

Attachment C: Preliminary Site Assessment (NES-Contamination): Envisor



Enviser Ref: 1004 16 May 2017

Preliminary Site Investigation

Harley Chambers Development

Lee Pee Ltd

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Introduction

This Preliminary Site Investigation has been prepared for Lee Pee Ltd in accordance with our proposal dated 22 May 2017. The purpose of this PSI is to establish the potential for past, or current land uses of the sites that may have potential to contaminate the ground and comment on regulatory requirements related to contaminated land.

The scope of works included the following:

- Review of available historic information:
 - Historic aerial photographs
 - Christchurch City Council property files
 - Environment Canterbury Listed land use register (LLUR)
 - Client provided information
- Site walkover
- Preparation of this report

Note that due to the long occupation of the sites by the current buildings, a review of historic certificates of titles was not considered necessary for all sites.

Site location and description

The subject site comprises of three properties, two on Worcester Street and one on Cambridge Tce as described below in Table 1 and shown in Figure 1. The three sites comprise a contiguous block running from the Cambridge Tce/Worcester St corner westwards along Worcester St.

Table 1 - Properties comprising subject site

Address	Legal description	Area (m²)	Known as
65-67 Worcester St	Lot 1 DP 35444	885	York House
69 Worcester St	Lot 2 DP 6773	470	69 Worcester St
137 Cambridge Tce Part Lot 1 DP 6773		938	Harley Chambers
	(NB this lot has two certificates of		
	title)		

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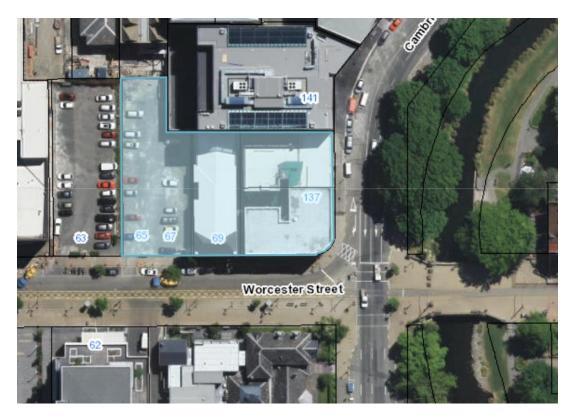


Figure 1 – Site location (site extents shaded)

The former York House (a multi-storey commercial building) located on 65-67 Worcester St was demolished post-earthquake and the site is currently used as a car park with a gravelled surface. Both 69 Worcester and 137 Cambridge Tce still have buildings on site, although both are currently unoccupied.



Photograph 1 – View of site, 65-67 Worcester St on the left, 69 Worcester St centre (brick building) and 137 Cambridge Tce to the right.

To the north of 65-67 Worcester St lies commercial buildings and to the west is a vacant lot and the Christchurch Art Gallery To the north of Harley Chambers and 69 Worcester is a recently constructed

commercial building. Commercial buildings lie opposite to the south of Worcester St, and to the east is the Avon River and associated parkland.

All sites are flat, or have a very slight grade to them. No apparent difference in ground elevation was apparent between the lots.

All sites are zoned Commercial Central City Business Zone in the City Plan.

2.1 Geological conditions

The site is underlain by quaternary deposits of grey river alluvium¹ with groundwater typically 4-6m below ground level. The site is within the coastal confined aquifer and groundwater flow is expected to be generally east to east-southeast with local near surface flows towards the Avon River directly to the east.

3 Description of proposed works

At this stage, the details of the proposed development have not been finalised. For the purposes of this report, it is assumed that the site will be developed into a similar land use to that which currently (or pre-earthquake) exists. This could include development with high site coverage, multistorey commercial (offices/retail) or visitor accommodation (i.e. hotel). Development may include retention of part, or all of existing structures.

4 Summary of site history

The following sections summarise the information found from the various historical sources.

4.1 Historical aerial photographs

The available online² historic aerial photographs were reviewed to ascertain information about the sites history and identify any features that may suggest a HAIL activity had occurred on site. A summary of the findings is presented in **Table 2a**, **b** and **c**. A copy of the aerial photographs are included in **Appendix A**.

