

Appendix V Preliminary Site Investigation (Contaminated Land)

Ashburton Chalmers Avenue Bridge Preliminary Site Investigation

PREPARED FOR Ashburton District Council | February 2022

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Executive summary

Overview

Stantec has been commissioned by Ashburton District Council (ADC) to undertake a Preliminary Site Investigation (PSI) as part the design of the Ashburton Chalmers Avenue Bridge project. The purpose of the PSI is to identify the likelihood of encountering contaminated soil within the proposed project alignment, a systematic desktop assessment of historical and current land uses has been carried out. The purpose was to identify any past or present Hazardous Activities and Industries List (HAIL) activities on or near the project alignment and to assess the risk that any such identified HAIL activities may pose to the project.

The PSI has been informed by:

- Identification of HAIL sites along the route that are relevant to the project
- Review of Environment Canterbury's Listed Land Use Register (LLUR)
- An aerial photography review, including scrutiny of historic images (Canterbury Maps, Retrolens and Google Earth) indicating land uses at properties along the project alignment
- Review of the nearby resource consents
- Obtaining a general understanding of the surrounding environment
- Site inspection

These information sources have been used to identify properties adjacent to the project alignment that have had, currently have or are likely to have had an activity undertaken on them that appears on the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL).

Findings

This assessment has identified land between Carters Terrace and Johnstone Street have been subject to HAIL A10 market gardens. Four sites were identified adjacent to the project alignment that may be contaminated through historic or current site uses.

As summarised in



Table 5-1, identified HAIL activities two adjacent sites are assessed as low-medium risk for migrating to the project site in concentrations that may pose a risk to human health and the environment. Therefore, portions of the project alignment fit the definition of HAIL 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”.

The project alignment site meets the requirements for a “piece of land” described under Regulation 5(4) of the NESCS and therefore this preliminary site investigation concludes that, pursuant to Regulation 6(3) of the NESCS, the project alignment is considered a “piece of land” and the NESCS does apply to the project alignment.

Next Steps

It is recommended that land between Carters Terrace and Johnstone Street and along Chalmers Avenue between 3 Chalmers Avenue and the intersection with South Street should be investigated as part of a Detailed Site Investigation.

No assessment of NESCS consent is given at this time as this assessment will be influenced by soil sample results that will be included a future DSI report. As such consent requirements under the NESCS will be assessed later within the DSI.



Contents

Quality statement.....	ii
Executive summary	iii
Abbreviations.....	vi
1 Suitably Qualified Environmental Practitioner Certification.....	1
2 Introduction.....	1
2.1 Site Identification	1
2.2 Proposed Activities	1
2.3 Investigation objectives.....	1
3 Site Description	2
3.1 Current Land Uses	2
3.2 Geology.....	2
3.3 Hydrology and Surface Water.....	2
3.4 Site Inspection.....	2
4 Historical site use	3
4.1 Contaminated Land Records Search.....	3
4.2 Aerial Photographs.....	5
4.3 Resource Consents.....	6
4.4 Additional Reporting	6
4.5 Summary of HAIL Activities Identified.....	7
5 Risk Assessment.....	7
6 Data Limitations and Assumptions.....	11
7 Conclusions and Recommendations.....	11
8 Report Limitations.....	13

List of appendices

Appendix A Evidence of the Qualifications and Experience of the SQEP
Appendix B PSI Table of contents: Determining if the NESCS applies- CLMG 1
Appendix C Site Details
Appendix D Selected Historical Aerial Imagery
Appendix E Site Visit Photographs

List of tables

Table 5-1: LLUR Review.....	3
Table 5-2: Findings from review of aerial imagery.....	5
Table 8-1: Contamination risks from properties (identified in site history assessments).....	10

Abbreviations

Abbreviation	Full Name
ADC	Ashburton District Council
CEnvP	Certified Environmental Practitioner
CLMG	Contaminated Land Management Guidelines
DSI	Detailed Site Investigation
HAIL	Hazardous Activities and Industries List
MfE	Ministry for the Environment
NESCS	National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance and Quality Control
SQEP	Suitably Qualified and Experienced Practitioner



1 Suitably Qualified Environmental Practitioner Certification

I, Scott Fellers of Stantec certify that:

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 Resource Management (National Environmental Standard for assessing and managing contaminants in soil to protect human health) (NESCS) because it has been:

- 1) done by a suitably qualified and experienced practitioner, and
- 2) reported on in accordance with the current edition of Contaminated Land Management Guidelines No 1 – Reporting on Contaminated Sites in New Zealand, and
- 3) the report is certified by a suitably qualified and experienced practitioner.

The project alignment site meets the requirements for a “piece of land” described under Regulation 5(4) of the NESCS and therefore this preliminary site investigation concludes that, pursuant to Regulation 6(3) of the NESCS, the project alignment is considered a “piece of land” and the NESCS does apply to the project alignment.

Evidence of the qualifications and experience of the suitably qualified and experienced practitioner who has done this investigation and has certified this report is appended to this preliminary site investigation report in Appendix A .

Signed: 

Scott Fellers, SQEP

Dated: 22 February 2022

2 Introduction

Ashburton District Council (ADC) engaged Stantec New Zealand (Stantec) to undertake a Preliminary Site Investigation (PSI) to investigate Ashburton Chalmers Avenue Bridge project.

