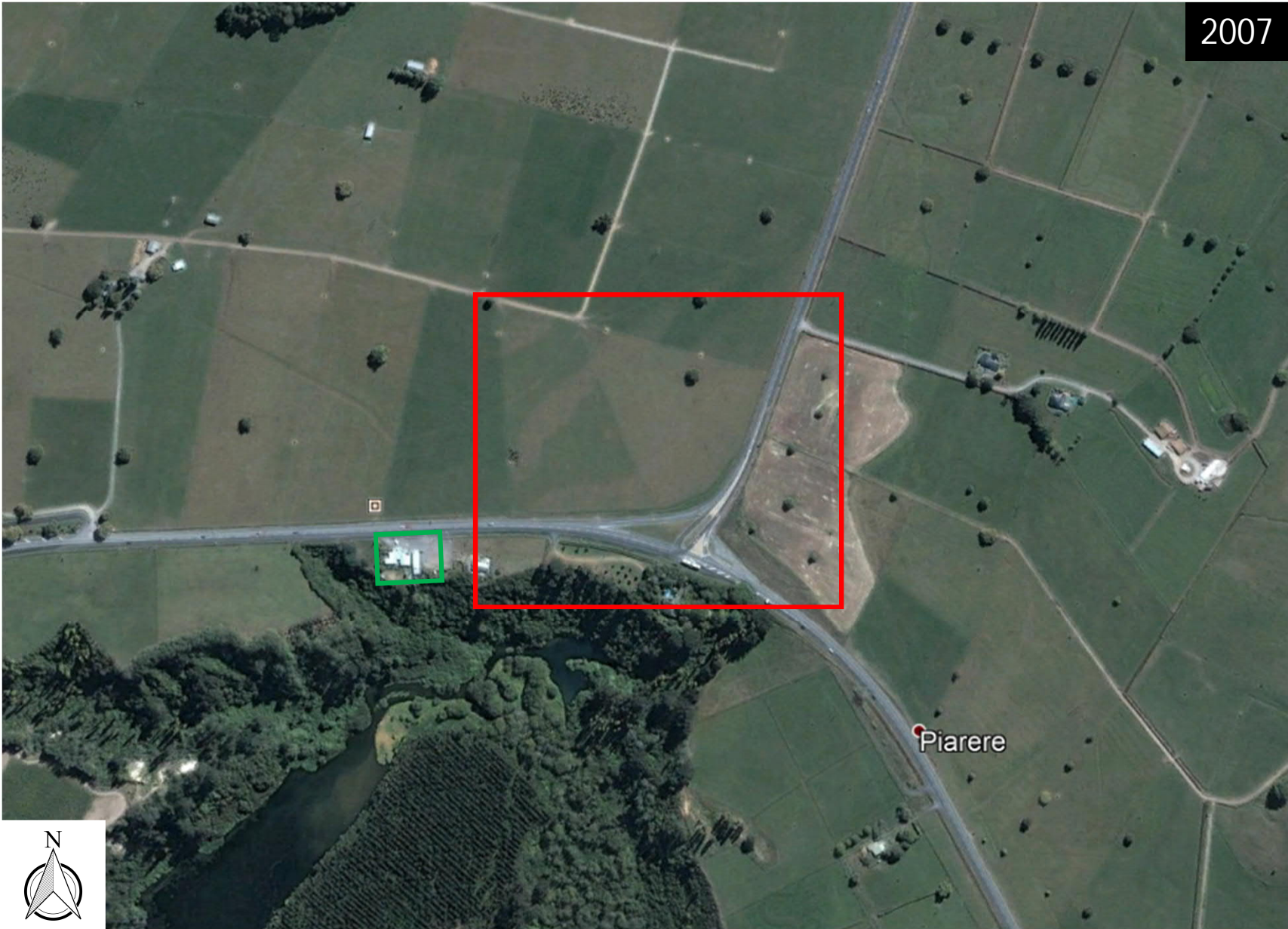
 Approximate Site Location  Former Service Station Location