Table 2 65-67 Worcester St (York House)

Aerial photograph	Comments
1940-1944 (earliest available)	The entire site is covered by a long building with an apparent gable
	roof. The building is narrower in the rear quarter of the site.
1945-1949	No change
1955-1959	No change
1965-1969	Possibly change to roofline of front section facing onto Worcester St.
	Appears flat with no gable. No other change
1970-1974	The former building has been demolished and a new 4-5 storey
	building (York House) has been constructed in the front half of the site.
	The year half looks to be unsealed and used for parking, possibly still
	being constructed.
1975-1979	Parking to the rear now appears finished, no other change.
1980-1984	No change

¹ Forsyth, P.J.; Barrell, D.J.A.; Jongens, R. (compilers) 2008: Geology of the Christchurch area: scale 1:250,000. Lower Hutt: GNS Science. Institute of Geological & Nuclear Sciences 1:250,000 geological map 16

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² Canterbury Maps online GIS (https://apps.canterburymaps.govt.nz/CanterburyHistoricAerialImagery/)

1990-1994 (next useable image)	No change
2000-2004	No change
2011 (post February 22)	No change

Table 2b 69 Worcester St

Aerial photograph	Comments
1940-1944 (earliest available)	Almost the entire site is covered by a long building, the roof line
	appears to be that of the current building on site, albeit shorter.
1945-1949	No change, roofline more evident.
1955-1959	No change
1965-1969	Building has been extended rearward to fill in formerly vacant portion
	of lot.
1970-1974	No change
1975-1979	No change
1980-1984	No change (roof painted)
1990-1994 (next useable image)	No change
2000-2004	No change
2011 (post February 22)	No change

Table 2 137 Cambridge Tce (Harley Chambers)

Aerial photograph	Comments
1940-1944 (earliest available)	The site is occupied by the current Harley Chambers Building
1945-1949	No change
1955-1959	No change
1965-1969	No change
1970-1974	No change
1975-1979	No change
1980-1984	No change (northern half of roof different colour)
1990-1994 (next useable image)	No change (roof now one colour)
2000-2004	No change
2011 (post February 22)	No change

4.2 City Council property files

The property files held by the Christchurch City Council were viewed on the 8 May 2018. Files held were a mix of paper and electronic formats. The information gleaned from those files is summarised below for each property.

4.2.1 65-67 Worcester Street

The earliest records available were from the mid 1950's and related to a permit to demolish the existing building. Following this was several applications to undertake internal alterations and then a building consent to erect a new 5 storey office building (1973). Subsequent to this, more applications were made for change in use (for retail), consents for internal alterations and one extension to the front of the building.

No information pertaining to the presence or operation of a HAIL activity or other potentially contaminating activity was contained in the property files.

4.2.2 69 Worcester St

A note within the file indicated the building was constructed in 1928 for the purposes of a school, with the extension to the rear added in the 1950's.

A certificate of title on the file indicated that Mr and Mrs Digby owned the property from 1928 and was subsequently passed to family members, then owned by a range of private individuals and companies.

Most of the records in the file related to internal alteration and fit-out. Within these applications and associated information, the following of information was of note:

- A 1995 Engineers report noted the brick chimney around the boiler flue was an earthquake hazard
- A license to carry out a scheduled activity was on file, this related to operation of a diesel fired hot water boiler with a capacity of 107 KWS. This was used for heating the building.
- No information was included about the size or location of the fuel supply tank, although it was noted that annual fuel consumption was 5,000L.
- A LIM on file noted that t underground tank was present on site, was slurry filled and (incorrectly) reported it was removed. Volume was stated at 1,180 L.

4.2.3 137 Cambridge Tce

The earliest records observed related to the erection of a small brick incinerator (approximately 1-1.5m high by 1-1.5m wide). Records included a plan of the incinerator and a note stating it was to connect to existing unused chimney.

Several other consents or permits were noted from 1967 to 2002, including those documented in a LIM on file. These related to internal additions/alterations and minor external alterations, such as a new egress stairway.

No records were viewed in relation to the tank that was observed to the rear of the site. Nor were any records viewed that suggested other potentially contaminating activities occurred on the site.