This PSI fulfils the reporting requirements for assessment of contaminated land effects against the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (Ministry for the Environment, 2012) (NES-CS) and has been prepared in general accordance with the *Ministry for the Environment’s Contaminated Land Management Guideline No 1: Reporting on Contaminated Sites in New Zealand*. Please refer to CLMG checklist in Appendix B

This document has been prepared by a Suitably Qualified and Experienced Practitioner – Scott Fellers (SQEP).

2.1 Site Identification

The proposed bridge will span the Ashburton River from Chalmers Avenue on the east to a proposed extension of Chalmers Avenue on the west that will cross several rural properties extending to Grahams Road. The bridge will be constructed approximately 700m south of the existing State Highway 1 bridge.

See Appendix C for details of the project location.

2.2 Proposed Activities

The Ashburton District Council is proposing to construct a second bridge spanning the Ashburton River. This new bridge will be constructed as an extension of Chalmers Avenue increasing connectivity between Ashburton and Tinwald. On the west side of the river the project will require the acquisition of multiple rural properties to connect the new bridge to Grahams Road in the west.

2.3 Investigation objectives

Stantec has been commissioned by Ashburton District Council (ADC) to undertake a Preliminary Site Investigation (PSI) as part the design of the Ashburton Chalmers Avenue Bridge project. The investigation objective of this PSI is to identify



any past or present Hazardous Activities and Industries List (HAIL) activities on or near the project alignment and to assess the risk that any such identified HAIL activities may pose to the project.

In order to identify the likelihood of encountering contaminated soil within the proposed project alignment, a systematic desktop assessment of historical and current land uses has been carried out. This assessment includes:

- Identification of HAIL sites along the route that are relevant to the project
- Review of Environment Canterbury's Listed Land Use Register (LLUR)
- An aerial photography review, including scrutiny of historic images (Canterbury Maps, Retrolens and Google Earth) indicating land uses at properties along the project alignment
- Review of the nearby resource consents
- Obtaining a general understanding of the surrounding environment, hydrology and hydrogeology and the nature of the geology to promote contaminate migration.
- A site inspection

3 Site Description

3.1 Current Land Uses

General land uses adjacent to the corridor, from east to west, are as follows:

- North of Chalmers Avenue from the intersection with South Street are various industrial and commercial businesses including a tractor sales and repair facility and engineering workshop. A sports facility is present north along the west end of Chalmers Avenue.
- The south side of Chalmers is predominantly residential.
- Both sides of the Ashburton River have a riparian margin. On the east bank the riparian zone extends approximately 80m and on the west side the riparian zone extends approximately 300m.
- The proposed extension of Chalmers Avenue crosses through various rural and lifestyle block properties. The extension will cross Carters Terrace, Wilkins Road and Johnstone Street.

The surrounding land uses are generally not expected to change on completion of this project.

3.2 Geology

The project geology is mapped by GNS New Zealand¹ as being comprised of Brownish grey river alluvium (Q2a) with the Ashburton Riverbed comprised of grey river alluvium comprising gravel sand and silt in active floodplains (Q1a).

3.3 Hydrogeology and Surface Water

Piezometric contour data on Canterbury Maps indicates that groundwater is flowing in a general southwest direction.

Groundwater was noted at 2.8m below ground level in bore K37/0341 which is located approximately 260m northwest of the project alignment along the east bank of the Ashburton River. Groundwater was noted at 2.44m below ground level in bore K37/0062 which is located approximately 260m northwest of the project alignment along the west bank of the Ashburton River.

The project alignment crosses the Ashburton River which is a classic Canterbury style braided river though its path is somewhat limited due to stop banks on both sides of the river. Approximately 1km west of the river the alignment crosses Carters Creek. A made drain runs parallel to Chalmers Avenue along the north side of the street. At the time of the site inspection 8 February 2022 no other surface water was encountered on or near the project alignment.

3.4 Site Inspection

A site inspection was conducted on 8 February 2022. The site alignment east of the Ashburton River was fully accessible while the alignment west of the river was only accessible from the public roads that cross the alignment.

¹ Leonard, G.S., Begg, J.G., Wilson, C.J.N. 2010. Geology of the Rotorua area. Institute of Geological & Nuclear Sciences 1:250,000 geological map 5. Lower Hutt, New Zealand. GNS.



Visibility of the site alignment from the roads was fairly good and the inspection was assessed as sufficient for the purposes of this PSI.

The following was noted:

- An open drain runs east to west along the north side of Chalmers Avenue from the intersection with South Street. The drain is approximately 1.5m wide by 2m deep. It separates the HAIL sites to the north and Chalmers Avenue.
- The Luisetti building on the northeast corner of Chalmers Avenue and South Street is fully paved and tidy. No indication of HAIL activities noted.
- A Caltex Ashburton is located at 128 South Street 110m north of the site (HAIL F7). The site is modern and fully paved with no evidence of spillage or leaks.
- On the northwest corner of South Street and Chalmers Avenue is Blacklows engineering supplies. Their website states they do engine reconditioning (HAIL F3). The site was predominantly paved with a small number of drums behind the shop. No evidence of spillage was noted.
- Located at 5 Chalmers Avenue is D&E Repairs and Spares which is a tractor repair facility (HAIL F4). Many salvage tractors were present in the yard. Areas of visible staining were noted.
- The south side of Chalmers Avenue is mostly residential with a boy scout camp located adjacent the river.
- Both sides of the river have thick vegetation in the riparian zone. No HAIL sites noted within this area.
- Land on the west side of the Ashburton River predominantly rural residential lifestyle blocks.
- No visual evidence of the historical market gardens was visible. Paddocks mostly looked to be used for light grazing.
- No burn pads or piles were noted from the road.