1995



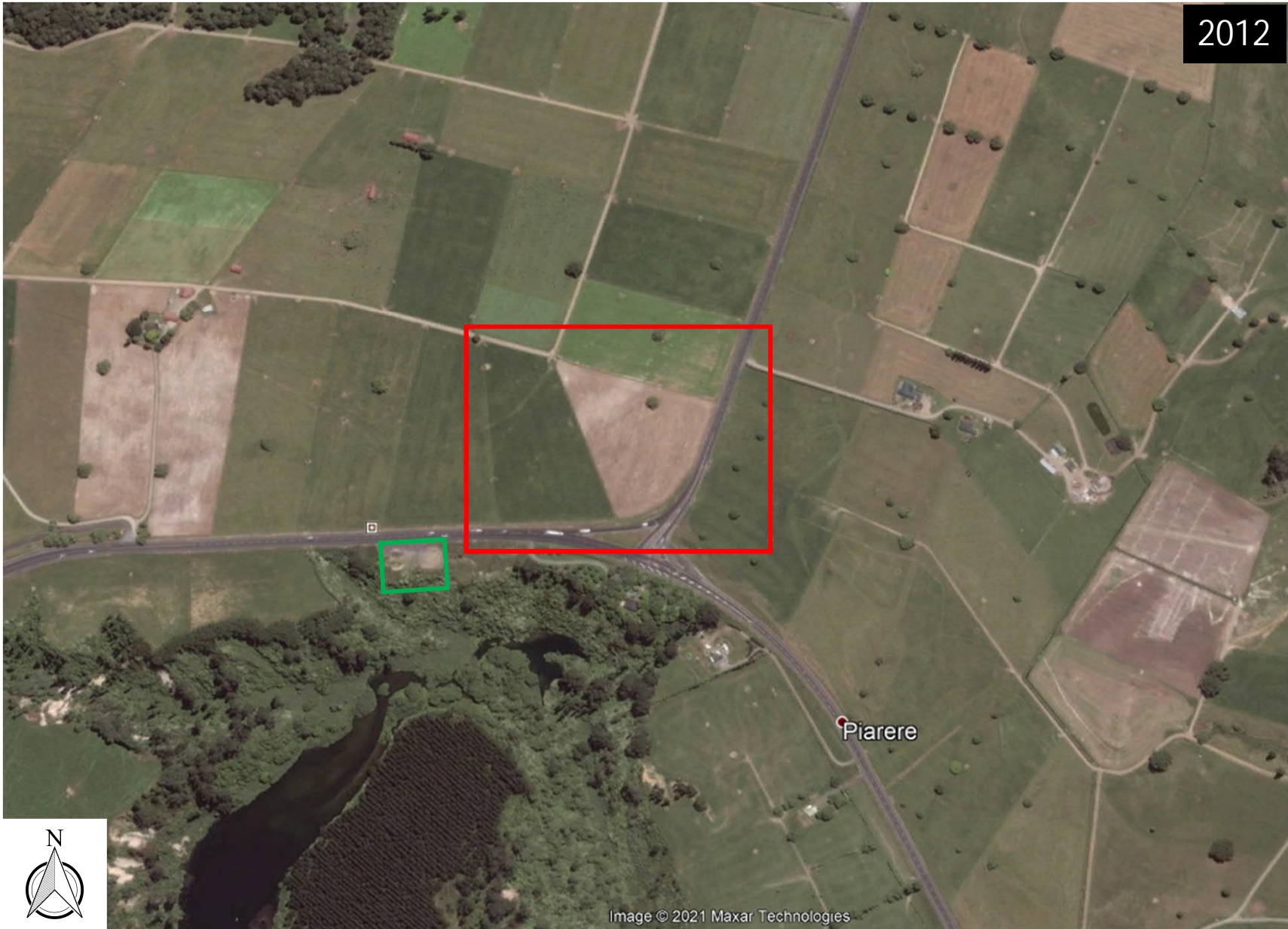
 Approximate Site Location  Former Service Station Location

2007



 Approximate Site Location  Former Service Station Location


2012



 Approximate Site Location  Former Service Station Location

2020



 Approximate Site Location

Appendix C

Waikato Regional Council HAIL Response

Forrest, Rachael

From: Joshua Evans <Joshua.Evans@waikatoregion.govt.nz>
Sent: Friday, 12 March 2021 11:31 AM
To: Bellingham, Maia
Subject: RE Land Use Information Register enquiry SH1/SH29 Intersection (REQ171669)
LUI01796

Dear Maia,

Thank you for your enquiry regarding information the Waikato Regional Council may hold relating to potential contamination at the property indicated below:

- SH1/SH29 Intersection



Background: The Waikato Regional Council maintains a register of properties known to be contaminated on the basis of chemical measurements, or potentially contaminated on the basis of past land use. This register (called the Land Use Information Register) is still under development and should not be regarded as comprehensive. The 'potentially contaminated' category is gradually being compiled with reference to past or present land uses that have a greater than average chance of causing contamination, as outlined in the Ministry for the Environment's Hazardous Activities and Industries List (HAIL): <http://www.mfe.govt.nz/sites/default/files/hazards/contaminated-land/is-land-contaminated/hazardous-activities-industries-list.pdf>

This property:

- I can confirm that this property does appear on the Land Use Information Register, as indicated by the area shaded yellow on the map below.