4.3 Environment Canterbury files

Environment Canterbury holds a GIS database of known and potentially contaminated sites in the region, this is known as the Listed Land Use Register (or LLUR). The LLUR is online, and was queried for all three of the subject sites. A summary of the information is as follows:

- 65-67 Worcester Street Not listed on the LLUR
- 69 Worcester St The site is listed on the LLUR as a HAIL activity has occurred on site. The activity is 'storage tanks or drums of fuel, chemicals or liquid waste' which is HAIL category A17. A copy of the LLUR listing is attached in **Appendix B**.
- 137 Cambridge Tce Not listed on the LLUR

5 Other information sources

Whilst a relatively long history of 69 Worcester St and 137 Cambridge Tce was available, little information was available for 65-67 Worcester St prior to the construction of York House in the 1950's. To establish this history, particularly the use of the previous large building on site, additional sources were reviewed for 65-67 Worcester St. These included:

Historical certificates of title

- Papers Past on-line digital records
- Christchurch City Council online historic records.

The original owner of the earliest readily available certificate of title (413/130) was a Mrs Ella Tench, wife of a William Tench, garage proprietor. Whilst the property did change hands prior to York House being constructed, no other relevant information was gleaned from the certificate of title.

Searches of the Christchurch City Council on-line library records for information related to garages and the name 'Tench' revealed that 'Tench Bros Motor Importers and Engineers' operated at 141 Cambridge Tce (telephone directory 1922³), clearly not the site but possibly a related business via ownership.

Searching for the street address in the Papers Past online records revealed adverts (in the Press) from the 1930's for 'Canterbury Motors' selling used cars from 65-67 Worcester St (see **Figure 2**). It was, and still is, typical for car sales operations to also undertake some car repair/mechanic services. However, no records were found to confirm this did occur on the subject site.



Figure 2 Press advert 15 February 1953 (www.paperspast.natlib.govt.nz)

5.1 Site Walkover

A site walkover was undertaken by an Environmental Engineer on the 1st June 2017. All points of the site were accessible aside from the interior of the Harley Chambers building. The following sections set out the findings of the site walkover.

5.1.1 65-67 Worcester Street

The site is currently vacant and is being used as a car park. The site is evenly graded and is surfaced with compacted gravel. No features on site indicated activities with a potential to cause ground contamination.

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³ http://christchurchcitylibraries.com/DigitalCollection/Publications/Directories/Telephone1922/PDF/389765-1922-056-072.pdf

5.1.2 69 Worcester St

The site is almost totally covered by a two storey brick building. A small electrical transformer is present on the western boundary towards the rear of the site. No obvious leaks or staining were visible.

A small boiler room exists approximately midway on the building on the eastern side. The boiler room is located below ground level and is accessed from an internal stairway. The floor of the boiler room was concrete, with some block overlay (**Photograph 2**).

An inspection of the boiler room, and discussions with a representative of the building owner⁴ revealed that the former diesel fired boiler has been removed and replaced (in 2010) with a gas fired system. The underground storage tank remains in place but has been slurry filled and all pipework removed⁵. No external fill point was visible, presumably also removed. The associated boiler has been removed, but the chimney structure remains in place, at least internally. No obvious odours or significant fuel staining was noted in the boiler room.

No other obvious features relevant to ground contamination were noted on site.



Photograph 2 Boiler room, 69 Worcester. Fuel tank remains under the concrete slab.

5.1.3 137 Cambridge Tce

The current Harley Chamber building covers most of the site, with a lane running on the eastern boundary to a vacant area at the rear. A small open area also exists in the centre of the site between the three wings of the building.