Please refer to Appendix E for select site images.

4 Historical site use

4.1 Contaminated Land Records Search

The Environment Canterbury's Listed Land Use Register (LLUR) is a publicly available database of information about sites where hazardous activities and industries (HAIL) have been or are currently being carried out throughout the Canterbury region. It should be noted that LLUR is not a complete record and that information about properties is added or updated regularly as more information becomes available. The below sites are adjacent to the proposed Chalmers Avenue bridge project alignment.

Table 4-1: LLUR Review

Location	HAIL Category	Site number(s)	Distance of site to project alignment	Details
Reserve Land east of the Ashburton River (PT RS 40466-Recreation Reserve)	E2- Asphalt or bitumen manufacture	482	250m north	<p>The LLUR record pertains to the Fulton Hogan Ashburton yard and the record states the HAIL activity has occurred from an unknown period through present day.</p> <p>The LLUR record notes that there are two underground storage tanks on the site, one containing a 3(c) product and the other 3(b) product. Not details are given on size or age.</p> <p>There are no investigations associated with this site.</p> <p>Given the distance to the site contaminants from these activities have been assessed as being highly unlikely to affect the project route.</p>

Location	HAIL Category	Site number(s)	Distance of site to project alignment	Details
5 Chalmers Avenue	G4- scrap yards	542	Immediately north	<p>The LLUR record pertains to the Drummond and Etheridge Ltd site. The LLUR record states the HAIL activity has occurred from an unknown period through 1998, though recent historical aerial imagery shows the continued use as a scrap yard.</p> <p>The LLUR notes that there are two underground storage tanks on the site. The owner states the tanks used to hold petrol and diesel but since 1991 they have been empty or used for oil storage. The site is used as a tractor dismantling yard.</p> <p>There are no investigations associated with this site.</p>
13 Chalmers Avenue	E4- concrete manufacture	3501	Immediately north	<p>The LLUR pertains to Ashburton Pre-Stress Concrete Limited and record states the HAIL activity has occurred from 1992 through present day. Though a cross reference with the Ashburton Pre-stress Concrete website² states that the company moved from this premise in 2008.</p> <p>There are no investigations associated with this site.</p>
128 South Street	A17 Storage tanks F7- Service station	458 533	110m north	<p>One Soil Validation Report³ for this site is available. The report was completed following a removal and upgrade of the underground petroleum storage system at the Caltex in Ashburton. The report concludes that on the basis of the data collected no unacceptable risks to human health or the environment were identified from hydrocarbon compounds in soil in the area of the investigation.</p>
146 South Street	F4- engine reconditioning workshop	2285	Immediately north	<p>The LLUR pertains to GJ Blacklow 7 Co Ltd and record states the HAIL activity has occurred from 1986 through present day.</p> <p>It is noted that agricultural engineering and machinery repair occurs at the stie.</p> <p>There are no investigations associated with this site.</p>

² <https://apsconcrete.co.nz/about-us/>. Referenced February 2022.

³ Soil Validation Investigation Caltex Ashburton Diesel Stop, 128 South Street, Ashburton, Canterbury, New Zealand. Environmental Resources Management. 2013. Reference: 0255324RP01_SVI_F



4.2 Aerial Photographs

Aerial photographs from 1940 to 2019 for the project alignment were accessed from the Canterbury Maps⁴, Retrolens⁵ website and Google Earth. Table 4-2 summarises the general changes in land use along the alignment over the sequential timeframe of the aerial photographs. The alignment has been split to focus on activities to the east and the west of the Ashburton River Please refer to copies of selected aerial photographs in Appendix D .

Table 4-2: Findings from review of aerial imagery

Year	East of Ashburton River	Ashburton Riverbed / Riparian Margin	West of Ashburton River
1940-1945	Chalmers Avenue is present in its current location though it appears to be unpaved. A small number of residential properties are present on the southeast corner of Chalmers Avenue and South Street. Land adjacent Chalmers Ave to the west is undeveloped paddocks. A drain can be seen running parallel to Chalmers Avenue along the north side of the street. A borrow pit is visible approximately 130m north of the alignment.	The riverbank does not have stop banks present at this point. A small 4wd track leads from the end of Chalmers Avenue to the river's edge. The riparian margin is generally in its current location though vegetation is not as dense.	A series of market gardens are present along Carters Terrace approximately 75m north of the project alignment. This is not considered close enough in proximity to the alignment to be hazard. The project alignment crosses predominantly through undeveloped paddocks that are cropped and or grazed. Carters Terrace, Wilkins Road and Johnstone Street are in their present locations.
1955-1959	South of Chalmers Avenue is further developed residential. North of Chalmers Avenue looks to be used as a yard of some sort. Some sheds and stockpiles of material are visible. Land northeast of the corner of South Street and Chalmers Avenue is now developed industrial with a warehouse and stockpiles of material around the property, potentially timber from a treatment facility (HAIL A18). The borrow pit has now been filled in (HAIL G5) but has been assessed as being far enough from the project alignment to be highly unlikely to pose a risk to human health or the environment.	The 4wd track to the river's edge is more established. This area is generally unchanged from previous imagery.	East of Carters Terrace the alignment now crosses through an area of market gardening (HAIL A10) at what is now 61 Carters Terrace. Carters Creek has now been diverted to an established drain. The alignment passes through a small grouping of farm buildings at present day 119 Grove Street.
1966	Land at 5 Chalmers Avenue is developed with access from South Street. A workshop and yard appear visible (Possible HAIL F4).	This part of the alignment appears relatively unchanged from previous imagery.	This part of the alignment appears relatively unchanged from previous imagery.
1980-1984	Industrial/commercial buildings are now developed along the north side of Chalmers Avenue. There appears to be a vehicle workshop at 5 Chalmers Avenue (HAIL F4). The sporting complex and fields are now present west of the industrial area. Additional residential dwellings are present to the south of Chalmers Avenue.	Signs of gravel extraction can be seen in the riverbed. Bulldozer tracks are visible in the riverbed. The 4wd track to the river from Chalmers Avenue is no longer visible.	Land between Carters Terrace across Wilkins Road to Carters Creek now comprises market gardens (HAIL A10). The west part of the alignment is not covered by the imagery.