The area shaded yellow above (LUI01796) appears on the Land Use Information Register with a classification of 'Unverified HAIL' due to (past OR past and current) land use for HAIL activity 'F7. Service Stations' associated with Piarere Service Station Ltd.

This site is included on the register for land use information only; we do not hold soil investigation reports regarding the presence or otherwise of hazardous substances in the soil.

District Councils: Our records are not integrated with those of territorial authorities, so it would also be worth contacting the Matamata-Piako District Council to complete your audit of Council records if you have not already done so. In general, information about known contaminated land will be included on a property LIM produced by the territorial authority.

Rural Land Considerations: Examples of sites that are "more likely than not" to have soil contamination (HAIL sites) include timber treatment activities, service stations and/or petroleum storage, panel beaters, spray painters, etc. Whilst pastoral farming is not included on this list, typical farming activities of horticulture, sheep dipping, chemical storage, petroleum storage and workshops are; but are more difficult to identify and may not be as well represented on the Land Use Information Register. Therefore, individuals interested in pastoral land may be interested in completing further investigations in accordance with Ministry for the Environment Guidelines prior to land purchase and/or development.

Additional Information: Please note that:

- Significant use of lead-based paint on buildings can, in some cases, pose a contamination risk; the use of lead-based paint is not recorded on the Land Use Information Register.
- Buildings in deteriorated or derelict condition which contain asbestos can result in asbestos fibres in soil; the use of asbestos in building materials is not recorded on the Land Use Information Register.
- The long term, frequent use of superphosphate fertilisers can potentially result in elevated levels of cadmium in soil; the use of superphosphate fertiliser is not recorded on the Land Use Information Register.
- We are not currently resourced to fully incorporate historic aerial photographs in our region-wide assessment of HAIL activities. A significant proportion of the Crown historical aerial image archive for the Waikato region is

available to view free of charge at <http://retrolens.nz/>. We recommend this resource is consulted for any HAIL assessment.

- Due to the large volume of enquiries being received, we may not be able to respond to your enquiry as quickly as previously. We are resourced to meet 20 day response times as per LGOIMA, but endeavour to respond more quickly when workload permits. If your enquiry is urgent, please note this first in your enquiry and we will do our best to assist.

Please feel free to contact me if you have any further queries on this matter. For any new enquiries or requests for information please continue to use the [Request for Service form](#) for 'Contaminated Land/HAIL.'

Regards,

[Joshua Evans](#) | STUDENT | Geothermal & Air, Land Ecology & Contamination, Science and Stra
WAIKATO REGIONAL COUNCIL | Te Kaunihera ā Rohe o Waikato
P: +6478592860
F: [facebook.com/waikatoregion](https://www.facebook.com/waikatoregion)
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Appendix D

Matamata-Piako District Council HAIL
Response

Forrest, Rachael

From: Shonelle R. Eccles <seccles@mpdc.govt.nz>
Sent: Tuesday, 16 March 2021 9:12 AM
To: Bellingham, Maia
Subject: HAIL Sites

Hi Maia,

Thanks for your enquiry. Please refer to the below table for the information from our records.

Hail Sites		
NO	Address	Comment
1	1831A Tirau Road	No Record
2	1829K Tirau Road	No Record
3	1829J Tirau Road	No Record
4	1683A Tirau Road	No Record
5	1829I Tirau Road	No Record
6	1829H Tirau Road	No Record
7	1829E Tirau Road	No Record
8	1829D Tirau Road	No Record
9	1829C Tirau Road	No Record
10	2370 Maungatautari Road	No Record
11	1896 Tirau Road	No Record
12	1898 Tirau Road	No Record
13	5969A State Highway 29	No Record
14	5920 State Highway 29	No Record
15	5866 State Highway 29	No Record
16	5889 State Highway 29	No Record

This information is obtained from Waikato Regional Council. If you have any further questions please contact them. However, if you would like additional information in relation to these sites you are able to request the property file from our Council.

Please note this information only relates to what can be found in our District, as Lot 13 DPS 87749 is located on the edge of the district there may be other sites outside of our area.