The access way is sealed (**Photograph 3**) and leads to a largely unsealed open area along the northern boundary, which has been used for informal storage. Items of note include a 3-4 drums previously used to store lubricants, various wooden and metal items and a tyres. A small brick

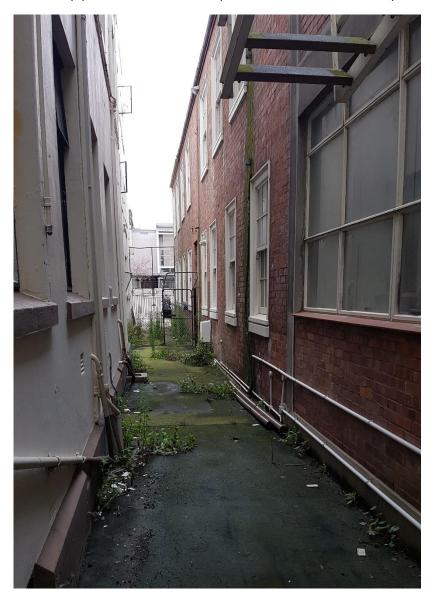
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⁴ Rosie Hobbs, Valour Properties

⁵ Petrotec, Producer Statement, 69 Worcester St, 30 March 2010.

structure is also present, which lines up with the description and drawings of the incinerator noted in the property files.

A large cylindrical steel tank, with attached pipework, is also located in this area (**Photograph 4**). Based on the size of the tank (approximately 10,000L) the condition of the exterior (unpainted) and attached pipework, this tank is suspected to have been formerly underground.



Photograph 3 – Looking south (towards Worcester St) form the lane between 69 Worcester St and 137 Cambridge Tce.



Photo 4 view looking east along vacant area at rear of 137 Cambridge Tce. Brick incinerator in right foreground, to the rear is the former underground storage tank.

The arrangement of the pipework and paint colour of the pipes indicate the tank was likely associated with the Harley Chambers site. More than likely within 5-10m of its current position. The condition of the tank suggests it was removed relatively recently, possibly a result of the construction of the building immediately to the north. The new building (constructed 2014/15) has a basement and is sheet piled right to the boundary, which is within 3-5m of the tank.

The tank has been rupture during removal (Photograph 5), otherwise it appears to be in good condition. Only a very small amount of liquid, likely water, exists within the tank. A slight diesel or fuel oil odour was noted in the immediate vicinity of the ruptures.



Photo 5- Close-up view of former underground tank

Client provided information

Several reports and photographs were provided by Rosie Hobbs, a representative of the building owner. These reports/photographs along with a summary of the relevant information is set out below:

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6.1 65-67 Worcester St

- Photographs and email regarding demolition of York House. The photographs showed the building during demolition and the site at completion of demolition. The email confirmed that below ground foundations from the earlier building (pre-York House) were also removed during the demolition.
- A letter report from PDP (dated 17 October 2013) set out asbestos validation sampling
 undertaken on the site. This was undertaken following a section of asbestos roof cladding
 (from a neighbouring building) being blown onto the site following a storm event. The
 asbestos was removed by Bricon Asbestos Removal Ltd whom engaged PDP to sample the
 soils to validate the removal and confirm the absence of asbestos on site.
- PDP sampled 5 locations in the area were the roofing material was deposited and subsequently removed. No asbestos was detected in any sample.

6.2 69 Worcester St

A report from International Construction Partners (ICP) dated 24 March 2016 documenting an internal asbestos investigation undertaken of the building. The report documenting the sampling locations and results of asbestos testing of 37 samples. Of the 37 samples, only one sample from the wall/ceiling cement board within the boiler room tested positive.

An ERMA approval to not remove an underground fuel tank was also provided. This confirmed the approval to leave the boiler fuel tank in place (as it was not practical to remove) if it was slurry filled, pipework was removed or slurry filled and the work undertaken by a competent person. Petrotec undertook the work and provided a Producer Statement to that effect.

6.3 137 Cambridge Tce

Documents setting out an internal asbestos investigation undertaken by Bricon Asbestos Removal Ltd. This showed the location of 11 samples collected by Bricon and tested by Dowdell Associates. Of the 11 samples, only 1 (Sample 3 level 2) detected asbestos. A single exterior paint sample was also collected and tested for Lead, results showed that lead was not present.

7 Potential for ground contamination

The purpose of this PSI was to establish if activities had occurred on the site(s) which have the potential to cause, or result in, contamination of the ground on site. Based on the review of available historic information and the site walkover the following conclusion are made:

7.1 65-67 Worcester St

There was no information that confirmed that any HAIL activities occurred on site. There is evidence that car sales occurred on site, presumably within the large building previously located on site. This may have included vehicle maintenance workshop, which is a HAIL activity (category F4).