⁴ <https://canterburymaps.govt.nz/>. Accessed February 2022.

⁵ <https://retrolens.co.nz/>. Accessed February 2022.



Year	East of Ashburton River	Ashburton Riverbed / Riparian Margin	West of Ashburton River
1985-1989	South of Chalmers Avenue is further developed residential. The service station on South Street located north of the alignment is now visible (HAIL F7). The remainder of the alignment appears unchanged from previous imagery.	Vegetation in the riparian zone on the west bank has been cleared.	Land between Carters Terrace and Wilkins Road is no longer market gardens. Land between Wilkins Road Johnstone Street still comprises market gardens. A building at 68 Johnstone Street is now present on the alignment.
1995-1999	Vehicles can be seen stored at 5 Chalmers Avenue at what appears to be a garage or car yard (HAIL F4). Stockpiles of wood are no longer visible at 13 Chalmers Avenue.	The part of the alignment appears relatively unchanged from previous imagery.	Market gardens are no longer visible across the alignment. The alignment appears predominantly covered by paddocks.
2000-2004	This part of the alignment appears relatively unchanged from previous imagery.	The part of the alignment appears relatively unchanged from previous imagery.	The part of the alignment appears relatively unchanged from previous imagery.
2010	This part of the alignment appears relatively unchanged from previous imagery.	This part of the alignment appears relatively unchanged from previous imagery.	This part of the alignment appears relatively unchanged from previous imagery.
2020	This part of the alignment appears relatively unchanged from previous imagery.	This part of the alignment appears relatively unchanged from previous imagery.	This part of the alignment appears relatively unchanged from previous imagery.

One HAIL activity has been identified within the actual project alignment.

- HAIL A10 market gardens were found to historically have taken place across land between the west edge of the riparian zone lining the Ashburton River through to Johnstone Street.

Within the land adjacent to the project route three HAIL activities have been identified:

- 13 Chalmers Avenue – timber treatment or storage (HAIL A18), from pre 1959 to pre 1995
- 5 Chalmers Avenue – motor vehicle workshop (HAIL F4), from pre 1995 to present day
- 128 South Street – service station (HAIL F7), from pre 1995 to present day

4.3 Resource Consents

The Environment Canterbury Resource Consent Database⁶ was reviewed to assess if there are any discharge consents for relevant properties along the project route, or if bulk storage of hazardous materials is recorded for any individual properties, as these activities can present a risk of ground contamination.

All resource consents on or within 100m of the project alignment have to do with the take or discharge of water or the discharge of effluent. No HAIL activities were identified.

4.4 Additional Reporting

The Summary of Timber Treatment Processing and Treatment Sites in Canterbury⁷ report notes that land at 186 Dobson Street was a timber processing plant through 1994 (HAIL A18). At that time land at 13 South Street located northeast of the South Street Chalmers Avenue intersection was included in the timber processing plant area. The report notes that timber treatment chemicals PCP, antisapstain, CCA and boron were NOT used at this site. The site was used for finger jointing and glue lamination using resorcinol glues. This is assessed as being a low risk to the project works.

⁶ <https://mapviewer.canterburymaps.govt.nz/>. Accessed February 2022

⁷ Summary of Timber Treatment Processing and Treatment Sites in Canterbury. Loe Pearce & Associates. 1994.



4.5 Summary of HAIL Activities Identified

Table 4-1 summarises information for all the properties adjacent to the project route which have been identified through the site history check as currently or historically having had HAIL activities occur on them. These are activities that have been identified through ECan's LLUR database, consent search, aerial photographs and the site inspection.