Kind regards,
Shonelle

Shonelle R. Eccles | Graduate Resource Consent Planner
Matamata-Piako District Council 35 Kenrick Street, PO Box 266, Te Aroha 3342
p 07 884 0060 | w www.mpdc.govt.nz

For up to date Ministry of Health guidelines around COVID-19, please visit their website www.covid19.govt.nz

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at Matamata-Piako District Council

Appendix E

Laboratory Certificates of Analysis



Certificate of Analysis

Client:	WSP New Zealand Limited	Lab No:	2510380	SPV1
Contact:	Rachael Forrest C/- WSP New Zealand Limited Private Bag 3057 Hamilton 3240	Date Received:	19-Jan-2021	
		Date Reported:	22-Jan-2021	
		Quote No:	82748	
		Order No:	WSP 2-A0012.04	
		Client Reference:	SH1/29	
		Submitted By:	Rachael Forrest	

Sample Type: Soil

Sample Name:	SS01	SS02	SS03	SS04	SS05
	19-Jan-2021 12:02 pm	19-Jan-2021 12:09 pm	19-Jan-2021 12:18 pm	19-Jan-2021 12:28 pm	19-Jan-2021 12:48 pm
Lab Number:	2510380.1	2510380.2	2510380.3	2510380.4	2510380.5

Heavy Metals, Screen Level

	mg/kg dry wt	2	3	4	3	4
Total Recoverable Arsenic						
Total Recoverable Cadmium		0.65	0.87	1.00	0.53	0.46
Total Recoverable Chromium		8	9	10	7	9
Total Recoverable Copper		11	17	22	18	13
Total Recoverable Lead		16.7	17.6	23	34	41
Total Recoverable Nickel		4	5	10	4	6
Total Recoverable Zinc		77	129	121	92	87

Sample Name:	SS06	SS07	SS08	SS09
	19-Jan-2021 12:57 pm	19-Jan-2021 1:05 pm	19-Jan-2021 1:26 pm	19-Jan-2021 1:29 pm
Lab Number:	2510380.6	2510380.7	2510380.8	2510380.9

Heavy Metals, Screen Level

	mg/kg dry wt	4	4	5	4	-
Total Recoverable Arsenic						
Total Recoverable Cadmium		0.69	0.90	0.81	0.42	-
Total Recoverable Chromium		9	10	12	9	-
Total Recoverable Copper		15	18	16	15	-
Total Recoverable Lead		18.7	20	27	42	-
Total Recoverable Nickel		5	5	7	6	-
Total Recoverable Zinc		84	95	109	99	-

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 Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

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%.	-	1-9
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-9



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

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

Testing was completed on 22-Jan-2021. 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.



Carole Rodgers-Carroll BA, NZCS
Client Services Manager - Environmental

Appendix F

Analytical Soil Tables

Table B1

2-A0011.04 - C2P SH1/SH29 Roundabout PSI

Analytical Soil Results - Heavy Metals

WSP Sample Name	Waikato Regional Background Values SGV ¹	NESCO Human Health Criteria - Commercial/ Industrial ²	SS01	SS02	SS03	SS04	SS05	
Laboratory Report Number			2510380	2510380.0	2510380	2510380.0	2510380	2510380
Sample Depth			0.15	0.15	0.15	0.15	0.15	0.15
Geological Unit								
Sampling Date			19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
Heavy Metals (mg/kg)								
Arsenic	6.8	70	2	3	4	3	4	
Cadmium	0.22	1,300	0.65	0.87	1	0.53	0.46	
Chromium (III+VI)	30	6,300	8	9	10	7	9	
Copper	25	> 10,000	11	17	22	18	13	
Lead	20	3,300	16.7	17.6	23	34	41	
Nickel	7.6	6,000 ³	4	5	10	4	6	
Zinc	53	400,000 ³	77	129	121	92	87	

WSP Sample Name	Waikato Regional Background Values SGV ¹	NESCO Human Health Criteria - Commercial/ Industrial ²	SS06	SS07	SS08	SS09	
Laboratory Report Number			2510380	2510380	2510380	2510380	2510380
Sample Depth			0.15	0.15	0.15	0.2	
Geological Unit							
Sampling Date			19/01/2021	19/01/2021	19/01/2021	19/01/2021	
Heavy Metals (mg/kg)							
Arsenic	6.8	70	4	4	5	4	
Cadmium	0.22	1,300	0.69	0.9	0.81	0.42	
Chromium (III+VI)	30	6,300	9	10	12	9	
Copper	25	> 10,000	15	18	16	15	
Lead	20	3,300	18.7	20	27	42	
Nickel	7.6	6,000 ³	5	5	7	6	
Zinc	53	400,000 ³	84	95	109	99	

Key:

Bold + Underlined Exceeds Background Concentrations

Red background Exceeds NESCS Human Health Criteria - Commercial/Industrial

Notes:

1. Waikato Regional Council <https://www.waikatoregion.govt.nz/Services/Regional-services/Waste-hazardous-substances-and-contaminated-sites/Contaminated-sites/Natural-background-concentrations/>

2. MfE (2011) Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health

3. NEPC (2011) Schedule B1: Guideline on Investigation Levels for Soil and Groundwater, Table 1A(1)