The only other relevant activity on site was a piece (or pieces) of asbestos containing roofing material being blown on site from an adjacent building during a storm. This alone does not constitute a HAIL activity, particularly since it was removed and validated to have had no impact.

As there is a possibility that a potentially contaminating activity has occurred on site (vehicle workshop)it shouldbe considered a HAIL site for the purposes of the NES(soil) regulations. However, the nature of the HAIL activity combined with the extensive site works involved with

demolition/construction of two successive buildings on site, mean the risk of significant contamination being present is low.

7.2 69 Worcester St

Two HAIL activities have occurred on the site, the first an underground storage tank (HAIL category A17) for the boiler. This tank is both small in volume and is located beneath the building footprint. There are no readily available records of the tank leaking or any related spills.

The second HAIL activity is the presence of an electrical transformer on site, however no evidence of leaks or spills were noted. Electrical transformers are considered a HAIL activity (category B2).

The areas of the site occupied by the tank and thee electrical transformer can be considered to have had a HAIL activity on it.

No evidence exists of any other HAIL activities occurring on site. Therefore, for the purposes of the NES(soil) regulations, no other area of the site should be considered potentially contaminated.

7.3 137 Cambridge Tce

Whilst no records exist of an underground storage tank on the site, one is currently present (above ground) at the rear of the site and was viewed during the site walkover. The associated pipework suggests that this tank was formerly located on, or directly adjacent to the site. Several drums (lubricants) were also stored at the rea of the site.

Both these activities mean that a HAIL activity (category A17 – storage tanks or drums for fuel etc) has occurred on the rear portion of the site. No records of any other HAIL activity having occurred elsewhere on the site have been found. Consequently, the rear portion of the site under and around the tank and drums is considered a HAIL site. The remainder of the site, for the purposes of the NES(soil) regulations, should not be considered potentially contaminated.

8 Conceptual model

Based on the likely land use scenarios for the site, users or occupiers of the final land use could not come into direct contact with site soils or groundwater. Therefore, the only possible pathway for exposure to contaminants on site, if they were to exist, would be via inhalation of volatiles emanating from the ground. Based on the nature and period of occurrence of the HAIL activities, there is a low risk of significant concentrations of volatile contaminants being present on site.

During site development, the soils will be exposed and groundwater may be encountered. This has the potential to create exposure pathways for on-site workers (dermal contact, inhalation and ingestion) and occupiers/users of surrounding sites including public passing by the site. Noting that a source (i.e. contaminated soils or groundwater) must be present for these pathways to create a risk.

9 Regulatory implications

The NES (Soil)⁶ requires that consent be gained for certain activities related to the use and development of potentially contaminated (or contaminated) sites. This regulation applies if a HAIL activity has occurred on the site and the proposed activity does not meet the permitted activity

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⁶ National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health, MfE, 2011.

standards. Importantly this only applies to the area of site (known as the 'piece of land') that is contaminated or has had the HAIL activity on it.

For the subject site, this would only apply to (see **Figure 3**):

- 69 Worcester St location and immediate surrounds of the boiler tank and transformer
- 137 Cambridge Tce location and surrounds of the tank
- 65-67 Worcester St entire site

The regulations should not apply to other areas of these sites, unless new information comes to light or contamination is discovered during future works.



Figure 3 – Areas of site with HAIL activity ('pieces of land')

10Applicability

Enviser Ltd has prepared this report for Lee Pee Ltd in accordance with the agreed scope. No other party may rely on this report, or any conclusions or opinions within it, for any purpose without the express written permission of Enviser Ltd.

The opinions and conclusions within this report are based on the information that was viewed during preparation of the report.

We also confirm that the undersigned, Jared Pettersson, is a suitably qualified and experienced professional (SQEP).