Table 4-1: Summary of HAIL activities

Location	HAIL Category	HAIL Description	Description of HAIL activity
13 Chalmers Avenue	A18 E4	Wood treatment or preservation Commercial concrete manufacture or commercial cement storage	Historical aerial imagery indicates timber was stored at this location. This is confirmed by the Summary of Timber Treatment Processing and Treatment Sites in Canterbury report. The site was then occupied by Ashburton Pre-Stress concrete. Concrete manufacture occurred from 1992 to 2008.
5 Chalmers Avenue	A17 F4 G4	Storage tanks or drums for fuel Motor vehicle workshop Scrap yard	The LLUR notes that the site was an automotive dismantling yard through 1998. As part of this there were two underground storage tanks on the site, but they have been empty since approximately 1991. Historical aerial images show a motor vehicle workshop was established from pre-1980. The site is currently used by D & E Ltd as a tractor sales, repair and dismantling facility.
146 South Street	F3	Engine reconditioning workshops	The LLUR notes that the site has been an agricultural engineering and machinery repair facility since 1986. The site visit confirmed that this activity is still occurring. The site is occupied by GJ Blacklow & Co Ltd.
128 South Street	F7	Service station	Historical imagery noted a service station at this location from 1985. The site walk-over confirmed that Caltex fuel browsers are located on this site. They appear recently upgraded.
Project route between Carters Terrace and Johnstone Street	A10	Market gardens	Historical aerial imagery shows this area has market gardens from pre-1980 to pre-1995.

5 Risk Assessment

One HAIL activity (A10 Market Gardens) was discovered within the area of the project alignment works. Four properties adjacent to the project alignment have been identified as having potential contamination due to previous or current HAIL activities. Not all of these identified properties will however have any possibility of contamination that poses a risk to human health or the environment in relation to the proposed works. In some cases, a relative lack of proximity to the route and/or the low mobility of suspected contaminants means that the sites identified are of low risk to the proposed project.



Table 5-1 summarises the likely risk of contaminant migration to the project alignment associated with each HAIL site. The rankings “low”, “medium” and “high” are used to indicate the assessed level of risk to the project from contaminants migrating to the project alignment.

Please refer to



Table 5-1 for further details.



Table 5-1: Contamination risks from properties (identified in site history assessments)

Address	HA/Rivers/L Category	Proximity	Risk	Rationale
Project route between Carters Terrace and Johnstone Street	A10	The project alignment crosses through this HAIL area	Medium	<p>The project alignment crosses directly through a substantial area of market gardens.</p> <p>A wide variety of pesticides have been used in agricultural and horticultural practices over the last 100 years. New Zealand studies have shown that some pesticide residues such as arsenic, lead, copper and DDT remain in the soil as contaminants. Pesticides containing these chemicals were used extensively in NZ under Government registration until they were withdrawn from sale around 1975.</p> <p>These pesticide residues are persistent in the environment and tend to bind tightly to the soil, most often in the top 10cm. Consequently, they may be present in the soil as a contaminant long after they were applied. The more soluble arsenic may leach slowly into underlying groundwater.</p> <p>The exposure pathway of concern for human health is the ingestion of soil.</p>
13 Chalmers Avenue	A18 E4	Directly northeast of the Project alignment	Low	<p>Historically the site has been used for timber storage from approximately 1955 and later concrete manufacture. When the concrete manufacture ceased in 2008 the site was redeveloped as a Luisetti Seed storage site and fully paved. The site is now fully paved and developed.</p> <p>It is unlikely historical contamination has migrated to the project alignment especially given the site has been capped from approximately 2008.</p>
5 Chalmers Avenue	A17 F4 G4	Directly north of the Project alignment	Low-medium	<p>This site has been a vehicle service shop since pre-1980 with a tractor repair and dismantling business established since pre-2004. The yard is unsealed and there was visual evidence of staining on the ground. There is potential for hydrocarbons and heavy metal contaminants to be present within the site.</p> <p>An approximately 2m deep channel separates the yard and the project route. This channel likely acts as a cut off for the migration of contaminants migrating to the project alignment. But given the long history and scale of the repair and dismantling business it is possible historical contamination has migrated to the project alignment.</p>
146 South Street	F3	Directly north of the Project alignment	Low	<p>The site has been an engineering workshop since pre-1995. The site inspection showed a tidy paved yard. The workshop appeared relatively small and had a concrete floor. An approximately 2m deep channel separates the yard and the project route. This channel likely acts as a cut off for the migration of contaminants migrating to the project alignment. It is unlikely that contaminants have entered the soil in concentrations that would migrate to the project alignment.</p>
128 South Street	F7	Approximately 110m north of the Project alignment	Low	<p>The site has been a service station since pre-1985. The site is fully paved and modern in appearance. There are only fuel browsers at this location with no workshop associated with the site. Given the distance to the site it is unlikely that contaminants have migrated in concentrations that would affect the project.</p>

6 Data Limitations and Assumptions

Assessment of risk is based on ECan's LLUR records, aerial imagery, resource consent data base search and a site inspection.

During the site inspection we only had access to the public roads on the south side of the proposed alignment. This only allowed for assessment of what could be seen from the roadway. It is possible that smaller HAIL activities such as burn pads or borrow pits could have been missed. It is assumed that these would be picked up during future site visits or works as geotechnical and environmental testing is proposed to be completed in this area once Council obtains the necessary properties.

The site history model informed by aerial imagery has limitations. Gaps in the record of up to approximately 15 years are present in the data. No assessment is possible for years where imagery is not available. For the purpose of this assessment, it is assumed that no major HAIL activities have occurred and then were hidden from view during these time gaps.

7 Conclusions and Recommendations

This assessment has identified land between Carters Terrace and Johnstone Street have been subject to HAIL (A10 market gardens) activity.

Four sites were identified adjacent to the project alignment that may be contaminated through historic or current site uses. As summarised in

Table 5-1, two of these adjacent sites are assessed as low-medium risk for migrating to the project site in concentrations that may pose a risk to human health and the environment. Therefore, portions of the project alignment fit the definition of HAIL 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”.

The project alignment site meets the requirements for a “piece of land” described under Regulation 5(4) of the NESCS and therefore this preliminary site investigation concludes that, pursuant to Regulation 6(3) of the NESCS, the project alignment is considered a “piece of land” and the NESCS does apply to the project alignment.

It is recommended that land between Carters Terrace and Johnstone Street and along Chalmers Avenue between 3 Chalmers Avenue and the intersection with South Street should be investigated as part of a Detailed Site Investigation.

No assessment of NESCS consent is given at this time as this assessment will be influenced by soil sample results that will be included a future DSI report. As such consent requirements under the NESCS will be assessed later within the DSI.



8 Report Limitations

Stantec New Zealand (Stantec) has prepared this report for the use of Ashburton District Council in accordance with the usual care and thoroughness of the consulting profession. It has been prepared in accordance with the scope of work and for the purpose outlined in this report. It is based on accepted practices and standards at the time it was prepared. No other warranty, express or implied, is made as to the professional advice included in this report. Stantec makes no determination or recommendation regarding a decision to provide or not to provide financing with respect to the site.

There is no investigation that is thorough enough to preclude the presence of materials at the site which presently, or in the future, may be considered hazardous. As regulatory evaluation criteria are subject to change, concentrations of contaminants present and considered acceptable may, in the future, become subject to different regulatory standards which cause them to become unacceptable and require remediation for the site to be suitable for the existing or proposed land use activities.

The methodology adopted and sources of information used by Stantec are outlined in this report. Stantec has made no independent verification of the information beyond the agreed scope of works and Stantec assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to Stantec was false.

This report was prepared in February 2022 and is based on the conditions encountered and information reviewed at the time of preparation. Stantec disclaims any responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.



Appendices

We design with community in mind



Appendix A Evidence of the Qualifications and Experience of the SQEP

Scott has grown his career as an environmental practitioner over the last 8+ years working in Christchurch, New Zealand. He is responsible for many different aspects of contaminated land investigations. The most common projects involve reporting to the standard of the Ministry for the Environment's Contaminated Land Management Guidelines. These investigations include Preliminary and Detailed Site reporting involving, development of the sampling and analyte testing regimes, analysis of laboratory results and assessment against various guidelines and standards. Consenting requirements under the National Environmental Standard for Assessing and Managing Contaminants in Soil (NESCS) are assessed. His role also includes development of fee proposals, project management duties, Remedial Action Plans, Site Validation reports and Site Management Plans. Scott has also planned and implemented asbestos specific sampling and testing regimes in accordance with BRANZ guidelines including field analysis of asbestos. He is also responsible for collation and preparation of site works health and safety plans along with liaising with colleagues, clients, contractors, and project stakeholders.

Scott has gained experience working on various contaminated land jobs. Some examples of sites Scott has worked on are sheep dips/sprays, landfills- small scale domestic to large scale municipal, lead based paint on weatherboard dwellings, market gardens, burn pads/pits, fire damaged buildings, ACM in soil through both dirty demolition and natural degradation of ACM material, leaking UST/ASTs, vehicle workshops, lumber mills/timber treatment, coal tar assessment and subdivision of rural land.

EDUCATION

Geoscience, California State University, Chico, California, United States, 2005

Teaching Credential- Single Subject Science, California State University, Chico, California, United States, 2008

CERTIFICATIONS & TRAINING

Certified Environmental Practitioner- General, Environmental Institute of Australia and New Zealand, Christchurch, Canterbury, New Zealand, 2021

MEMBERSHIPS

Member, Australasian Land & Groundwater Association



Appendix B PSI Table of contents: Determining if the NESCS applies- CLMG 1

A1: PSI Table of contents: Determining if the NESCS applies

Content	Required	Required if relied on ⁶	CLMG 5 section
1. Introduction			
• investigation objectives	<input checked="" type="checkbox"/>		2.1
• site identification (site name, address, legal description; site boundaries; a map reference and geographic coordinates)	<input checked="" type="checkbox"/>		3.3.1
• proposed site use		<input checked="" type="checkbox"/>	3.3.2
2. Site description			
• environmental setting		<input checked="" type="checkbox"/>	3.3.3
• site layout	<input checked="" type="checkbox"/>		3.3.4
• current site uses	<input checked="" type="checkbox"/>		3.3.5
• surrounding land uses	<input checked="" type="checkbox"/>		3.3.6
• geophysical surveys		<input type="checkbox"/>	5.1
• site inspection		<input checked="" type="checkbox"/>	3.3.8
3. Historical site use			
• summary of site history gained from:	<input checked="" type="checkbox"/>		3.3.7
– review of existing investigation reports		<input checked="" type="checkbox"/>	
– review of council information		<input type="checkbox"/>	
– review of aerial photographs		<input checked="" type="checkbox"/>	
– interviews		<input type="checkbox"/>	
– review of other historical information		<input checked="" type="checkbox"/>	
• preliminary sampling (if carried out)		<input type="checkbox"/>	3.3.9
– description (including diagram)			
– justification for sample location and analyte selection			
– results			
– comparison of results to guidelines			
4. Risk assessment			3.3.11
• evaluate the probability that pursuant to regulation 6 (3):	<input checked="" type="checkbox"/>		
– an activity or industry described in the HAIL is, or is not, being undertaken on the piece of land, or			
– an activity or industry described in the HAIL has, or has not, been undertaken on the piece of land, or			
– the likelihood of an activity or industry described in the HAIL being undertaken, or having been undertaken, on the piece of land			

⁶ Any evidence relied upon to form an opinion/conclusion must be included in report, including sampling.