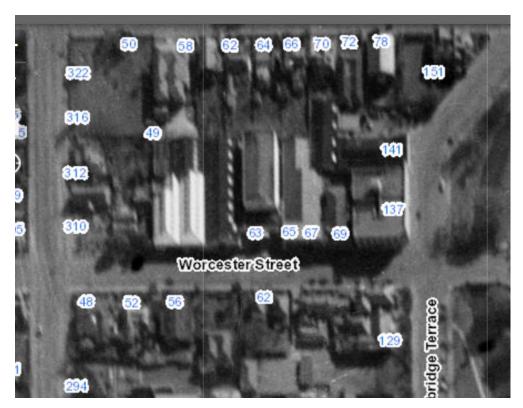
Authorised for Enviser Ltd by:

Jared Pettersson

Environmental Engineer

CPEng, MIPENZ, IntPE

Appendix A Historic Aerial photographs

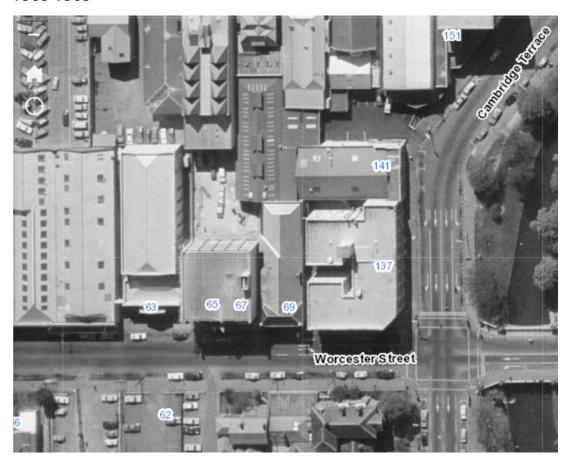


1945-1949

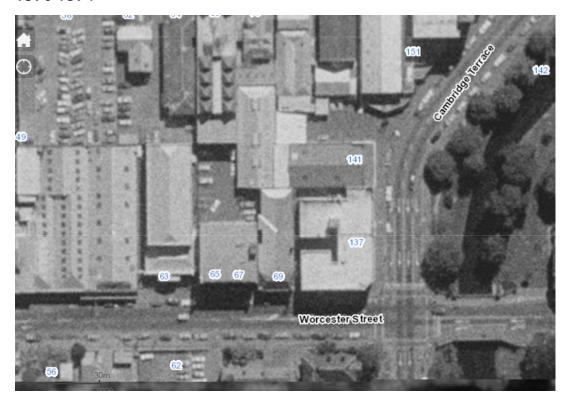


1955-1959





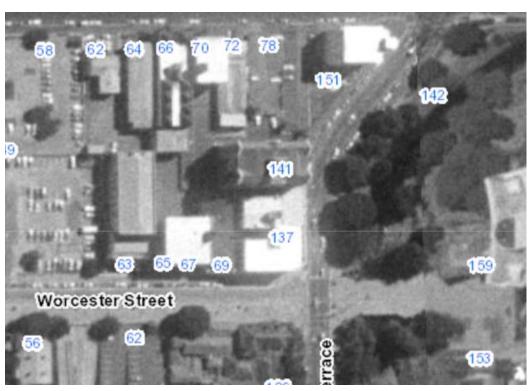
1970-1974

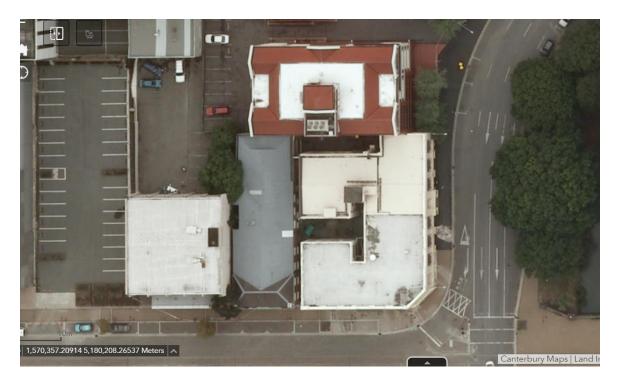






1990-1994 (next useable image)





2011 (post February 22)

Appendix B - Ecan LLUR record

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Customer Services
P. 03 353 9007 or 0800 324 636

PO Box 345 Christchurch 8140

P. 03 365 3828 F. 03 365 3194 E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Dear Sir/Madam

Thank you for submitting your property enquiry in regards to our Listed Land Use Register (LLUR) which holds information about sites that have been used, or are currently used for activities which have the potential to have caused contamination.