Content	Required	Required if relied on ⁶	CLMG 5 section
<ul style="list-style-type: none"> evaluate the probability that pursuant to regulation 6 (3): <ul style="list-style-type: none"> the likelihood that the soil is contaminated as a result of activity or industry occurring description of the limitations of the data collected and the assumptions and uncertainties inherent in the data and models used 	<input checked="" type="checkbox"/>		2.2
5. Conclusions	<input checked="" type="checkbox"/>		
6. Recommendations (if relevant to report purpose)		<input type="checkbox"/>	
7. Report limitations	<input checked="" type="checkbox"/>		2.1.2
8. SQEP certification of report (refer appendix C)	<input checked="" type="checkbox"/>		1.2
9. References	<input checked="" type="checkbox"/>		
Appendices: relevant supporting information	<input checked="" type="checkbox"/>		

Supporting information	Required	Required if relied on ⁷
Figures		<input checked="" type="checkbox"/>
Land titles		<input type="checkbox"/>
Historical site information relied upon (if not included in report body)	N/A	
Site photographs (if site inspection carried out)		<input checked="" type="checkbox"/>
Other supporting information		<input type="checkbox"/>
Statement of qualification as a SQEP	<input checked="" type="checkbox"/>	



Appendix C Site Details

ASHBURTON DISTRICT COUNCIL ASHBURTON SECOND URBAN BRIDGE NOTICE OF REQUIREMENT



DRAWING INDEX

6815/1152604

- SHEET 0 COVER SHEET
- SHEET 1 LAND REQUIREMENT PLANS - GRAHAM'S ROAD TO JOHNSTONE STREET
- SHEET 2 LAND REQUIREMENT PLANS - JOHNSTONE STREET TO WILKINS ROAD
- SHEET 3 LAND REQUIREMENT PLANS - WILKINS ROAD TO ASHBURTON RIVER
- SHEET 4 TYPICAL CROSS SECTIONS - GRAHAM'S ROAD TO CARTERS TERRACE
- SHEET 5 TYPICAL CROSS SECTIONS - GRAHAM'S ROAD TO CARTERS TERRACE
- SHEET 6 TYPICAL CROSS SECTIONS - CARTERS TERRACE TO SOUTH STREET
- SHEET 7 CHALMERS AVENUE AND NETHERBY ROUNDABOUT - POSSIBLE SAFETY IMPROVEMENTS
- SHEET 8 OVERALL ROADING LAYOUT
- SHEET 9 ROADING LAYOUT - GRAHAM'S ROAD TO JOHNSTONE STREET
- SHEET 10 ROADING LAYOUT - WILKINS ROAD TO ASHBURTON RIVER
- SHEET 11 ROADING LAYOUT - WILKINS ROAD TO ASHBURTON RIVER
- SHEET 12 ROADING LAYOUT - WILKINS ROAD TO ASHBURTON RIVER
- SHEET 13 ROADING LAYOUT - ASHBURTON RIVER TO SOUTH STREET
- SHEET 14 ROADING LAYOUT - ASHBURTON RIVER TO SOUTH STREET

Ashburton DISTRICT COUNCIL		OPUS Christchurch Office 42-1575 5481	
PROJECT NO: 6815/1152604		PROJECT NAME: ASHBURTON DISTRICT COUNCIL ASHBURTON 2ND URBAN BRIDGE NOTICE OF REQUIREMENT COVER SHEET	
SHEET NO: 0		TOTAL SHEETS: 14	
DRAWING NO: 6815/1152604		SCALE: NOT TO SCALE	

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Appendix D Selected Historical Aerial Imagery



Figure 1: 1940-1944 image- East part of project alignment



Figure 2: 1940-1944 image- West part of project alignment





Figure 3: 1955-1959 Image showing development along the north part of Chalmers Avenue



Figure 4: 1985-1989 image showing market gardens between Wilkin Street and Johnstone Street

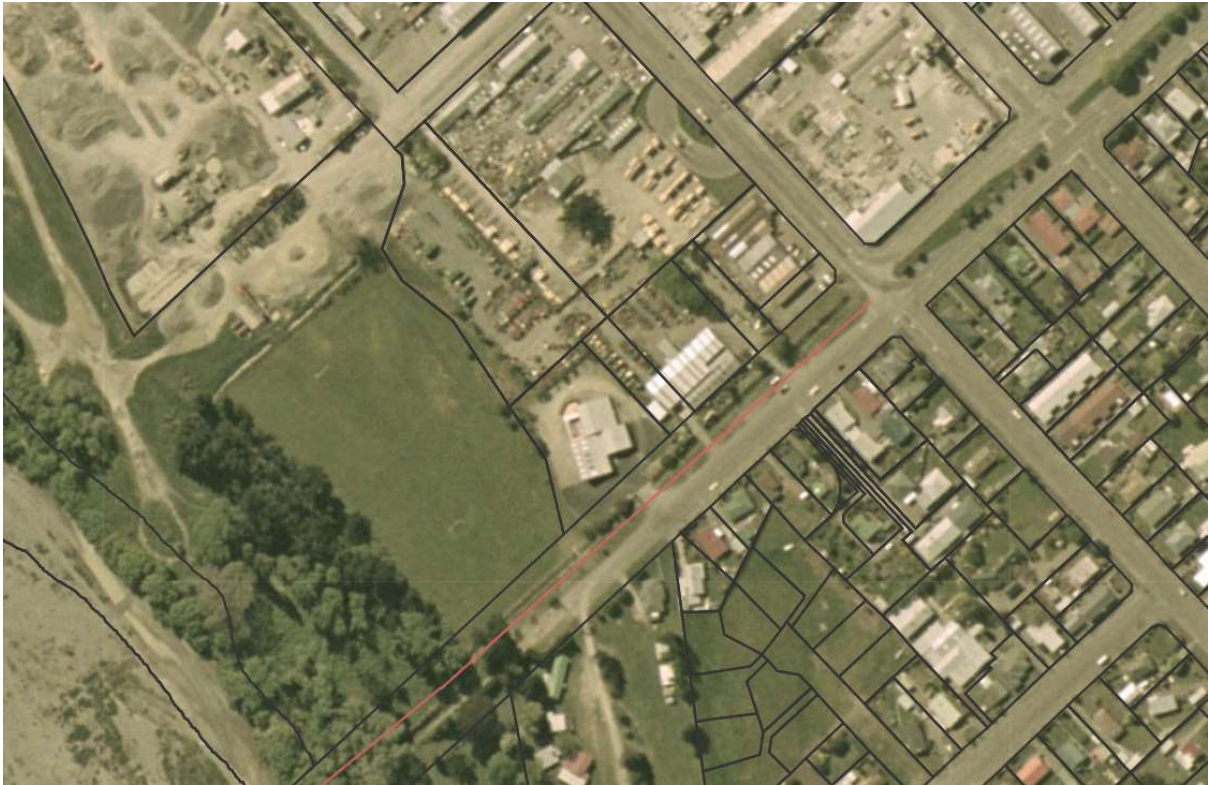


Figure 5: 2004-2010 image showing tractor dismantling yard and concrete manufacturing along Chalmers Avenue

Appendix E Site Visit Photographs



Figure 6: D&E tractor repair and sales. Note the bridge over the channel in foreground

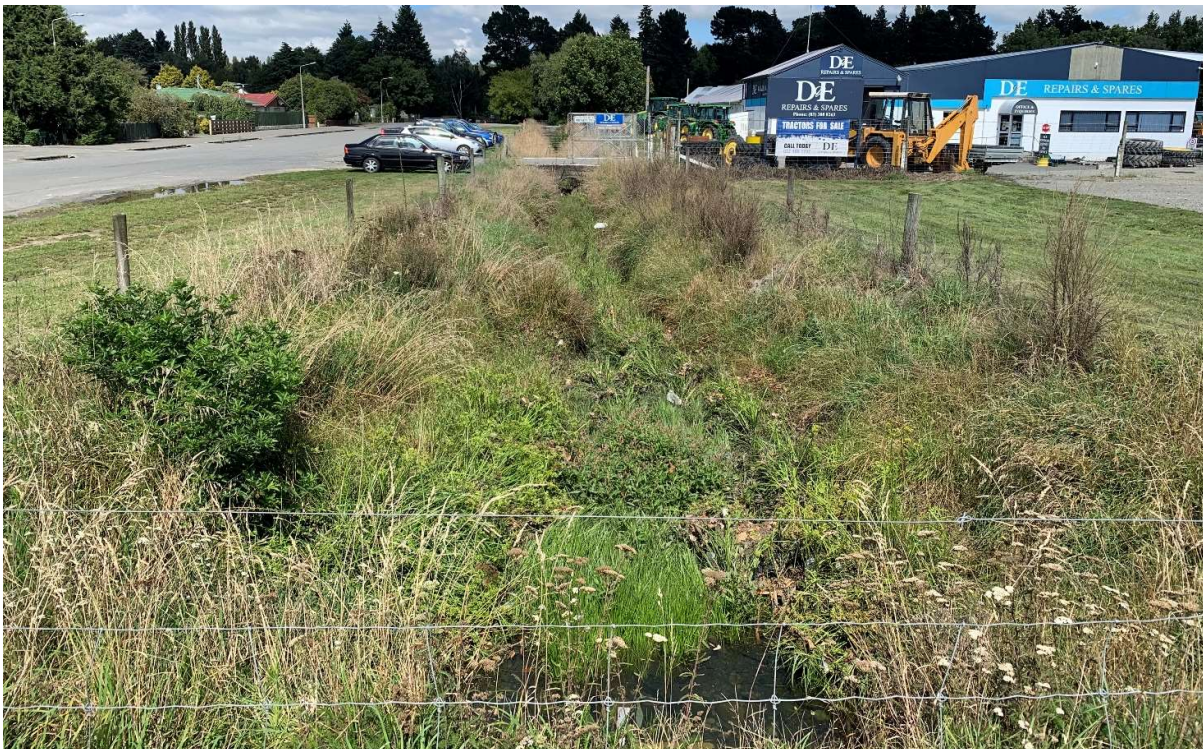


Figure 7: Channel running along north side of Chalmers Avenue



Figure 8: Service station at 146 South Street



Figure 9: 126 South Street showing the Blacklows facility

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