The LLUR statement provided indicates the location of the land parcel(s) you enquired about and provides information regarding any LLUR sites within a radius specified in the statement of this land.

Please note that if a property is not currently entered on the LLUR, it does not mean that an activity with the potential to cause contamination has never occurred, or is not currently occurring there. The LLUR is not complete, and new sites are regularly being added as we receive information and conduct our own investigations into current and historic land uses.

The LLUR only contains information held by Environment Canterbury in relation to contaminated or potentially contaminated land; other information relevant to potential contamination may be held in other files (for example consent and enforcement files).

If your enquiry relates to a farm property, please note that many current and past activities undertaken on farms may not be listed on the LLUR. Activities such as the storage, formulation and disposal of pesticides, offal pits, foot rot troughs, animal dips and underground or above ground fuel tanks have the potential to cause contamination.

Please contact and Environment Canterbury Contaminated Sites Officer if you wish to discuss the contents of the LLUR statement, or if you require additional information. For any other information regarding this land please contact Environment Canterbury Customer Services.

Yours sincerely

Contaminated Sites Team

Property Statement from the Listed Land Use Register

Visit www.ecan.govt.nz/HAIL for more information about land uses.



Customer Services P. 03 353 9007 or 0800 324 636

PO Box 345 Christchurch 8140

P. 03 365 3828 F. 03 365 3194

E. ecinfo@ecan.govt.nz

www.ecan.govt.nz

Date: 14 June 2017

 Land Parcels:
 Lot 2 DP 6773
 Valuation No(s): 2268060800

 Part Lot 2 DP 9096
 Valuation No(s): 2268060800



The information presented in this map is specific to the property you have selected. Information on nearby properties may not be shown on this map, even if the property is visible.

Summary of sites:

Site ID	Site Name	Location	HAIL Activity(s)	Category
8519	Worcester Chambers	69 Worcester Street, Christchurch	A17 - Storage tanks or drums for fuel, chemicals or liquid waste;	Not Investigated

Please note that the above table represents a summary of sites and HAILs intersecting the area of enquiry only.

Information held about the sites on the Listed Land Use Register

Site 8519: Worcester Chambers (Intersects enquiry area.)

Site Address: 69 Worcester Street, Christchurch

Legal Description(s):

Lot 2 DP 6773

Site Category:

Not Investigated

Definition:

Verified HAIL has not been investigated.

Land	lises i	from	HAII \	۱٠

Period From	Period To	HAIL land use
?	Present	Storage tanks or drums for fuel, chemicals or liquid waste

Notes:

7 Jul 2011

1993: One 1180 L UST, 3(c) product. This information was confirmed correct on 2/6/99.

13 Jun 2017

Petrotec Services Ltd slurry filled the boiler feed tank located in the boiler room floor. Associated pipe work and fittings were

removed. 22/06/2010.

Investigations:

There are no investigations associated with this site.

Information held about other investigations on the Listed Land Use Register

For further information from Environment Canterbury, contact Customer Services and refer to enquiry number ENQ167466.

Disclaimer:

The enclosed information is derived from Environment Canterbury's Listed Land Use Register and is made available to you under the Local Government Official Information and Meetings Act 1987 and Environment Canterbury's Contaminated Land Information Management Strategy (ECan 2009).

The information contained in this report reflects the current records held by Environment Canterbury regarding the activities undertaken on the site, its possible contamination and based on that information, the categorisation of the site. Environment Canterbury has not verified the accuracy or completeness of this information. It is released only as a copy of Environment Canterbury's records and is not intended to provide a full, complete or totally accurate assessment of the site. It is provided on the basis that Environment Canterbury makes no warranty or representation regarding the reliability, accuracy or completeness of the information provided or the level of contamination (if any) at the relevant site or that the site is suitable or otherwise for any particular purpose. Environment Canterbury accepts no responsibility for any loss, cost, damage or expense any person may incur as a result of the use, reference to or reliance on the information contained in this report.

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